Resoures for Outreach Activities

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Abstract

This is a list of resources for my outreach activities, which includes helping people explore careers in science, technology, engineering, and mathematics (STEM). It also includes resources to help parents and teachers of youths prepare youths for college; in addition, it has a list of scholarship resources. Furthermore, it has a list of resources that I use to help me with academic writing. Moreover, it also has resources to help people learn about various markets through publications based on market surveys of industries, such as semiconductors, biotechnology, and green technology. Finally, it has a list of resources to help people learn material from K-12 through advanced topics for graduate students.

Contents

`This is last updated on September 8, 2010.`

1 Heuristic for Locating Outreach Resources

FIND(φ, τ) is a heuristic for locating resources for outreach activities, which includes finding information about the following:

1. awards
2. career resources (including material for career guidance)
3. competitions and contests
4. educational material (e.g., suggested activities and curricular) for specific areas, such as marine sciences and electrical/computer engineering
5. fellowships
6. internships
7. scholarships

8. summer camps
9. summer programs (or summer schools); here, summer schools refer to short educational programs that last from days (e.g., a weekend for the ACM SIGDA Design Automation Summer School) to about a month (e.g., Santa Fe Institute's Complex Systems Summer Schools)

Its input τ is the deadline by which this search process must terminate. For example, if I have to apply for internships by next week, I would use the date of a week from now as the deadline τ. In line 2, an example of a professional organization is the Institute of Electrical and Electronics Engineers (IEEE). The term "good" that is used in line 7 is an arbitrary measure of quality determined by the reader/user.

A reading group (in line 16) is a small group of (graduate) students, which may possibly include professors and postdocs, that meet regularly (e.g., once/twice a week) to discuss papers that they have read since the previous meeting/discussion. Each individual in the reading group can be assigned a paper to read and present at the next meeting. The aim of a reading group is to improve the coverage of papers in our research area that each member has read. This is important for interdisciplinary research, since grad students working in interdisciplinary research areas have so much ground to cover.

Line 12 uses the term "athletics department" to refer to an administrative department at an American college or university that is in charge of managing varsity/NCAA sports teams. An example of a profession-specific networking organization (line 25) is DVClub. In line 26, a domain-specific web page is *SAT Live!*. An example of a corporate research laboratory (line 27) is "Cadence Research Laboratories" (`http://www.cadence.com/cadence/cadence_labs/pages/default.aspx`), and an example of a research institute (line 28) is Santa Fe Institute.

```
FIND(φ, τ)
    // Input φ = Item to find out about
    // Input τ = Deadline for the search process
    // Output κ = List of resources about φ

 1  while ( [ resources about φ are inadequate ] AND [ τ has not yet passed ] )
 2      Find out the professional organizations for the field of φ
 3      for each professional organization in the field
 4          Check if it has information about φ in its web pages, publications, or mailing list archive
 5          if (it has information about φ)
 6              Add that information to κ

 7      for each good (college OR university)
 8          if (φ == summer programs )
 9              Search for summer programs in the web pages of departments & schools/colleges
10          elseif (φ == summer camps )
11              Search for summer camps in the web pages of departments & schools/colleges
12              Search for summer camps in the web pages of administrative/athletics departments
13          else
14              Search for φ in the web pages of the department(s), including its news section/archive
15              Search for φ in the web pages of professors, postdoctoral researchers, & students
16              Search for φ in the web pages of reading groups
17              Search for φ in the web pages of student organizations
18              Search for φ in the mailing list archive of classes & the department
19              Search for φ in the mailing list archive of research groups/labs and projects
20              Search for φ in the mailing list archive of reading groups
21              Search for φ in the mailing list archive of student organizations

22          if (it has information about φ)
23              Add that information to κ

24      Search for φ in the mailing list archive of open-source projects
25      Search for φ in the mailing list archive of profession-specific networking organizations
26      Search for φ in the web pages of domain-specific web pages
27      Search for φ in the web pages of research scientists in corporate research labs
28      Search for φ in the web pages of research scientists in research institutes
29      if ( [ mailing list archive OR web page ] has information about φ)
30          Add that information to κ
31  return κ
```

2 General Outreach Resources

General outreach resources:

1. volunteering opportunities:

(a) Engineers Without Borders: http://www.ewb-international.org/
(b) Australian Volunteers International: http://www.australianvolunteers.com/
(c) Youth Challenge Australia: http://www.youthchallenge.com.au/
(d) Go Volunteer: http://www.govolunteer.com.au/
(e) Volunteer Search: http://www.volunteersearch.gov.au/
(f) Conservation Volunteers: http://www.conservationvolunteers.com.au/volunteer
(g) Volunteering Australia: http://www.volunteeringaustralia.org/html/s01_home/home.asp
(h) Sponsors for Educational Opportunity (SEO):
    i. Philanthropy & Volunteerism Resources, http://www.seo-usa.org/AlumniResources
    ii. Volunteer Leadership Opportunities: http://www.seo-usa.org/Alumni_Volunteer
(i) :

2. public health and preventive medicine:
   (a) U.S. Department of Health & Human Services:
       i. Agency for Healthcare Research and Quality (AHRQ):
          A. Prevention & Care Management: Resources and Materials, http://www.ahrq.gov/clinic/ppipix.htm

3. career resources:
   (a) CRAC: The Career Development Organisation:
       i. *icould*:
          A. http://icould.com/about/
          B. Resource for students, people who are commencing their careers or are making changes in their careers, career counselors, parents, educators, human resource staff, and employers.
          C. icould, *Stories by Life Theme*, in icould: Watch Career Stories. Available online at: http://icould.com/watch-career-stories/by-life-theme/; last accessed on December 25, 2010. [Has articles briefly describing how people pursued their career goals or their career paths as they went through different experiences in life. This includes people who "blossomed after school," changed careers or became entrepreneurs, had no plans, took risks, encountered turning points, faced adversity, have disabilities, went through financial hardship, or got laid off. It also has stories of people who volunteered, took a gap year, or pursued internships.]
          D. icould, *Stories by Job Type*, in icould: Watch Career Stories. Available online at: http://icould.com/watch-career-stories/by-job-type/; last accessed on December 25, 2010. [Includes stories of people in automotive retail, customer services, engineering, education, and many other job types.]
   (b) Jobs for the Future:
       i. http://www.jff.org/
       ii. Current Projects: http://www.jff.org/projects/current
       iii. Publications: http://www.jff.org/publications
       iv. Policy: http://www.jff.org/policy
       v. Funders (funding agencies/organizations): http://www.jff.org/funders
       vi. Programs: http://www.jff.org/index.php?select=work
   (c) SkillsUSA:

i. "SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled work force. SkillsUSA helps each student excel."
ii. Educators:
A. http://www.skillsusa.org/educators/index.shtml
B. Programs and Curricula: http://www.skillsusa.org/educators/programs.shtml
iii. Students:
A. http://www.skillsusa.org/students/index.shtml
B. Scholarships & Financial Aid–SkillsUSA-related Scholarships: http://www.skillsusa.org/students/scholarships.shtml
iv. SkillsUSA competitions: http://www.skillsusa.org/compete/index.shtml

(d) others:
i. public speaking and leadership:
A. *Toastmasters International* is a non-profit educational organization that teaches public speaking and leadership skills through a worldwide network of meeting locations. Available online at: http://www.toastmasters.org/; last accessed on January 7, 2010.

3 Youth Outreach

Resources for youth outreach:

1. educational (computer) games:
(a) Chevron Corporation:
i. Energyville (about issues concerning energy and the environment): http://www.willyoujoinus.com/energyville/
(b) *Lego Digital Designer (LDD)*:
i. CAD software for building Lego toys on Windows and Mac OS X platforms
ii. Free software, as in free beer
iii. http://designbyme.lego.com/en-us/Default.aspx and http://ldd.lego.com/
(c) Robocode:
i. http://en.wikipedia.org/wiki/Robocode and http://robocode.sourceforge.net/
ii. Learn how to develop computer programs that will control a robot
(d) *Skill-Life*:
i. http://skill-life.com/
ii. Use online games to teach youth life skills concerning financial literacy, nutrition, and citizenship.
(e) PowerUp (IBM with TryScience/New York Hall of Science):
i. http://www.poweruptheGame.org/
ii. Computer game to teach youths about energy conservation, global warming, renewable energy, and sustainable engineering
(f) EnergyNet:
i. http://www.energynet.net/games/

ii. Computer game to teach youths about energy efficiency, and other topics related to energy

2. summer camps:
   (a) United States Naval Academy:
      i. Naval Academy Athletic Association:
         A. Sports camps: http://www.navysports.com/camps/navy-camps.html
3. competitions for youths:
   (a) International Geography Olympiad (for high school students): http://www.geoolympiad.org/
   (b) International Linguistic Olympiad (for high school students): http://en.wikipedia.org/wiki/International_Linguistics_Olympiad
   (c) International Philosophy Olympiad (for high school students): http://www.philosophy-olympiad.org/
   (d) JA Worldwide: Responsible People Business Competition (for students in North and South America, and Europe), http://www.responsible-business.org/
   (e) The Choral Arts Society of Washington:
      i. http://www.choralarts.org/MLK-Celebration-Community-Initiative/Writing-Competition.aspx
      ii. "As part of our MLK Celebration Community Initiative and in celebration of Black History Month, The Choral Arts Society of Washington hosts an annual writing competition for students in grades K-12."
      iii. "Each year, students are presented with a different writing prompt and are asked to respond in poetic form."
      iv. "Students are encouraged to be creative in their writing and to use their knowledge of Martin Luther King, Jr.'s life, the Civil Rights Movement, and current events as inspiration for their writing."
   (f) Vocal Arts DC (or Vocal Arts Society):
      i. Young Artists Competition:
         A. http://vocalartsdc.org/youngartists.shtml
         B. "Each year, Vocal Arts DC holds a vocal competition open to all singers who are residents of the greater DC area, including Baltimore and Annapolis."
         C. "Singers are asked to submit a CD for review along with a sample recital program that the singer is prepared to sing in recital. The CDs will be reviewed in a blind audition and finalist will be selected for live auditions."
         D. "Two winners are selected from the finalists and are presented in the Art Song Discovery Series in four different venues across the greater DC area."
   (g) The John F. Kennedy Center for the Performing Arts:
      i. The National Symphony Orchestra (NSO):
         A. Young Soloists' Competition (High School Division; Washington metropolitan area): http://www.kennedy-center.org/nso/nsoed/youngsoloists.cfm#concerts
   (h) Center for Interactive Learning and Collaboration (CILC):
      i. Kids Creating Community Content KC^3 International Contest (for students in Middle and High School):

A. http://kc3.cilc.org/ and http://kc3.cilc.org/guidelines.htm
B. Make a short film to educate others about the uniqueness of your community, geographical region, natural/agricultural resources, local/national treasures, culture/heritage, or country.

4. educational resources:
   - Xcel Energy Foundation:
     (a) Focus Area Grants:
       i. http://www.xcelenergy.com/Minnesota/Company/Community/Xcel%20Energy%20Foundation/Pages/Focus_Area_Grants.aspx
       ii. Scope of eligible funding, and details on the grant application process
     (b) Education Initiatives:
       i. http://www.xcelenergy.com/Minnesota/Company/Community/Education%20Initiatives/Pages/Education_Initiatives.aspx
       ii. Energy Safety Calendar Program, K-6:
         – http://www.xcelenergy.com/New%20Mexico/Company/Community/Education%20Initiatives/Pages/Energy_Safety_Calendar_ProgramK-6.aspx
         – "The Energy Safety Calendar Program offers K-6 students in our service territory a great opportunity to learn about electricity and natural gas safety."
     (c) Safety World:
       i. http://www.xcelenergy.com/New%20Mexico/Company/Community/Education%20Initiatives/Pages/Safety_World.aspx
       ii. e-SMART kid:
         – http://www.e-smartonline.net/xcelenergy/
         – Help children and youth learn about "electricity and natural gas and how to use them safely"
     (d) Energy Classroom:
       i. http://www.energyclassroom.com/
       ii. http://www.xcelenergy.com/Minnesota/Company/Community/Pages/Energy_Classroom.aspx
       iii. Educational material for students about energy sources, energy conservation, and environmental protection
       iv. For Teachers (educational material and suggested class activities): http://www.energyclassroom.com/index.php?id=34&page=For_Teachers
     (e) Power Plant Tour Information: http://www.xcelenergy.com/New%20Mexico/Company/About_Energy_and_Rates/Power%20Generation/Pages/Power_Plant_Tour_Information.aspx
   - HowStuffWorks, Inc.: http://www.howstuffworks.com/
   - Chevron Corporation:
     (a) *Will you join us*:
       i. Energy issues: http://www.willyoujoinus.com/energyissues/
       ii. Tools and resources:
         – http://www.willyoujoinus.com/toolsresources/
         – Helpful links (includes K-12 educational material): http://www.willyoujoinus.com/toolsresources/helpfullinks/
       iii. MPG Optimizer: http://www.willyoujoinus.com/usingenergywisely/mpgoptimizer/

iv. Energy generator: http://www.willyoujoinus.com/usingenergywisely/energygenerator/

- National Energy Foundation:
  (a) http://www.nef.org.uk/ and http://www.nef1.org/
  (b) Students: http://www.nef1.org/students.html
  (c) Educators: http://www.nef1.org/educators.html
  (d) Schools:
    i. http://www.nef.org.uk/communities/schools/index.html
    ii. Helpful links: http://www.nef.org.uk/communities/schools/energylinks.html
    iii. School Resources: http://www.nef.org.uk/communities/schools/resources/index.html
    iv. *LogiCity* is a fun interactive computer game with a difference. It's a game set in a 3D virtual city with five main activities where you are set the task of reducing the carbon footprint of an average resident. See http://www.nef.org.uk/communities/schools/logicity.html.
  (e) Resources: http://www.nef.org.uk/actonCO2/index.asp
  (f) Igniting Creative Energy - A National Student Challenge:
    i. http://www.ignitingcreativeenergy.org/
    ii. Students: http://www.ignitingcreativeenergy.org/students.html
- StartSpot Mediaworks:
  (a) StartSpot Network:
    i. HomeworkSpot:
      – http://www.homeworkspot.com/
      – Science Fair Project Center: http://www.homeworkspot.com/sciencefair/
- Super Science Fair Projects: http://www.super-science-fair-projects.com/
- All Science Fair Projects: Science Fair Projects with Complete Instructions, http://www.all-science-fair-projects.com/
- The Science Club:
  (a) http://scienceclub.org/
  (b) Science Fair Idea Exchange: http://scienceclub.org/scifair.html
- Oracle Education Foundation:
  (a) http://www.oraclefoundation.org/
  (b) ThinkQuest:
    i. http://www.thinkquest.org/en/
    ii. ThinkQuest International Competition: http://www.thinkquest.org/competition/
    iii. Projects: http://thinkquest.org/en/projects/index.html
    iv. Library: http://thinkquest.org/pls/html/think.library
    v. Example of a computer game developed by students: Crisis! - The Game, http://library.thinkquest.org/20331/game/
- University of Minnesota:
  (a) Institute on Community Integration; College of Education and Human Development:
    i. National Center on Secondary Education and Transition (NCSET):
      – http://www.ncset.org/
      – NCSET Topics: http://www.ncset.org/topics/default.asp

  - Web Sites: http://www.ncset.org/websites/default.asp
  - The Youthhood!: http://www.youthhood.org/

- Jobs for America's Graduates:
  (a) http://www.jag.org/
  (b) JAG Model program applications:
    i. http://www.jag.org/model.htm
    ii. Programs are available for students in middle school and high school, high school dropouts, high school seniors, students in alternative education programs, and college underclassmen
  (c) JAG Career Corner: http://www.jag.org/jag_career_corner.htm
  (d) Students: http://www.jag.org/students.htm
  (e) Resource library: http://www.jag.org/library.htm
  (f) Performance outcomes: http://www.jag.org/outcomes.htm
  (g) Funding: http://www.jag.org/funding.htm
- Alliance to Save Energy:
  (a) Energy Hog campaign:
    i. http://www.energyhog.org/
    ii. Adults: http://www.energyhog.org/adult/adults.htm
    iii. Children: http://www.energyhog.org/childrens.htm
- Learning First Alliance:
  (a) http://www.learningfirst.org/
  (b) Issues and publications: http://www.learningfirst.org/issues
  (c) Resources: http://www.learningfirst.org/resources
- NaMaYa: http://www.namaya.com/
- NIXTY: http://nixty.com/
- K12 Open Ed: http://www.k12opened.com/wiki/index.php/Main_Page
- Learning Is For Everyone: http://www.learningis4everyone.org/
- The Smithsonian Commons Prototype: http://www.si.edu/commons/prototype/
- Futurelab: Resources for educators and parents, http://www.futurelab.org.uk/resources
- Innosight Institute: Resources for education, http://www.innosightinstitute.org/practices/education/
- WGBH Educational Foundation: http://www.wgbh.org/
- Discovery Education:
  (a) Classroom resources: http://school.discoveryeducation.com/
  (b) Home resources: http://school.discoveryeducation.com/homeworkhelp/homework_help_home.html
- The Gilder Lehrman Institute of American History:
  (a) http://www.gilderlehrman.org/
  (b) Resources for teachers and schools: http://www.gilderlehrman.org/teachers/
  (c) Civil War Essay Contest (for students in selected K-12 schools): http://www.gilderlehrman.org/affiliate/civil_war.php
- The GRAMMY Museum:
  (a) Teacher curriculum and resources. Available online at: http://www.grammymuseum.org/interior.php?section=education&page=teachercurriculum; last accessed on November 15, 2010.

- Purdue University:
  (a) Department of Entomology:
    i. Genomics Analogy Model for Educators (G.A.M.E.): http://www.entm.purdue.edu/extensiongenomics/GAME/default.html
- Verizon Thinkfinity: http://www.thinkfinity.org/about-us
- Oregon Virtual School District (ORVSD):
  (a) http://orvsd.org/
  (b) "Oregon Virtual School District (ORVSD) helps integrate technology into Oregon public school classrooms by giving teachers access to free tech tools and resources online."
  (c) "The Oregon Virtual School District is a program led by the Oregon Department of Education that, in cooperation with a consortium of virtual learning providers throughout the state, seeks to increase access and availability of online learning and teaching resources free of charge to public school teachers of Oregon. Oregon State University is providing hosting and development resources through a partnership with the OSU Open Source Lab and the OSU Business Solutions Group."
- The Association of Educational Publishers (AEP):
  (a) The AEP Awards:
    i. http://www.aepweb.org/awards/index.htm
    ii. Look at the winners of previous AEP awards to determine some of the good educational resources that are available
- Educational Dividends:
  (a) http://www.educationaldividends.com/
  (b) Teachers:
    i. http://www.educationaldividends.com/index.asp?menu=Teachers
    ii. Teaching Tools: http://www.educationaldividends.com/teachers/tools.asp
    iii. Reference Desk:
      – http://www.educationaldividends.com/teachers/reference.asp
      – Standards Reference Desk (resources for education standards in the US at the national, state, and local levels): http://www.educationaldividends.com/teachers/standards_desk.asp
      – How We Learn: Learning Styles, http://www.educationaldividends.com/teachers/learning_styles.asp
      – How We Learn: Multiple Intelligences, http://www.educationaldividends.com/teachers/multiple_intelligences.asp
      – Statistics Desk (statistical information about education in the US): http://www.educationaldividends.com/teachers/statistics_desk.asp
    iv. Information about the teaching profession:
      – http://www.educationaldividends.com/teachers/welcome.asp
      – Office of Occupational Statistics and Employment Projections, "Educational Services," in *Career Guide to Industries*, 2010-11 Edition, U.S. Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC, December 17, 2009. Available online at: http://stats.bls.gov/oco/cg/cgs034.htm; last accessed on December 8, 2010. [Suggested citation:

Bureau of Labor Statistics, U.S. Department of Labor, *Career Guide to Industries, 2010-11 Edition*, Educational Services , on the Internet at http://www.bls.gov/oco/cg/cgs034.htm (visited December 07, 2010).]

- Experience Teaching: http://www.educationaldividends.com/teachers/experience.asp
- Continuous Improvement: http://www.educationaldividends.com/teachers/toolkit.asp

(c) Personality and Career Tests: http://www.educationaldividends.com/teachers/tests.asp

- Smithsonian Institution:
  (a) Educators: http://www.si.edu/Educators
  (b) Smithsonian Institution Traveling Exhibition Service (SITES):
    i. For Teachers: http://www.sites.si.edu/education/teachers_res2.htm
  (c) Smithsonian Folkways Recordings (or simply, Smithsonian Folkways):
    i. Tools for Teaching: http://www.folkways.si.edu/tools_for_teaching/introduction.aspx
  (d) Freer Gallery of Art / Arthur M. Sackler Gallery:
    i. Resources for Educators: http://www.asia.si.edu/explore/teacherResources.asp
    ii. Explore + Learn: Browse Online Resources by Area:
      - http://www.asia.si.edu/explore/default.asp
      - Has resources for art in:
        * The Americas
        * Ancient Egypt
        * Ancient Near East
        * Islamic world
        * China
        * Japan
        * Korea
        * South Asia
        * Himalayas
        * Southeast Asian
        * It also has biblical manuscripts and contemporary art
    iii. Online Exhibition Features: http://www.asia.si.edu/exhibitions/online.asp
    iv. Collections: http://www.asia.si.edu/collections/default.asp
  (e) National Museum of American History:
    i. Jerome and Dorothy Lemelson Center for the Study of Invention and Innovation:
      - Resources:
        * http://invention.smithsonian.org/resources/
        * http://invention.smithsonian.org/resources/default_sites_weblinks.aspx
        * Invention stories - archives, articles, audio, and video: http://invention.smithsonian.org/resources/default_index.aspx

- Educational Materials:
  - http://invention.smithsonian.org/resources/menu_edu_materials.aspx
  - Experiments: http://invention.smithsonian.org/resources/menu_edu_materials.aspx?MaterialTypeID=3&MaterialTypeDesc=Experiments
  - Educational Materials: http://invention.smithsonian.org/resources/menu_edu_materials_f.aspx?MaterialTypeDesc=Features
- Centerpieces:
  - http://invention.smithsonian.org/centerpieces/
  - http://invention.smithsonian.org/centerpieces/iap-info.aspx
  - Electric guitar: http://invention.smithsonian.org/centerpieces/electricguitar/index.htm
  - Innovative Lives: http://invention.smithsonian.org/centerpieces/ilives/
  - "Exploring the History of Women Inventors" by J.E. Bedi (in *Innovative Lives*): http://invention.smithsonian.org/centerpieces/ilives/womeninventors.html
  - Whole Cloth: http://invention.smithsonian.org/centerpieces/whole_cloth/index.html
  - The Quartz Watch: http://invention.smithsonian.org/centerpieces/quartz/index.html
  - Edison Invents!: All about Thomas Edison and his invention, http://invention.smithsonian.org/centerpieces/edison/default.asp
- Modern Inventors Documentation Program (MIND): http://invention.smithsonian.org/resources/mind_resources.aspx
- Invention at Play:
  - http://inventionatplay.org/
  - Resources: http://inventionatplay.org/resources.html
  - Invention Playhouse: http://inventionatplay.org/playhouse_main.html
  - Inventors' Stories: http://inventionatplay.org/inventors_main.html
  - Does play matter? (using play to help children learn and think): http://inventionatplay.org/matter_main.html
- Spark!Lab:
  - http://sparklab.si.edu/
  - About Spark!Lab (introduce children to the process of innovation via play and fun activities): http://sparklab.si.edu/spark-about.html
  - Activities & Experiments: http://sparklab.si.edu/spark-experiments.html
  - Inventor Profiles: http://sparklab.si.edu/spark-inventors.html
  - Resources: http://sparklab.si.edu/spark-resources.html

- Economic and Social Research Council (ESRC):
  (a) *Social Science for Schools*; Science in Society Team:
    i. http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/ssfs/

ii. Social science resources: http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/ssfs/resources/
iii. Career guides for different disciplines in social science and economics: http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/ssfs/careers/
iv. Related online resources: http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/ssfs/links/

5. National Council for Accreditation of Teacher Education (NCATE):
   (a) http://www.ncate.org/
   (b) Has resources about degree programs in education and their accreditation, as well as how to become a teacher
   (c) State-specific Recognized Programs by NCATE and Specialized Professional Associations (SPAs):
      i. http://www.ncate.org/tabid/165/Default.aspx
      ii. Find out about educational programs in:
         A. special education
         B. early childhood education
         C. educational leadership
         D. educational technology specialist
         E. elementary education
         F. English
         G. health education
         H. foreign languages
         I. gifted education
         J. mathematics
         K. physical education
         L. science education
         M. school psychology
         N. secondary computer science education
         O. social studies
         P. Teachers of English to Speakers of Other Languages (TESOL)
         Q. technology and engineering educators
   (d) Financial Aid Resources for Teacher Education Students: http://www.ncate.org/Public/CurrentFutureTeachers/FinancialAidResources/tabid/351/Default.aspx

6. scholarships:
   (a) U.S. Department of State:
      i. Bureau of Educational and Cultural Affairs:
         A. National Security Language Initiative for Youth (NSLI-Y):
            - http://exchanges.state.gov/youth/programs/nsli.html
            - "The State Departments National Security Language Initiative for Youth (NSLI-Y) provides merit-based scholarships to U.S. high school students and recent graduates interested in learning less-commonly studied foreign languages."

7. underrepresented minorities:
   (a) The University of North Carolina at Chapel Hill:

i. Gary Bishop, *Research*, Department of Computer Science, The University of North Carolina at Chapel Hill. Available at: http://wwwx.cs.unc.edu/~gb/wp/research/; last accessed on September 3, 2010. [Has plenty of information and resources (including learning aids and material) to help people who are visually or mobility impaired learn.]

(b) Myra Sadker Foundation:
   i. 100+ Ideas to Promote Gender Equity in Schools and Beyond: http://www.sadker.org/100ideas.html
   ii. Gender Equity Activities: http://www.sadker.org/WhatYouCanDo.html
   iii. Gender Equity Activities for Concerned Citizens: http://www.sadker.org/GenderEquity-citizens.html
   iv. Gender Equity Activities for Families: http://www.sadker.org/GenderEquity-family.html
   v. Gender Equity Activities for Teachers:
      A. Early Childhood: http://www.sadker.org/GenderEquity-teacher1.html
      B. Primary Grades: http://www.sadker.org/GenderEquity-teacher2.html
      C. Upper Elementary: http://www.sadker.org/GenderEquity-teacher3.html
      D. Middle and High School: http://www.sadker.org/GenderEquity-teacher4.html
   vi. Resources for feminism and links to web pages of feminist organizations: http://www.sadker.org/ReadsLinks.html

(c) League of United Latin American Citizens (LULAC):
   i. LULAC National Educational Service Centers, Inc:
      A. http://www.lnesc.org/
      B. Programs:
         - Improving literacy among Latino/Latina youth
         - Encouraging Latino/Latina youth to pursue careers in science and engineering
         - Helping Latino/Latina youth acquire leadership skills
         - Improving college access for Latino/Latina youth by mentoring and summer programs (e.g., Gear-Up, Upward Bound, and the PALMS Initiative)
         - Helping Latino/Latina families acquire financial success, so that Latino/Latina youth can pursue higher education
         - Scholarships for Latino/Latina youth
         - http://lnesc.org/index.asp?Type=B_BASIC&SEC={808B6D04-913C-483F-8A05-

(d) ASPIRA:
   i. ASPIRA Programs for Latino/Latina youth: http://aspira.org/manuals/aspira-program

8. places to visit:
   (a) Exploratorium @ The Palace of Fine Arts (San Francisco, CA): http://www.exploratorium.edu/
   (b) Educational Dividends:
      i. http://www.educationaldividends.com/
      ii. Suggestions for organizing field trips to explore your interests: http://www.educationaldividends.com/students/student_issues.asp

iii. Career exploration: http://www.educationaldividends.com/students/career_choices.asp
iv. Computer skills: http://www.educationaldividends.com/students/technology.asp
v. Quizzes to help you find out what is your preferred learning style and to discover more about your personality: http://www.educationaldividends.com/students/learning_quiz.asp
vi. Resources to help you learn about various topics in science, mathematics, social science, and humanities: http://www.educationaldividends.com/students/resources.asp

9. resources for at-risk youths:
   (a) At-Risk Youth: http://www.at-risk.org/
   (b) Peace First:
      i. http://www.peacefirst.org/site/
      ii. To help youths become "problem-solvers, rather than witnesses, or victims of their surrounding"
      iii. To reduce youth homicide rates
      iv. Teach children "critical conflict resolution skills"
      v. Help teachers improve their "conflict resolution and classroom management skills"
      vi. To encourage youths to help each other, and get them to break up fights
      vii. "The Peace First curriculum is tailored to meet the developmental needs of students in Pre-K through eighth grade. Once a week, young adult volunteers and classroom teachers work together to teach students about friendship, communication, and conflict resolution through the use of experiential activities. First graders learn about communicating their feelings, third graders work on being peacemakers in their classroom, and fifth graders explore how to resolve and deescalate conflicts."
      viii. Has programs for students/youths, teachers, principals, and volunteers.
   (c) Americans for the Arts:
      i. YouthARTS:
         A. http://www.artsusa.org/youtharts/index.asp
         B. "The YouthARTS site is designed to give arts agencies, juvenile justice agencies, social service organizations, and other community-based organizations detailed information about how to plan, run, provide training, and evaluate arts programs for at-risk youth."

10. general music and arts education:
   (a) Americans for the Arts:
      i. Americans for the Arts, "Ten Simple Ways Parents Can Get More Art in Their Kids' Lives." Available online at: http://www.americansforthearts.org/public_awareness/get_involved/001.asp; last accessed on November 30, 2010.
      ii. YouthARTS:
         A. http://www.artsusa.org/youtharts/index.asp
         B. "The YouthARTS site is designed to give arts agencies, juvenile justice agencies, social service organizations, and other community-based organizations

detailed information about how to plan, run, provide training, and evaluate arts programs for at-risk youth."

(b) The John F. Kennedy Center for the Performing Arts:
   i. Kennedy Center Institute for Arts Management: http://artsmanagerfba.artsmanager.org/common/Pages/About.aspx
   ii. ArtsEdge:
      A. The National Standards for Arts Education for Grades K-4, 5-8, and 9-12: http://artsedge.kennedy-center.org/educators/standards.aspx
      B. Tips and guides for educators: http://artsedge.kennedy-center.org/educators/how-to.aspx
      C. Lesson plans for educators: http://artsedge.kennedy-center.org/educators/lessons.aspx
      D. Information for parents, guardians, foster parents, baby-sitters, and grandparents: http://artsedge.kennedy-center.org/families.aspx
      E. Information for students: http://artsedge.kennedy-center.org/students.aspx
      F. Themes for artistic, cultural, academic, and intellectual exploration: http://artsedge.kennedy-center.org/themes.aspx
      G. Multimedia: http://artsedge.kennedy-center.org/multimedia.aspx

11. music education:
   (a) Washington Performing Arts Society (WPAS):
      i. WPAS Education & Community – Connections through the Arts Education Programs for All Ages:
         A. The Capitol Jazz Project:
            - http://www.wpas.org/educcomm/programsforyoungpeople/capitoljazzprojec
            aspx
            - "Washington Performing Arts Society (WPAS) and the D.C. Public Schools, in collaboration with Jazz at Lincoln Center, has launched The Capitol Jazz Project, an important step in supporting music education for all students in the District of Colombia."
            - "Through the Capitol Jazz Project, students hone their listening, performing, improvising, composing, arranging, music reading, and notation skills."
            - "The Capitol Jazz Project is being implemented in 6 D.C. middle schools with a total enrollment of more than 500 music students."
            - "A true collaboration, The Capitol Jazz Project brings the combined resources and expertise of WPAS, Jazz at Lincoln Center, and the D.C. Public Schools to create a model music education program."
         B. Joseph and Goldie Feder Memorial String Competition:
            - http://www.wpas.org/educcomm/programsforyoungpeople/josephandgoldiefe
            aspx
            - "The Feder String Competition inspires and nurtures D.C. area youth in grades 6 through 12 who study violin, viola, cello, and double bass."
            - "Each year, 80 students compete for 30 awards and scholarships."
            - "Held each spring, WPAS awards cash prizes toward private lessons, scholarships for summer study programs, and tickets for top winners and their family members to attend a WPAS concert."

- "Winners of the competition are also given special performance opportunities such as on the Kennedy Center's Millennium Stage and The Shakespeare Theatre Company's Happenings at the Harman series."

C. WPAS Summer Performing Arts Academy summer programs:
- http://www.wpas.org/educcomm/programsforyoungpeople/wpassummerperform aspx

(b) Young Concert Artists, Inc.
i. Annaliese Soros Educational Residency Program: http://www.yca.org/auditions/

(c) The Choral Arts Society of Washington:
i. Classroom Resources: http://www.choralarts.org/Education/Classroom-Resources.aspx

(d) League of American Orchestras:
i. Career planning:
A. Resources for pre-college students, college students, and graduate students: http://www.americanorchestras.org/career_center/career_planning.html
B. Arts Administration programs: http://www.americanorchestras.org/career_center/arts_admin_programs.html
C. Non-profit management, **public policy** and leadership programs: http://www.americanorchestras.org/career_center/resources_non_prof_and.html

(e) The John F. Kennedy Center for the Performing Arts:
i. Betty Carter's Jazz Ahead:
A. http://www.kennedy-center.org/programs/jazz/jazzahead/
B. "Music residency program for young people"
C. "The Jazz Ahead program identifies outstanding, emerging jazz artists in their mid-teens to age thirty, and brings them together under the tutelage of experienced artist-instructors who coach and counsel them, helping to polish their performance, composing and arranging skills."
D. "The two week-long residency program includes daily workshops and rehearsals with established jazz artists, and culminate in three concerts on the Kennedy Center Millennium Stage, which will be broadcast live over the internet."

ii. The National Symphony Orchestra (NSO):
A. The National Symphony Orchestra's Summer Music Institute (SMI):
- http://www.kennedy-center.org/nso/nsoed/smi/home.cfm
- "Every summer, approximately 70 students (ages 15-20) from all over the nation meet in Washington, D.C., to attend the National Symphony Orchestra's Summer Music Institute (SMI)."
- "The Institute offers four weeks of private lessons, rehearsals, coaching by National Symphony Orchestra members, classes, and lectures to prepare aspiring musicians for their futures in music."

B. Young Associates' Program:
- http://www.kennedy-center.org/nso/nsoed/youngassociates.html

- "The National Symphony Orchestra (NSO) is sponsoring its Young Associates' Program for high school students in grades 11 and 12 in the Washington, DC, metropolitan area who are interested in pursuing a musical career."
- "Twenty outstanding instrumentalists (pianists are not included) will be selected to attend rehearsals of the National Symphony Orchestra and take part in seminars with conductors, artists, NSO musicians, and representatives of the arts management field."
- "Through this program, the Young Associates will acquire an appreciation of the wide range of skills, knowledge, and abilities–managerial as well as musical–that are required to put together a performance by a major symphony orchestra. Selection process is by application."
- "The core of the program involves attendance at rehearsals of the National Symphony Orchestra at the Kennedy Center and observation of various guest artists. In addition to attending NSO rehearsals, students participate in workshops to explore careers in management, music education, publicity, music library, and other professions that are essential to the life of every successful orchestra."
- "Students do not play their instruments as part of the program. Students learn through listening, observation, and asking questions of professionals."

12. dance education:
    (a) The Washington Ballet:
        i. The Washington School of Ballet (TWSB):
            A. Summer Intensive program (requires an audition): http://www.washingtonballet.org/the-school/summer-intensive/
        ii. TWB's EXCEL! scholarship program (for DanceDC students):
            A. http://www.washingtonballet.org/community-engagement/default.htm
            B. http://www.washingtonballet.org/community-engagement/other-programs/
            C. Also, has need-based scholarships
    (b) The John F. Kennedy Center for the Performing Arts:
        i. Exploring Ballet With Suzanne Farrell: A Three-Week Summer Ballet Intensive for Young Dancers:
            A. http://www.kennedy-center.org/education/farrell/
            B. "In July and August, students from across the United States and around the world will participate in the eighteenth annual session of the Kennedy Center's ballet training program Exploring Ballet with Suzanne Farrell. The three-week residency for dancers ages 14 to 18 with at least five years of ballet training will be held at the Kennedy Center from August 1 - August 20, 2011."
            C. "During the three-week period, students take two ballet technique classes a day, six days a week, with Ms. Farrell. Students also participate in a number of cultural activities to enhance their experience in Washington, D.C., including museum visits, trips to historical landmarks, and attending performances."
        ii. Dance Theatre of Harlem Residency program:
            A. http://www.kennedy-center.org/education/community/programs.html#artistic

B. "Since 1993, the Kennedy Center's Dance Theatre of Harlem Residency program has provided ballet training for male and female students age 8-18 with identified promise in ballet taught by Dance Theatre of Harlem (DTH) instructors or former principal dancers."
C. "Students are selected by audition for a twenty-class series, culminating with a public demonstration and performance on a Kennedy Center main stage."
D. "Classical ballet training is taught in four class levels, from novice to advance."
E. "Students must have at least one year of ballet training to qualify for the program."

13. JA Worldwide (Junior Achievement):
    (a) http://www.ja.org/
    (b) Resources for educators: http://www.ja.org/involved/involved_educat.shtml
    (c) Resources for parents: http://www.ja.org/involved/involved_parents.shtml
    (d) Resources for students: http://www.ja.org/involved/involved_students.shtml
14. U.S. Department of State:
    (a) Programs for Americans and non-Americans.
    (b) Summer Work Travel - In the summer work travel program: http://exchanges.state.gov/
    (c) Cultural Programs Division: http://exchanges.state.gov/cultural/index.html
    (d) Youth Programs Division: http://exchanges.state.gov/youth/index.html
    (e) EducationUSA: http://educationusa.state.gov/
    (f) International Visitor Leadership Program: http://exchanges.state.gov/ivlp/ivlp.html
    (g) Programs for non-U.S. Citizens: http://exchanges.state.gov/prog-non-us.html
    (h) Programs for U.S. Citizens: http://exchanges.state.gov/prog-us.html
    (i) Resources for Students: http://exchanges.state.gov/student.html
    (j) Bureau of Educational and Cultural Affairs:
        i. Future Leaders Exchange (FLEX) Program:
            A. http://exchanges.state.gov/youth/programs/flex.html
            B. "The Future Leaders Exchange (FLEX) Program gives students (ages 15-17) the chance to live with a host family and attend a U.S. high school for a year."
        ii. Office of Citizen Exchanges:
            A. Youth Programs Division:
                - http://exchanges.state.gov/youth/index.html
                - Has programs for youths in various parts of the world
                - "The Youth Programs Division is committed to empowering the next generation and establishing long-lasting ties between the United States and other countries through exchange programs and institutional partnerships. Programs focus primarily on secondary schools and promote mutual understanding, leadership development, educational transformation and democratic ideals."
            B. SportsUnited:
                - http://exchanges.state.gov/sports/index.html

- SportsUnited is an international sports programming initiative designed to help start a dialogue at the grassroots level with non-elite boys and girls ages 7-17.
- The programs aid youth in discovering how success in athletics can be translated into the development of life skills and achievement in the classroom.
- Foreign participants are given an opportunity to establish links with U.S. sports professionals and exposure to American life and culture.
- Americans learn about foreign cultures and the challenges young people from overseas face today.
- The U.S. Department of State has programmed initiatives in: baseball, basketball, football, track and field, soccer, volleyball, wrestling, archery, boxing, swimming, fencing, table tennis, ice skating, weightlifting, water polo and managing sports community centers.
- Countries covered by this program are listed on the web page.
- Sports Envoy Program:
  - http://exchanges.state.gov/sports/envoy1.html
  - Working with the national sports leagues and the U.S. Olympic Committee, athletes and coaches in various sports are chosen to serve as envoys or ambassadors of sport in overseas programs that include conducting clinics, visiting schools and speaking to youth.
  - The American athletes and coaches conduct drills and team building activities, as well as engage the youth in a dialogue on the importance of an education, positive health practices and respect for diversity.
- Sports Grant Competition:
  - The Bureau of Educational and Cultural Affairs (ECA) has an annual open competition under its International Sports Programming Initiative.
  - Public and private non-profit organizations, 501(c)(3), may submit proposals to discuss approaches designed to enhance and improve the infrastructure of youth sports programs.
  - The focus of all programs must be reaching out to non-elite youth ages 7-17 and/or their coaches/administrators.
  - There are four themes that a proposal can address; Youth Sports Management, Training Sports Coaches, Sport and Disability, and Sport and Health.
  - The list of eligible countries changes each year.
  - http://exchanges.state.gov/sports/index/sports-grant-competition.html
- Sports Visitor Program:
  - Nominated by our U.S. embassies overseas, selected athletes, managers and coaches are brought to the U.S. for technical sports training, sports management, conflict resolution training and exposure to valuable U.S. sports contacts and then are encouraged to return to conduct in-country clinics for youth with their newly learned skills.
  - http://exchanges.state.gov/sports/visitors.html

15. U.S. Department of Labor:
    (a) Wage and Hour Division:

i. YouthRules!:
   A. http://youthrules.dol.gov/
   B. Has information for youths, parents, educators, and employers on how to let youth work part-time safely
   C. Teens: http://youthrules.dol.gov/teens/default.htm
   D. Parents: http://youthrules.dol.gov/parents/default.htm
   E. Educators: http://youthrules.dol.gov/educators/default.htm
   F. Employers: http://youthrules.dol.gov/employers/default.htm
   G. Resources: http://youthrules.dol.gov/resources.htm
   H. Compliance Assistance: http://youthrules.dol.gov/ca.htm

16. ASCL Educational Services, Inc. (Marc McCulloch):
    (a) Transitions: Life Skills for Personal Success!:
        i. Curriculum & Materials: http://transitions.ascl.info/infomaterials
        ii. Soft Skills: http://transitions.ascl.info/infoskills

17. Partnership for 21st Century Skills:
    (a) http://www.p21.org/
    (b) Framework for 21st Century Learning: http://www.p21.org/index.php?option=com_content&task=view&id=254&Itemid=119
    (c) Tools and Resources: http://www.p21.org/index.php?option=com_content&task=view&id=273&Itemid=139

18. National Career and Technical Education Foundation (NCTEF):
    (a) States' Career Clusters Initiative (SCCI):
        i. http://www.careerclusters.org/
        ii. The 16 Career Clusters: http://www.careerclusters.org/16clusters.cfm
        iii. Plans of Study: http://www.careerclusters.org/resources/web/pos.cfm
        iv. Knowledge and Skills Charts: http://www.careerclusters.org/resources/web/ks.php
        v. Crosswalks: http://www.careerclusters.org/crosswalks.cfm
        vi. Publications: http://www.careerclusters.org/publications.php
        vii. Sixteen Career Clusters and Their Pathways: http://www.careerclusters.org/list16clusters.php
        viii. Career Clusters Models: http://www.careerclusters.org/resources/web/16ccall.php?action=models
        ix. Career Clusters Brochure Previews: http://www.careerclusters.org/resources/web/16ccall.php?action=brochures
        x. Career Clusters Interest Survey: http://www.careerclusters.org/ccinterestsurvey.php
        xi. Related Websites: http://www.careerclusters.org/related.php

19. U. S. Department of Labor:
    (a) Employment and Training Administration:
        i. CareerOneStop:
           A. http://www.careeronestop.org/
           B. Students, parents, and career advisors: http://www.careeronestop.org/studentsandcareeradvisors/studentsandcareeradvisors.aspx

20. U. S. Department of Defense:

(a) ASVAB Career Exploration Program:
   i. http://www.asvabprogram.com/
   ii. Learn about yourself: http://www.asvabprogram.com/index.cfm?fuseaction=learn.main
   iii. Explore careers: http://www.asvabprogram.com/index.cfm?fuseaction=explore.main
   iv. Plan for your future: http://www.asvabprogram.com/index.cfm?fuseaction=plan.main
   v. Information for educators and career counselors: http://www.asvabprogram.com/index.cfm?fuseaction=edu.main
   vi. Information for parents: http://www.asvabprogram.com/index.cfm?fuseaction=parents.main

4 Internship Opportunities

Internship opportunities:

1. Canada:
   (a) SWAP:
      i. http://www.swap.ca/
      ii. For Canadians who want to work abroad: http://www.swap.ca/out_eng/index.aspx
      iii. For citizens of selected countries who want to work in Canada: http://www.swap.ca/in_eng/partner_organizations.aspx
2. Singapore:
   (a) Speedwing Training (Asia) Pte Ltd:
      i. http://www.speedwing.org/
      ii. For Singaporeans who want to work in the United States, Canada, Germany, and New Zealand
      iii. For citizens of selected countries who want to work in Singapore

4.1 Internship Opportunities in Australia

Internship Opportunities in Australia:

1. The Association of Professional Engineers, Scientists and Managers, Australia: http://www.apesma.asn.au/index.asp — Ask for guide to internships in your region/major; free student membership
2. Engineers Australia: http://www.engineersaustralia.org.au/ — Ask for guide to internships in your region/major; free student membership
3. CPA Australia: http://www.cpaaustralia.com.au/cps/rde/xchg/cpa/hs.xsl/index.html and http://www.cpaaustralia.com.au/cps/rde/xchg/careers/site/index_ENA_HTML.htm/cps/rde/xchg/SID-3F57FECB-EEFEF50E/careers/site/204_ENA_HTML.htm
4. Institute of Chartered Accountants in Australia: http://www.charteredaccountants.com.au/
5.

4.2 Internship Opportunities in Europe

Internship Opportunities in Portugal:

1. Portugal:
   (a) IAESTE Portugal (The International Association for the Exchange of Students for Technical Experience): http://www.iaeste.pt/en/foreign-trainees/why-portugal/
2. United Kingdom:
   (a) Graduate Talent Pool: http://graduatetalentpool.direct.gov.uk/

4.3 Internship Opportunities in the United States

Internship Opportunities in the United States:

1. Use the Procedure FIND(φ, τ) in §1 to look up internship opportunities and lists of internship opportunities.

   Look at government organizations (e.g., the White House), nonprofit organizations (e.g., Engineers Without Borders), professional organizations (e.g., IEEE and ACM), colleges and universities, and companies (e.g., Intel, Google, and start-ups).

   You can start your search by looking at the organizations that provide resources for underrepresented minorities as well as resources for scholarships and fellowships. These information can be found in other sections of this document.

   If you do not know where to start, speak to a professor or staff member at the career center of your college/university. Alternatively, you can ask your awesome resident advisors (RAs).

   My personal advice is to start your search based on your interests and skill set. You can always narrow the search space based on factors, such as geographical location, later on.

   Competitive internships, especially research internships in electrical and computer engineering or computer science, weed out many students from applying via demanding job requirements. For example, if you want to apply for research internships with electronic design automation (EDA) companies and corporate research labs, you would need to have significant experience designing integrated circuits and developing EDA software. The stringent job requirements also mean that students need to plan in advance (say, about a year) about the internships that they would like to seek, and plan to acquire the necessary skill set and experiences before the application deadlines (which can be several months before the start of your internship).

   Taking as many challenging classes as you can possibly cope, especially in electrical and computer engineering or computer science, would provide you with a skill set that allows you to apply for competitive internships in many fields. Apart from taking challenging classes as well as engaging in research and/or open source projects, you can try to acquire additional skills and experience in your free time to boost the competitiveness of your internship application. Certain skills and experiences, such as compiler design, are hard to acquire in your free time, so it would be "easier" to take classes that would help you acquire those skills and experiences.

Note that you may want to look into creating your own entrepreneurial venture, say an EDA start-up or organization in social entrepreneurship, rather than to seek an internship. Also, seeking an internship abroad is always a good addition to your resume/CV.

2. National Science Foundation:
   (a) Research Experiences for Undergraduates (REU):
      i. http://www.nsf.gov/crssprgm/reu/reu_search.cfm
      ii. Academic fields:
         A. Astronomical Sciences
         B. Atmospheric and Geospace Sciences
         C. Biological Sciences
         D. Chemistry
         E. Computer and Information Science and Engineering
         F. Cyberinfrastructure
         G. Department of Defense (DoD)
         H. Earth Sciences
         I. Education and Human Resources
         J. Engineering
         K. Ethics and Values Studies
         L. International Science and Engineering
         M. Materials Research
         N. Mathematical Sciences
         O. Ocean Sciences
         P. Physics
         Q. Polar Programs
         R. Social, Behavioral, and Economic Sciences
3. Society for Industrial and Applied Mathematics:
   (a) Internship and Career Information in Industry, Research Institutions, and Government Labs: http://www.siam.org/careers/internships.php
4. American Institute of Physics (AIP):
   (a) Society of Physics Students (SPS):
      i. SPS Internships: http://www.spsnational.org/programs/internships/
      ii. Research Opportunities: http://www.spsnational.org/programs/research/
5. United States Office of Personnel Management:
   (a) USAJOBS:
      i. Student Jobs: http://www.usajobs.gov/studentjobs/
6. Americans for the Arts:
   (a) Internship Program: http://www.americansforthearts.org/about_us/internships.asp
7. New York Women's Foundation:
   (a) Internship Opportunities: http://www.nywf.org/internship.html
   (b) Volunteer Opportunities: http://www.nywf.org/volunteer.html
8. Council on International Educational Exchange (CIEE): http://www.ciee.org/hire/index.aspx
9. The John F. Kennedy Center for the Performing Arts:

(a) Kennedy Center Arts Management Internships: http://www.kennedy-center.org/education/artsmanagement/internships/

10. Washington Performing Arts Society (WPAS):
    (a) Internships with WPAS:
        i. http://www.wpas.org/aboutwpas/opportunities/intern.aspx
        ii. "WPAS offers internships throughout the year. Applicants should be highly motivated, creative and hard-working individuals with an interest in all aspects of arts management. It is required that applicants have previous office experience."
        iii. In addition, applicants should possess:
            A. Interest/background in music, dance or performance art
            B. Strong organizational skills
            C. Effective writing and communication skills
            D. Ability to learn quickly, handle multiple tasks, take initiative, and work independently with little supervision
            E. High energy level and ability to work well in deadline and/or pressure situations
            F. Computer literacy
        iv. "WPAS interns leave our offices with a better understanding of arts management, knowledge of artists in a variety of fields (classical music, world music, dance and performance art), contacts in theaters throughout the D.C. metro area, practical experience and a portfolio of work. The internship is unpaid, however stipends are occasionally granted during the performance year (September - May). Interns are also invited to attend many WPAS performances on a complimentary basis."
        v. Types of internships:
            A. Accounting Internship
            B. Development Internship
            C. Education Internship
            D. Marketing/Public Relations Internship
            E. Office Administration Internship
            F. Programming Internship
11. The Washington Ballet: Internships, http://www.washingtonballet.org/about-twb/auditions-employment/#internships
12. The Choral Arts Society of Washington:
    (a) Internship and Apprenticeship Program: http://www.choralarts.org/About-Us/Internships-and-Apprenticeships.aspx
13. League of American Orchestras: Internships, http://www.americanorchestras.org/career_center/internships.html
14. Congressional Hispanic Caucus Institute (CHCI):
    (a) CHCI United Health Foundation Scholars:
        i. http://www.chci.org/scholarships/page/chci-united-health-foundation-schola
        ii. In addition to providing scholarship opportunities for Latino youth, the United Health Foundation decided to partner with CHCI to create a six-month internship program for students interested in the medical field.

iii. Seventeen participants enrolled in either a full-time undergraduate or graduate course of study at an accredited two- or four-year college, university, vocational or technical school were selected.

(b) CHCI Congressional Internship:

i. The purpose of the Congressional Internship Program (CIP) is to expose young Latinos to the legislative process and to strengthen their professional and leadership skills, ultimately promoting the presence of Latinos on Capitol Hill.

ii. The Congressional Internship Program provides college students with a paid Congressional work placement on Capitol Hill for a period of twelve weeks (Spring/Fall) or eight weeks (Summer). This unmatched experience allows students to learn first hand about our nation's legislative process.

15. Mexican American Legal Defense and Educational Fund (MALDEF): Law Clerk Summer Internship program, http://maldef.org/about/jobs/index.html

16. Hispanic Association of Colleges and Universities (HACU):

(a) HACU National Internship Program (HNIP): http://www.hacu.net/hacu/HNIP_EN.asp

17. Smithsonian Institution:

(a) Smithsonian Institution Traveling Exhibition Service (SITES):

i. Internship programs: http://www.sites.si.edu/interns/internships.htm

ii. "The Smithsonian Institution Traveling Exhibition Service internship programs allows people with diverse interests, strengths, and goals to experience an educational environment where they can work and learn from professionals in the museum field."

iii. "SITES offers internship opportunities in a variety of different areas: public relations, development (fund raising), research, and project design."

(b) Smithsonian Folkways Recordings (or simply, Smithsonian Folkways):

i. Internships: http://www.folkways.si.edu/about_us/jobs.aspx

(c) Freer Gallery of Art / Arthur M. Sackler Gallery:

i. Internships: http://www.asia.si.edu/research/internships.asp

(d) National Museum of American History:

i. Jerome and Dorothy Lemelson Center for the Study of Invention and Innovation:

A. Archival Internships: http://invention.smithsonian.org/resources/research_interns.aspx

18. Council on International Educational Exchange (CIEE):

(a) CIEE's Trainee Program:

i. part of the J-1 visa category of the US governments Exchange Visitor Program

ii. http://www.ciee.org/trainee/

(b) CIEE Work & Travel USA; and Internship USA:

i. http://www.ciee.org/hire/

ii. http://www.ciee.org/wat/

19. American Institute For Foreign Study (AIFS):

(a) Camp America Counselors and Summer Staff: http://www.aifs.com/work_travel.asp

(b) Au Pair Placement: http://www.aifs.com/au_pair.asp

20. U.S. Department of State:
    (a) Bureau of Educational and Cultural Affairs:
        i. International cultural programs: http://exchanges.state.gov/cultural/related-cultu
        html
        ii. Office of Global Educational Programs:
            A. Camp Counselor:
                - http://exchanges.state.gov/jexchanges/programs/camp.html
                - Camp counselors interact with groups of American youth by overseeing their camp activities during the U.S. summer.
                - Through the Camp Counselor program, American campers have the chance to gain knowledge of foreign cultures, while foreign participants increase their knowledge of American culture.
                - Participants must be at least 18 years of age and may work as counselors in U.S. summer camps for up to four months. Extensions are not allowed. They receive a combination a pay and benefits equal to Americans who work in the same position.
        iii. Private Sector Exchange office:
            A. http://exchanges.state.gov/jexchanges/index.html
            B. The Private Sector Exchange office designates, monitors and partners with U.S. organizations, including government agencies, academic institutions, educational and cultural organizations, and corporations, that administer the Exchange Visitor Program.
            C. Au Pair program:
                - Through the Au Pair program, foreign nationals between 18 and 26 years of age participate in the home life of a host family. Au pairs provide limited childcare services for up to 12 months. An extension of 6, 9, or 12 months may be granted in certain cases.
                - http://exchanges.state.gov/jexchanges/programs/aupair.html
            D. Internships:
                - http://exchanges.state.gov/jexchanges/programs/intern.html
                - Internship programs are designed to allow foreign professionals to come to the United States to gain exposure to U.S. culture and to receive training in U.S. business practices in their chosen occupational field.
                - The maximum duration of an internship in any occupational field is 12 months.
                - Upon completion of their exchange programs, participants are expected to return to their home countries.
                - The State Department allows internships in the following occupational categories:
                  – Agriculture, Forestry, and Fishing
                  – Arts and Culture
                  – Construction and Building Trades
                  – Education, Social Sciences, Library Science, Counseling and Social Services
                  – Health Related Occupations

  - Hospitality and Tourism
  - Information Media and Communications
  - Management, Business, Commerce and Finance
  - Public Administration and Law
  - The Sciences, Engineering, Architecture, Mathematics, and Industrial Occupations.
- An Intern must be a foreign national:
  - Who is currently enrolled in and pursuing studies at a foreign degree- or certificate-granting post-secondary academic institution outside the United States, or
  - Who has graduated from such an institution no more than 12 months prior to his or her exchange visitor program start date.
- Interns cannot work in unskilled or casual labor positions, in positions that require or involve child care or elder care, or in any kind of position that involves medical patient care or contact. Nor can interns work in positions that require more than 20 per cent clerical or office support work.

E. The Summer Work Travel Program:
- http://exchanges.state.gov/jexchanges/programs/swt.html
- In the summer work travel program, post-secondary students may enter the United States to work and travel during their summer vacation.
- Participants can be admitted to the program more than once.
- The maximum length of the program is four months.
- Most of the time, participants work in unskilled service positions at resorts, hotels, restaurants, and amusement parks. However, they may also work in other types of organizations.
- For example, they could work in architectural firms, scientific research organizations, graphic art/publishing and other media communication businesses, advertising agencies, computer software and electronics firms, legal offices, etc.
- The program may not exceed four-months and must be finished during the student's summer vacation.
- Participants receive pay and benefits equal to an American working in the same or similar position.

F. Training programs:
- http://exchanges.state.gov/jexchanges/programs/trainee.html
- Training programs are designed to allow foreign professionals to come to the United States to gain exposure to U.S. culture and to receive training in U.S. business practices in their chosen occupational field.
- Foreign nationals have had the opportunity to train with some of the finest employers in the U.S., gaining real time experience in their chosen career fields.
- Upon completion of their exchange programs, participants are expected to return to their home countries to utilize their newly learned skills and knowledge to advance their careers and share their experiences with their communities.

- The State Department allows training programs in the following occupational categories:
  - Agriculture, Forestry, and Fishing
  - Arts and Culture
  - Construction and Building Trades
  - Education, Social Sciences, Library Science, Counseling and Social Services
  - Health Related Occupations
  - Hospitality and Tourism
  - Information Media and Communications
  - Management, Business, Commerce and Finance
  - Public Administration and Law
  - The Sciences, Engineering, Architecture, Mathematics, and Industrial Occupations.
- A trainee must be a foreign national who has:
  - A degree or professional certificate from a foreign post-secondary academic institution and at least one year of prior related work experience in his or her occupational field outside the United States, or
  - Five years of work experience outside the United States in the occupational field in which they are seeking training.

G. Specialists:
- http://exchanges.state.gov/jexchanges/programs/specialist.html
- This category is for a participant who is an expert in a field of specialized knowledge or skill who will demonstrate such skills in the United States. Such exchanges are to provide opportunities to increase the exchange knowledge and ideas between American and foreign specialists. The maximum duration of this program is one year.
- This category is for foreign nationals who are experts in a field of specialized knowledge or skill, coming to the United States for observing, consulting, or demonstrating their special skills, except: Professors and Research Scholars, Short-Term Scholars, and Alien Physicians.
- Individuals participating in the specialist program are:
  - Experts in a field of specialized knowledge or skill;
  - Seeks to travel to the United States for the purpose of observing, consulting, or demonstrating their special knowledge or skills;
  - Does not fill a permanent or long-term position of employment while in the U.S.

H. International Visitor:
- http://exchanges.state.gov/jexchanges/programs/intl_visitor.html
- The international visitor category enables visitors to better understand American culture and enhanced American knowledge of foreign cultures.
- This category is for individuals who are recognized as potential leaders in their own country, selected by the Department of State to participate in observation tours, discussions, consultation, professional meetings, confer-

ences, workshops and travel.
- The maximum duration of the program is one year.

I. Alien Physician:
- http://exchanges.state.gov/jexchanges/programs/physician.html
- The Alien Physician program is for foreign national physicians seeking entry into U.S. graduate medical education programs or training at accredited U.S. schools of medicine or other U.S. institutions.
- There are generally two types of exchange programs in which a foreign national physician (also referred to as a foreign/international medical graduate) participates:
  - Clinical training in the alien physician category
  - Non-Clinical training in the research scholar category

J. FORTUNE/U.S. State Department Global Women's Mentoring Partnership:
- http://exchanges.state.gov/citizens/professionals/fortunepartnership.html
- This public-private partnership places talented, emerging women leaders from all over the world in mentoring programs with FORTUNE's Most Powerful Women Leaders.
- For three weeks, American and international participants work together in mentoring relationships to share the skills and experiences necessary for strengthening womens leadership.

K. American Council of Young Political Leaders (ACYPL):
- http://exchanges.state.gov/citizens/profs/acypl.html
- http://www.acypl.org/
- For 44 years, the American Council of Young Political Leaders (ACYPL) has designed, organized and managed unique international educational exchanges for young political leaders (ages 25-40) worldwide.
- ACYPL programs are designed to promote mutual understanding, respect, and friendship and to cultivate long-lasting relationships among young people who are poised to become tomorrow's global leaders and policy makers.
- American participants are nominated by members of Congress, governors, political party leaders, and ACYPL alumni, while international delegates are selected from countries where ACYPL is currently conducting programs by international program partners with the U.S. Embassy input.

L. Edward R. Murrow Program for Journalists:
- http://exchanges.state.gov/ivlp/murrow.html
- The Edward R. Murrow Program for Journalists invites rising international journalists to travel to the United States and examine journalistic principles and practices.

iv. Office of Citizen Exchanges:

A. Youth Programs Division:
- http://exchanges.state.gov/youth/index.html
- The Youth Programs Division is committed to empowering the successor generation and establishing long-lasting ties between the United States and other countries through exchange programs and institutional partnerships.

- Programs focus primarily on secondary schools and promote mutual understanding, leadership development, educational transformation, and democratic ideals.
- Year-Long Programs, Short Term Programs, and Virtual Partnerships: http://exchanges.state.gov/youth/programs-by-type.html
- Programs for Young Americans, and Programs for International Students and Teachers: http://exchanges.state.gov/youth/programs-by-participants.html
- Opportunities for American Hosts: Families and Schools, http://exchanges.state.gov/youth/opps-for-am-hosts.html
- Programs for High School Students: http://exchanges.state.gov/youth/programs.html

B. Professional Exchanges Division:
- http://exchanges.state.gov/citizens/profs.html
- The Professional Exchanges division provides grants to U.S. nonprofit organizations to carry out exchange programs that support the professional development of foreign participants. The purpose of each exchange program is to engage with foreign leaders in critical professions, to demonstrate respect for foreign cultures, and to promote mutual understanding between the people of the United States and other countries.
- Professional exchanges typically last several years and include internships, study tours or workshops in the United States and in the host country. Participants come from a variety of professions including education administrators, public servants, journalists, labor union officials, entrepreneurs, environmental leaders, jurists, lawyers, and civic leaders.
- ECA grant opportunities:
  - Open Funding Opportunities: Requests For Grant Proposals (RFGPs), http://exchanges.state.gov/grants/open2.html
  - Grants.gov: http://www.grants.gov/
- Grants by Region:
  - http://exchanges.state.gov/citizens/professionals/grant-region.html
  - Africa
  - East Asia and the Pacific
  - Europe and Eurasia
  - North Africa and the Middle East
  - South and Central Asia
  - Western Hemisphere
  - Multi-regional

5 Resources on Studying Abroad

Resources on studying abroad:

1. Council on International Educational Exchange (CIEE):
   (a) Study abroad programs for high school students from the United States:

i. http://www.ciee.org/hsabroad/index.html
ii. http://www.ciee.org/hsabroad/high-school-study-abroad/index.html
iii. These programs include::
A. High School Abroad programs (for U.S. high school students)
B. Summer High School Abroad programs (for U.S. high school students)
C. Gap Year Abroad programs (for recent U.S. high school graduates)

2. U.S. Department of State:
(a) Bureau of Educational and Cultural Affairs:
i. Office of Global Educational Programs:
A. EducationUSA:
- EducationUSA is a network of more than 400 student advising centers, which offer accurate, comprehensive, objective and timely information about educational opportunities in the United States and guidance to qualified individuals on how best to access those opportunities. This includes information about application procedures, standardized test requirements, student visas, financial aid, and the full range of accredited U.S. higher education institutions.
- http://exchanges.state.gov/globalexchanges/index/educationusa.html
- http://www.educationusa.state.gov/ and http://www.educationusa.info/centers.php

B. Open Doors:
- The Educational Information and Resources Branch funds Open Doors, a census of foreign students and scholars in the U.S. and of U.S. students studying abroad published annually by the Institute for International Education.
- Open Doors data is used by U.S. embassies, the Departments of State, Commerce, and Education, and U.S. colleges and universities to inform policy decisions about educational exchanges, trade in educational services, and study abroad activity.
- http://exchanges.state.gov/globalexchanges/index/open_doors.html
- http://www.opendoors.iienetwork.org/

ii. EducationUSA:
A. http://educationusa.state.gov/
B. For U.S. (college) students who want to study/work abroad: http://www.educationusa.info/pages/students/forus.php

3. IES Abroad (formerly Institute of European Studies / Institute for the International Education of Students):
(a) https://www.iesabroad.org/ and https://www.iesabroad.org/IES/home.html

4. Global Learning Semesters, Inc.:
(a) Summer in the Mediterranean:
i. http://www.globalsemesters.com/Mediterranean.html
ii. Has programs in the following areas:

A. Art & Photography
B. Early Christianity
C. Greek Heritage
D. International Marketing
E. Music

5. American Institute For Foreign Study (AIFS):
   (a) http://www.aifs.com/
   (b) College Study Abroad: http://www.aifsabroad.com/
   (c) For high school students:
      i. Gifted Education: http://www.aifs.com/gifted_education.asp
      ii. High School Study and Travel: http://www.aifs.com/highschool_study_travel.asp
      iii. Academic Year in America (AYA): http://www.academicyear.org/?source=AIFS

6 College Preparation

College preparation:

1. *Guide to Online Schools* [or *GuideToOnlineSchools.com*], *The Top 53 College Preparation Resources for Students*. Available at: http://www.guidetoonlineschools.com/tips-and-tools/college-prep-resources; last accessed on August 25, 2010.
2. U.S. Department of Education's resources for parents to help their children learn: http://www2.ed.gov/parents/academic/help/hyc.html and http://www2.ed.gov/parents/academic/help/homework/index.html
3. The College Board:
   (a) Information about SATs, college preparation, and financial aid
   (b) *Trends in Higher Education* series 201X: http://trends.collegeboard.org/
   (c) http://www.collegeboard.com/
4. *Accreditation.org*:
   (a) Information about the accreditation of engineering degree programs around the world
   (b) http://www.accreditation.org/
5. *New York Times*:
   (a) The Learning Network: http://learning.blogs.nytimes.com/category/test-yourself/
   (b) New York Times Magazine:
      i. The Sep 20, 2010 issue has many articles covering how technology can be used to improve education in K-12 programs. Available online at: http://www.nytimes.com/indexes/2010/09/19/magazine/index.html?ref=magazine; last accessed on September 20, 2010.
      ii. "New York Times Magazine Features Technology in Education," in *CCC Blog*, Computing Community Consortium (CCC), Computing Research Association (CRA), Sep 20, 2010. Available online at: http://www.cccblog.org/2010/09/20/new-york-times-magazine-features-technology-in-education/; last accessed on September 20, 2010.

iii. Articles in this issue discuss:
   A. How journalists can make use of technology to automate certain tasks, and improve their productivity and effectiveness in covering news stories
   B. How children can create computer games that introduces them to careers in computing and helps them to develop skills in computational thinking
   C. How to learn things without a lot of rote learning, to have fun while learning, and to use technology to make learning more fun

6. University of Southern California, USC:
   (a) USC Office of Continuing Education and Summer Programs:
      i. http://cesp.usc.edu/
      ii. These programs allow students in K-12 to earn credit at USC, and exposes them to different majors/professions, like medicine, engineering, creative writing, or film making.
      iii. Students can benefit from these programs, and learn about different academic disciplines before applying to college. This would help them in their college applications.
      iv. Underrepresented minority students can get scholarships to attend these programs. So, if parents have financial difficulty paying for the programs, they can seek financial aid for this.
      v. Also, current undergraduates can also sign up for programs to learn about marketing, finance, and entrepreneurship. They can also do summer research with USC researchers.
   (b) Summer sports programs for youths:
      i. SC Futbol Academy (USC Soccer Camps): http://www.usctrojans.com/sports/w-soccer/spec-rel/021610aaa.html
      ii. Mick Haley's USC Girls Volleyball Camp: http://www.usctrojans.com/sports/w-volley/spec-rel/volley-camp.html
      iii. Salo Swim Camp: http://www.saloswimcamp.com/on-line/default.asp
      iv. USC NYSP Trojan KidSCamp: http://sait.usc.edu/recsports/site_content/youth_sports/nysptk.html
      v. After School Sports Connection, ASSC (operates in fall, spring, and summer): http://sait.usc.edu/recsports/site_content/youth_sports/assc.html

7. Telluride Association:
   (a) Telluride Association Summer Program (TASP) [for high school students]: http://www.telluridassociation.org/programs/high_school_students/tasp/tasp_general_info.html
   (b) Telluride Association Sophomore Seminar (TASS) [for high school students]: http://www.telluridassociation.org/programs/high_school_students/tass/tass_general_info.html
   (c) Resources for high school educators to nominate summer program applicants: http://www.telluridassociation.org/programs/high_school_students/hs_resources/hs_resources_general_information.html

8. MathNerds:
   (a) http://www.mathnerds.com/

(b) "Provides free, discovery-based, mathematical guidance via an international, volunteer network of mathematicians."
(c) If you have a mathematical problem to solve, you can ask mathematicans at *MathNerds* for help.
(d) They would require you to discuss your attempted approaches/solutions.
(e) If you have not made attempts to solve the problem, they will not give you much guidance.
(f) In addition, they cannot solve problems for you.
(g) They provide guidance for mathematical problems from K-12 material through undergraduate mathematics and statistics classes.
(h) They also provide help for selected topics in advanced mathematics classes (for graduate students).
(i) Other resources: http://www.mathnerds.com/links/links.aspx

9. Hobsons:
   (a) CollegeView (Hobsons' college recruiting services): http://www.collegeview.com/index.jsp
10. Sponsors for Educational Opportunity (SEO):
   (a) Resources: http://www.seo-usa.org/ScholarsResources
11. U.S. Department of Education:
   (a) Students.gov: http://www.students.gov/STUGOVWebApp/index.jsp
   (b) college.gov: http://www.college.gov/wps/portal
12. U.S. Department of State:
   (a) Bureau of Educational and Cultural Affairs:
      i. EducationUSA:
         A. Information for international students: http://www.educationusa.info/students.php
13. Congressional Hispanic Caucus Institute (CHCI):
   (a) CHCI Education Center:
      i. http://www.chci.org/education_center/
      ii. Has resources on college planning, financial aid, scholarships, college internships, and housing.
      iii. For Parents: http://www.chci.org/education_center/page/for-parents
      iv. For Students: http://www.chci.org/education_center/page/for-students
14. My College Options:
   (a) http://www.mycollegeoptions.org/
   (b) "My College Options is a FREE college planning service, offering assistance to students, parents, high schools, counselors, and teachers nationwide."
   (c) "It is designed to assist high school students in exploring a wide range of post-secondary opportunities, with special emphasis on the college search process."

Resources for financial aid:

1. *Guide to Online Schools* [or *GuideToOnlineSchools.com*], *Financial Aid*. Available at: http://www.guidetoonlineschools.com/financial-aid; last accessed on August 25, 2010.

2. The Institute for College Access & Success, *Links* [Resources that provide information about student loans and student debt]. Available at: http://projectonstudentdebt.org/links.vp.html; last accessed on September 4, 2010. [Also, see http://projectonstudentdebt.org/advice.vp.html and http://ticas.org/about.vp.html.]

Information about colleges and universities:

1. The Institute for College Access & Success, *College InSight*. Available at: http://college-insight.org/; last accessed on September 4, 2010.
2.

7 Outreach for Students in Colleges and Universities

Resources to reach out to students in colleges and universities:

1. Film contests:
   (a) Ed Wood Film Festival [@ USC]:
      i. Celebrating independent filmmaking at USC and named for the famous director, the Ed Wood Film Festival is put on by a committee of Residential Education staff members at New Residential College, chaired by the Cinema Floor RA's.
      ii. Teams of students come together to obtain the year's secret theme in which to write, shoot, and edit their very own short film within 24 hours. A week later, the films are shown at USC's Norris Cinema and a panel of judges selects the Festival winners in a variety of categories.
      iii. http://sait.usc.edu/resed/Programs.aspx
   (b) Reel LA: Parkside International Film Festival [or USC Reel LA Film Festival at USC]; see http://www-scf.usc.edu/~pirc/areagov/government.php
2. residential education:
   (a) Telluride Association:
      i. Information about how to reside at the Cornell Branch (also known as Telluride House or CBTA) and the Michigan Branch of Telluride Association, which are "residential colleges": http://www.telluride association.org/programs/university_students.html
      ii. Awards for residents at the Cornell or Michigan Branch: http://www.telluride association.org/programs/university_students/us_awards.html
3. MathNerds:
   (a) http://www.mathnerds.com/
   (b) "Provides free, discovery-based, mathematical guidance via an international, volunteer network of mathematicians."
   (c) If you have a mathematical problem to solve, you can ask mathematicans at *MathNerds* for help.
   (d) They would require you to discuss your attempted approaches/solutions.
   (e) If you have not made attempts to solve the problem, they will not give you much guidance.
   (f) In addition, they cannot solve problems for you.

   (g) They provide guidance for mathematical problems from K-12 material through undergraduate mathematics and statistics classes.
   (h) They also provide help for selected topics in advanced mathematics classes (for graduate students).

4. Invent Now:
   (a)

5. Journal of Young Investigators (JYI):
   (a) http://www.jyi.org/
   (b) "peer-reviewed journal for undergraduates"
   (c) "JYI's web journal (which is also called JYI) is dedicated to the presentation of undergraduate research in science, mathematics, and engineering. It publishes the best submissions from undergraduates, with an emphasis on both the quality of research and the manner in which it is communicated. The journal, JYI, also allows students to experience the other side of the scientific publication process: the review process. Students working with their faculty advisors review the work of their peers and determine whether that work is acceptable for publication in JYI."

6. The Recording Academy:
   (a) GRAMMY U:
      i. http://www.grammy365.com/grammy-u
      ii. GRAMMY U is a unique and fast-growing community of full-time college students, primarily between the ages of 17 and 25, who are pursuing a career in the recording industry.
      iii. The Recording Academy created GRAMMY U to help prepare college students for their careers in the music industry through networking, educational programs and performance opportunities.
      iv. GRAMMY U is designed to enhance students' current academic curriculum with access to recording industry professionals to give an "out of classroom" perspective on the recording industry.

7. —

8. **Help for Underrepresented Minorities**

9. INROADS, Inc.:
   (a) Internships: http://www.inroads.org/interns/internWhatItTakes.jsp

10. The PhD Project:
    (a) http://www.phdproject.org/index.html
    (b) Program and informational network to encourage "African-Americans, Hispanic-Americans and Native Americans" to pursue Ph.D. programs in business and seek careers in academia.
    (c) Annual PhD Project Conference:
       i. Conference:
          A. http://www.phdproject.org/conference.html
          B. http://www.phdproject.org/conference_application.html

C. For prospective Ph.D. students in business to learn more about Ph.D. programs in business, the Ph.D. application process, and life in graduate school.
D. Registration Policy:
- If you are selected to attend the conference you will be required to pay a $200 registration fee which can be processed via credit card during the registration process. All travel and conferences expenses will paid by The PhD Project (total conference expenses for hotel, meals, materials, and transportation are valued at approximately $1,500 per invited attendee.) Your investment of the $200 registration fee will be refunded if you enter a full-time, AACSB accredited business doctoral program within 3 years of attending the conference.
- If you previously attended a PhD Project Conference, you may submit an application to be reviewed, however if you are selected to attend, The PhD Project will only cover hotel costs (shared room with another participant). You will be required to pay the registration and travel costs

ii. Resources for Potential/Current Doctoral Students:
A. http://www.phdproject.org/resources.html
B. Information about good business schools that offer Ph.D. programs, preparation for the GMAT, and the life in graduate school as a Ph.D. student.
C. Suggested Reading:
- http://www.phdproject.org/reading.html
- Has information life in graduate school as a Ph.D. student, racial diversity/issues in higher education, job searching in academia, and work-life balance for female Ph.D. students.

iii. The PhD Project Doctoral Student Association (DSA):
A. The PhD Project network:
- http://www.myphdnetwork.org/
- "There are 5 discipline specific associations covering the major areas of business education: Accounting, Finance, Information Systems, Management, Marketing."

11. MS-to-Ph.D. program for underrepresented minorities at Fisk and Vanderbilt in certain areas of science (including astronomy, material science, and physics)
12. Outreach programs for underrepresented minorities to help them get into medical (and/or graduate) schools. Search for "PREP (Post-baccalaureate Research Education Programs)," which have stipends. E.g., Georgetown University School of Medicine, and George Washington University's medical school
13. New York University:
(a) Leonard N. Stern School of Business:
i. Stern Pre-Doctoral program: http://www.stern.nyu.edu/AcademicPrograms/PhD/Pre-Doctoral/index.htm

8 Science & Engineering Outreach

8.1 Precollege Science & Engineering Outreach

Science and engineering outreach to high-school (and middle-school) students, and their parents, teachers, and career counselors:

1. *MentorNet*:
   (a) http://www.mentornet.net/
   (b) Enables people to network with scientists, engineers, and professors in Science, Technology, Engineering, and Mathematics (STEM)
   (c) Is very supportive of minorities, so that more minorities (particularly underrepresented minorities) can be attracted to STEM careers
2. International Science Olympiad (for high school students):
   (a) International Olympiad in Informatics: http://en.wikipedia.org/wiki/International_Olympiad_in_Informatics and http://www.ioinformatics.org/index.shtml
   (b) International Mathematical Olympiad: http://www.imo-official.org/
   (c) International Physics Olympiad: http://www.jyu.fi/tdk/kastdk/olympiads/
   (d) International Chemistry Olympiad: http://www.icho.sk/
   (e) International Biology Olympiad: http://www.ibo-info.org/
   (f) http://scienceolympiads.org/
3. International Astronomy Olympiad: http://www.issp.ac.ru/iao/
4. International Earth Science Olympiad: http://en.wikipedia.org/wiki/International_Earth_Science_Olympiad
5. International Junior Science Olympiad (for students younger than 15 years old): http://www.ijso-official.org/home
6. Teen Leadership Institute Science, Technology, Engineering, and Math (STEM) programs @ YWCA Greater Pittsburgh; see http://www.ywcapgh.org/STEM_Programs.asp
7. For Inspiration and Recognition of Science and Technology (FIRST): http://www.usfirst.org/ (including resources and guides to mentoring); scholarships @ http://www.usfirst.org/aboutus/content.aspx?id=508; and robotics programs @ http://www.usfirst.org/roboticsprograms/frc/default.aspx?=966
8. Mac Hyman, "Good Choices for Great Careers in the Mathematical Sciences," talk given at 2008 SIAM Annual Meeting. Available at: http://client.blueskybroadcast.com/siam08/hyman/index.html; last accessed on August 25, 2010. Also, see http://meetings.siam.org/program.cfm?CONFCODE=AN08, http://www.siam.org/meetings/an08/program.php, and http://www.siam.org/meetings/an08/.
9. *RoboCup*™ competitions:
   (a) Junior category for K-12 students involves contests the these areas of challenges:
      i. soccer
      ii. dance
      iii. rescue operations
   (b) http://www.robocup.org/

10. *Curriki*, which is an online educational resource for teachers, students, and parents in K-12: http://www.curriki.org/xwiki/bin/view/Main/About
11. Electrical and computer engineering and/or computer science:
    (a) *TopCoder* coding and design contests:
        i. High School category
        ii. http://www.topcoder.com/
    (b) Student Cluster Competition (SCC):
        i. SCC is held at each (annual) SC conference, which is the International Conference for High Performance Computing, Networking, Storage, and Analysis. IEEE Computer Society and the Association for Computing Machinery are the sponsors for this conference.
        ii. During SC10, teams consisting of six students, undergraduate and/or high school, will showcase the amazing power of clusters and the ability to utilize open source software to solve interesting and important problems. They will compete in real-time on the exhibit floor to run a workload of real-world applications on clusters of their own design while never exceeding the dictated power limit.
        iii. During SC10 in New Orleans, teams will assemble, test and tune their machines and run the HPCC benchmarks until the starting bell rings on Monday night at the Exhibit Opening Gala where they will be given the competition data sets. In full view of conference attendees, teams will execute the prescribed workload while showing progress and science visualization output on large high-resolution displays in their areas. Teams race to correctly complete the greatest number of application runs during the competition period until the close of the exhibit floor on Wednesday evening.
        iv. http://sc10.supercomputing.org/?pg=studentcluster.html
    (c) Institute of Electrical and Electronics Engineers, IEEE:
        i. *IEEE Educational Activities* recommended resources: http://www.ieee.org/education_careers/education/preuniversity/resources/index.html
        ii. Engineering Projects in Community Service (EPICS) in IEEE:
            A. High school students collaborate with college students in engineering projects to benefit the community
            B. http://www.ieee.org/education_careers/education/preuniversity/epics_high.html
        iii. Talk given by John Cohn at the IEEE International Symposium on Circuits and Systems (ISCAS), May 18-21, 2008. The talk is titled, "Kids these days. How we can inspire the next generation of Engineers and Scientists?" See http://ewh.ieee.org/soc/icss/IEEE-ISCAS-08-Tue-Keynote-JC/IEEE-ISCAS-08-Tue-Keynote-HTML. [Alternatively, go to: IEEE Circuits and Systems Society, http://www.ieee-cas.org/: Select the "Resources" tab in the menu bar, and select the "ISCAS Keynote Videos" option. Click on the video link with the appropriate title.]
    (d) Association for Computing Machinery (ACM):
        i. Sanjeev Arora, Boaz Barak, and Luca Trevisan, "Survey Papers and Essays," in *Theory Matters Wiki: Theoretical Computer Science (TCS) Advocacy Wiki*, SIGACT Committee for the Advancement of Theoretical Computer Science, ACM

Special Interest Group on Algorithms and Computation Theory (SIGACT), Association for Computing Machinery, February 25, 2010. Available at: http://theorymatters.org/pmwiki/pmwiki.php?n=Main.SurveyCollection; last accessed on September 14, 2010.

(e) WGBH Educational Foundation:
  i. Dot Diva / New Image for Computing (NIC) initiative:
    A. http://dotdiva.org/
    B. Resource for parents and teachers: http://dotdiva.org/parents.html

(f) Silicon Valley StRUT:
  i. Students Recycling Used Technology, StRUT, Competition; StRUT Competition consists of:
    A. Disassemble and Reassemble A Computer
    B. Create and Present a Powerpoint Presentation
    C. Computer Parts Identification and Challenge Test
    D. Team Quiz Bowl on Computer Technology and Related Subjects
    E. http://www.svstrut.org/cms/content/section/1/5/
    F. Teacher Resources: http://www.svstrut.org/cms/component/option,com_weblinks/catid,11/Itemid,10/
Resources to Support Curriculum for Engineering and Computer Technology Education: http://www.svstrut.org/cms/content/view/8/18/
  ii. http://www.svstrut.org/cms/

(g) Google Code Jam (programming contest): http://code.google.com/codejam/ and http://en.wikipedia.org/wiki/Google_Code_Jam

(h) University of Illinois at Urbana-Champaign (UIUC):
  i. College of Engineering; Department of Computer Science:
    A. Outreach & Diversity: http://cs.illinois.edu/outreach
    B. ChicTech: http://cs.illinois.edu/outreach/chictech
    C. Technical Ambassadors: http://cs.illinois.edu/outreach/tac
    D. Games4Girls: http://cs.illinois.edu/outreach/games4girls
    E. Workshops & Camps: http://cs.illinois.edu/outreach/k12
    F. http://cs.illinois.edu/outreach

(i) Carnegie Mellon University:
  i. women@SCS School of Computer Science, Carnegie Mellon University:
    A. Papers: http://women.cs.cmu.edu/Resources/Papers/
    B. Alumnae Interviews / Profiles: http://women.cs.cmu.edu/Who/Alumnae/alumInterviews.php
    C. Job and Research Opportunities: http://www.women.cs.cmu.edu/Resources/JobsResearch/
    D. Career Advice: http://women.cs.cmu.edu/Resources/JobsResearch/careeradvice.php
    E. Other Sites: http://www.women.cs.cmu.edu/Miscellaneous/Other/

(j) *Quora*:
  i. "If a 10-year-old wanted to start programming today, what language path would be the most valuable moving forward?" Available online at: http://www.quora.com/If-a-10-year-old-wanted-to-start-programming-today-what-language-path last accessed on November 23, 2010.

12. Engineering Education Service Center (EESC):
    (a) Has lists of:
        i. Educational material:
            A. books
            B. DVDs
            C. resource kits for teachers
        ii. engineering camps (for the summer in the United States): http://www.engineeringedu.com/camps/
        iii. *Women in Engineering* programs at US engineering schools: http://www.engineeringedu.com/wie.html
        iv. US engineering schools: http://www.engineeringedu.com/engrschools.htm
        v. competitions for youths, including high school students: http://www.engineeringedu.com/competitions.html
        vi. online resources
        vii. list of professional organizations in engineering (or engineering societies): http://www.engineeringedu.com/soc1.html
        viii. scholarships: http://www.engineeringedu.com/scholars.html
    (b) It has resources for K-12 students, and their teachers and parents. It also has information for girls who are seeking careers in engineering; in addition, it provides their parents and teachers with information to guide the girls.
    (c) It runs a workshop (in the US) for mother-daughter pairs to encourage girls to pursue careers in engineering.
    (d) http://www.engineeringedu.com/
13. TryNano.org:
    (a) Information about educational opportunities and careers in nanotechnology and nanoscience
    (b) TryNano.org
14. *Mathematical Association of America* (MAA):
    (a) Middle/High School Students: http://www.maa.org/students/middle_high/
    (b) Parents: http://www.maa.org/students/Parents.html
    (c) MAA American Mathematics Competitions:
        i. *Students* [resources]. Available at: http://amc.maa.org/a-activities/a4-for-students/s-index.shtml; last accessed on September 2, 2010.
        ii. It includes tips to help students do well in math contests and Olympiads, a reading list for students interested in mathematics, problems from past math contests and Olympiads, and other resources from the World Wide Web.
    (d) *Fun Math Sites*. Available at: http://www.maa.org/students/funsites.html; last accessed on September 2, 2010.
    (e) Special Interest Group on Mathematics and the Arts (SIGMAA-ARTS): Resources, see http://myweb.cwpost.liu.edu/aburns/sigmaa-arts/resources.html.
    (f) Special Interest Group of the MAA on Quantitative Literacy (SIGMAA QL): http://sigmaa.maa.org/ql/
15. eGFI (Engineering, Go For It!):

(a) Provides information for students, parents, and teachers about educational pathways and careers in engineering
(b) http://egfi-k12.org/

16. *Sloan Career Cornerstone Center*:
    (a) Career exploration resources in STEM (science, technology, engineering, mathematics, computing, and healthcare)
    (b) http://www.careercornerstone.org/
17. *TryEngineering*:
    (a) Career exploration resources for engineering
    (b) http://www.tryengineering.org/
18. *Junior Engineering Technical Society, JETS*:
    (a) Career exploration resources for engineering
    (b) http://www.jets.org/
19. *American Society of Mechanical Engineers, ASME*:
    (a) K-12 Student Resources: http://www.asme.org/Communities/Students/K12/ and http://www.asme.org/Education/PreCollege/EngineeringResources/
    (b) Engineering Camps: http://www.asme.org/Communities/Students/K12/Camps.cfm
20. BESTRobotics, Inc.:
    (a) BEST (Boosting Engineering, Science, and Technology) competition:
        i. http://best.eng.auburn.edu/
        ii. Hosted at Auburn University's Samuel Ginn College of Engineering
        iii. BEST World Championship: http://best.eng.auburn.edu/world-championship/
21. *American Society of Civil Engineers, ASCE*:
    (a) Outreach resource for K-12 students, and their parents and teachers
    (b) http://content.asce.org/asceville/index.html
22. *Science.gov* (USA.gov for Science): Internship and Fellowship Opportunities in Science (for high school students); see http://www.science.gov/internships/k-12.html
23. *iTunes U*:
    (a) *iTunes* is required to listen to or watch these lectures, talks, and presentations.
    (b) Access *iTunes U* at: http://deimos3.apple.com/indigo/main/main.html?v0=WWW-AMUS-ITUNESU070521-N48LX
    (c) WGBH's Teachers' Domain – Boston's PBS Station: Video presentation on "Engineering for the Red Planet"; see http://deimos3.apple.com/WebObjects/Core.woa/Browse/wgbh.org.1416254059.01416254061.1416793683?i=1951581658. Also, check out its video clip on "Carbon Fiber Car of the Future".
    (d) *iTunes U* is a set of webcast and podcasts, where you can easily find audio and video clips for lectures, seminars, announcements, virtual tours, and so on. For example, some professors from schools like MIT or Berkeley will provide audio/video clips of their lectures on *iTunes U*.

(e) This can help in exploring different majors during the college application process, or before a college student declares her/his major(s). If a student is not sure if she/he wants to double major in deaf studies and linguistics, this student can check out some linguistics lectures from her/his (preferred) college/university, if it uses *iTunes U*, or those from other universities.

24. High School Ace's College Prep Guide: http://highschoolace.com/ace/colleges.cfm
25. *Dr. Sally Ride* (Americas first woman in space):
    (a) *Sally Ride Science*'s resources for educators: https://www.sallyridescience.com/for_educators
    (b) Sally Ride Science Educator Institutes (to educate K-12 teachers about science): https://www.sallyridescience.com/for_educators/institutes
    (c) *Sally Ride Science Academy* helps teachers to increase their students' interest in science: https://www.sallyridescience.com/academy
    (d) *Sally Ride Science*'s resources for teachers: https://www.sallyridescience.com/resources
    (e) *Sally Ride Science Festivals* are events for girls from the 5^{th} grade to the 8^{th} grade: https://www.sallyridescience.com/festivals
    (f) *Sally Ride Science Camps* are summer camps for girls from the 4^{th} grade to the 9^{th} grade: http://www.sallyridecamps.com/
    (g) GRAIL MoonKAM:
        i. "GRAIL MoonKAM (Moon Knowledge Acquired by Middle school students) is GRAIL's signature education and public outreach program."
        ii. "GRAIL MoonKAM will engage middle schools across the country in the GRAIL mission and lunar exploration."
        iii. https://www.grailmoonkam.com/
    (h) EarthKAM:
        i. EarthKAM (Earth Knowledge Acquired by Middle school students) is a NASA educational outreach program enabling students, teachers and the public to learn about Earth from the unique perspective of space.
        ii. https://earthkam.ucsd.edu/
26. Andrew Rader Studios:
    (a) Chem4Kids.com: http://www.chem4kids.com/
27. *American Association for the Advancement of Science, AAAS*:
    (a) ENTRY POINT! for Students With Disabilities (in STEM): http://www.aaas.org/careercenter/fellowships/ and http://ehrweb.aaas.org/entrypoint/
    (b) AAAS Mass Media Science & Engineering Fellows Program (for STEM grad students to intern in mass media companies): http://www.aaas.org/programs/education/MassMedia/
    (c) Diversity Issues: http://sciencecareers.sciencemag.org/career_magazine/diversity_issues/

(d) Internships involving science and journalism, human rights, scientific freedom, responsibility, or law: http://www.aaas.org/careercenter/ and http://www.aaas.org/careercenter/internships/scienceminority.shtml (AAAS Minority Science Writers Internship)

(e) Kinetic City: http://www.kineticcity.com/

28. *NASA* resources for students: http://www.nasa.gov/audience/forstudents/index.html and http://www.nasa.gov/offices/education/programs/national/summer/education_resources/index.html (NASA Summer of Innovation)
29. National Academy of Engineering, NAE:
    (a) NAE Grand Challenges:
        i. Includes a list of NAE Grand Challenges, which indicate some of the challenges faced by people on a global scale that can be partially solved by engineers. This can be used to get children and youths to be excited about engineering.
        ii. NAE Grand Challenges:
            A. Make solar energy economical
            B. Provide energy from fusion
            C. Develop carbon sequestration methods
            D. Manage the nitrogen cycle
            E. Provide access to clean water
            F. Restore and improve urban infrastructure
            G. Advance health informatics
            H. Engineer better medicines
            I. Reverse-engineer the brain
            J. Prevent nuclear terror
            K. Secure cyberspace
            L. Enhance virtual reality
            M. Advance personalized learning
            N. Engineer the tools of scientific discovery
        iii. http://www.engineeringchallenges.org/
        iv. NAE Grand Challenge K12 Partners Program:
            A. http://www.grandchallengek12.org/about
            B. 5-Part Make it Happen Plan: http://www.grandchallengek12.org/5-part-plan
    (b) *National Academy of Engineering*'s technological literacy program for people (students, parents, and educators) to learn more about technology: http://www.nae.edu/nae/techlithome.nsf
    (c) Greatest Engineering Achievements: http://www.greatachievements.org/
30. National Science Foundation:
    (a) Broadening Participation in Computing (BPC):
        i. http://www.bpcportal.org/
        ii. http://www.bpcportal.org/bpc/shared/home.jhtml;jsessionid=0MIUYDR5U4ARXABA_requestid=9445
        iii. http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13510
        iv. http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13510&org=NSF&sel_org=NSF&from=fund

v. "Broadening Participation in Computing (BPC) is a NSF sponsored program with the goal of significantly increasing the number of underrepresented graduates in the computing disciplines, with an emphasis on women, persons with disabilities, and minorities (African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, and Pacific Islanders)."
vi. Broadening Participation in Computing Digital Library:
    A. http://www.bpcportal.org/bpc/interdiscipline/dl_index.jhtml;jsessionid=ROYEHJV1UQYWNABAVRSSFEQ?comm=BPC
    B. Includes resources for different target populations:
        - Women
        - African Americans
        - Hispanic Americans, or Latinas and Latinos
        - People with disabilities
        - Native Americans
    C. It also includes resources for different topics, such as mentoring, recruitment, retention, and work-life balance.
vii. Alliances (other professional organizations): http://www.bpcportal.org/bpc/comm/projects.jhtml

(b) The National Science Digital Library (NSDL):
i. http://www.nsdl.org/ and http://www.nsdl.org/browse/
ii. "The National Science Digital Library is a national network dedicated to advancing STEM teaching and learning for all learners, in both formal and informal settings, and the locus of activity for the National Science Foundation's National STEM Distributed Learning program."
iii. Outreach materials:
    A. http://www.nsdl.org/pd/?pager=materials
    B. Has outreach materials for educators in K-12 and higher educational institutions.
iv. Resources for K-12 Teachers: http://nsdl.org/resources_for/k12_teachers/
v. Resources for Librarians: http://nsdl.org/resources_for/librarians/
vi. Billingual Resources: http://www.nsdlnetwork.org/collections/billingual-resourc
vii. NSDL on *iTunes U*: http://www.nsdl.org/iTunesU/
viii. Collections: http://www.nsdl.org/browse/?subject=All
ix. NSDL Pathways:
    A. http://nsdl.org/about/?pager=pathways
    B. "Pathways are large projects that are aggregators and stewards of resources and services to broad categories of users—either discipline-focused (e.g. chemistry), or audience-focused (e.g. middle school educators), or resources of a specific type or format (e.g. multimedia content)."
    C. "They are digital library portals developed and managed in partnership with organizations and institutions that have a history and expertise in serving their portal's target audiences."
    D. "They contribute metadata (descriptive information) about their resources to NSDL to make their resources searchable and discoverable via the NSDL.org portal, in addition to their own portals."
x. **NSDL Science Literacy Maps**:
    A. http://strandmaps.nsdl.org/

B. "*NSDL Science Literacy Maps* are a tool for teachers and students to find resources that relate to specific science and math concepts. The maps illustrate connections between concepts as well as how concepts build upon one another across grade levels."

xi. NSDL Professional Development: http://www.nsdl.org/pd/

xii. NSDL Technical Network Services:
   A. http://www.nsdl.org/about/?pager=tns
   B. http://nsdlnetwork.org/
   C. http://nsdlnetwork.org/content/book/page/953/about-nsdl-technical-netwo

xiii. NSDL Resource Center: http://nsdlnetwork.org/content/book/951/page/954/about-nsdl-resource-center

31. *American Chemical Society* Science for Kids program (for students in K-12): http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_TRANSITIONMAIN&node_id=878&use_sec=false&sec_url_var=region1&__uuid=984d4ee7-4214-4d35-9899-bc2f
32. *California Digital Educator Consortium*, "Digital Educator," Digital Learning Center: http://www.digitaleducator.com/
33. Kenny Felder, "Selected Other Educational Sites on the Web". Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/kenny/edulinks.html; last accessed on August 28, 2010.
34. FHSST (Free High School Science Texts); free textbooks for grades 10-12 in Physics, Chemistry, and Mathematics. Available at: http://www.fhsst.org/; last accessed on August 28, 2010.
35. John Baez, *Usenet Physics FAQ*, Department of Mathematics, University of California, Riverside, September 2009. Available at: http://math.ucr.edu/home/baez/physics/; last accessed on August 28, 2010.
36. *American Society for Engineering Education*:
   (a) Science and Engineering Apprenticeship Program (SEAP):
      i. "The Science and Engineering Apprenticeship Program (SEAP) provides an opportunity for students to participate in research at a Department of Navy (DoN) laboratory during the summer."
      ii. "The goals of SEAP are to encourage participating students to pursue science and engineering careers, to further their education via mentoring by laboratory personnel and their participation in research, and to make them aware of DoN Research and technology efforts, which can lead to employment within the DoN."
      iii. "High school students who have completed at least Grade 9. A graduating senior is eligible to apply."
      iv. "Must be 16 years of age for most laboratories. Some laboratories may accept a 15 year old applicant. Please check individual lab description for more details."
      v. "Applicants must be US citizens and participation by Permanent Resident Aliens is limited. Please check individual lab descriptions for participation of Permanent Resident Aliens."
      vi. http://seap.asee.org/
37. robots.net, *Robot Competitions* (list of robot competitions and contests) : http://robots.net/rcfaq.html
38. International Council on Systems Engineering (INCOSE):

(a) Careers in Systems Engineering: http://www.incose.org/educationcareers/careersinsystemseng.aspx
(b) Frequently Asked Questions for Students [about Systems Engineering]: http://www.incose.org/educationcareers/faqsforstudents.aspx
(c) What is Systems Engineering?: http://www.incose.org/practice/whatissystemseng.aspx

39. *National Society of Professional Engineers*:
    (a) A Sightseer's Guide to Engineering: http://www.engineeringsights.org/
40. *Engineers Dedicated to a Better Tomorrow (a.k.a., DedicatedEngineers)*:
    (a) The "K-12 Crowd" (Students, Teachers, Guidance Counselors and Parents): http://www.dedicatedengineers.org/intro_for_K-12.htm
    (b) http://www.dedicatedengineers.org/
41. National Engineers Week Foundation:
    (a) Discover Engineering: http://www.discoverengineering.org/
    (b) Introduce A Girl to Engineering: http://www.eweek.org/EngineersWeek/IntroduceAGirl.aspx
    (c) All About Engineering: http://www.eweek.org/AboutEngineering/AboutEngineering.aspx
42. University of California:
    (a) The Coalition For Science After School:
        i. http://afterschoolscience.org/
        ii. "Promoting high-quality afterschool science" ... "The Coalition for Science After School envisions the day when young people from all backgrounds have access to high-quality science, technology, engineering and mathematics (STEM) learning beyond the classroom."
        iii. Tools for advocates–Championing afterschool science: http://afterschoolscience.org/tools/
        iv. Program resources–Enhancing the quality of afterschool opportunities: http://afterschoolscience.org/resources/
        v. The National After School Science Directory:
            A. http://afterschoolscience.org/directory/
            B. "The National After School Science Directory is a searchable database designed to increase access to high-quality science, technology, engineering and math (STEM) education beyond the classroom for youth and families across the nation. The Directory houses thousands of STEM opportunities, submitted by science centers, museums, schools and other youth-serving organizations. Search our Directory to view opportunities to connect the America's youth to high-quality STEM learning experiences."
        vi. Become an advocate: http://afterschoolscience.org/tools/advocate.php
        vii. Funders (funding organizations/agencies): http://afterschoolscience.org/tools/funders.php
43. Harvey Mudd College:

(a) Francis Edward Su, *Math Fun Facts!*, Department of Mathematics, Harvey Mudd College: http://www.math.hmc.edu/funfacts/

44. Clay Mathematics Institute:
    (a) Program in Mathematics for Young Scientists, PROMYS:
        i. http://www.claymath.org/programs/outreach/PROMYS/
        ii. http://math.bu.edu/people/promys/
        iii. http://www.promys.org/
    (b) Ross Program (for pre-college students):
        i. http://www.claymath.org/programs/outreach/ross/
        ii. http://www.math.ohio-state.edu/ross/
    (c) CMI Summer Schools: http://www.claymath.org/programs/summer_school/
45. Consortium for Ocean Leadership:
    (a) Oceans of Opportunity (for African American students in K-12, and colleges and universities – includes undergraduates and grad students): http://www.oceanleadership.org/education/diversity/oceans-of-opportunity/
    (b) The JOIDES Resolution (The JR) scientific research vessel [Deep Earth Academy]:
        i. Fun & Games: http://joidesresolution.org/node/53
        ii. Discovery Center: http://joidesresolution.org/node/44
        iii. Just for Kids Blog: http://joidesresolution.org/node/366
    (c) National Ocean Sciences Bowl (high school academic competition that provides a forum for talented students to test their knowledge of the marine sciences including biology, chemistry, physics, and geology):
        i. http://www.nosb.org/
        ii. Career Resources: http://www.nosb.org/ocean-careers/career-resources/
    (d) Integrated Ocean Drilling Program (IODP), IODP United States Implementing Organization (IODP-USIO):
        i. U.S.-sponsored Teacher at Sea Program (for US teachers to participate in seagoing research experiences aboard the JOIDES Resolution): http://www.iodp-usio.org/Education/TAS.html
    (e) Careers: http://www.oceanleadership.org/education/deep-earth-academy/students/careers/
46. The Oceanography Society:
    (a) Careers in Oceanography: Profiles, http://www.tos.org/resources/career_profiles.html
    (b) Links [includes links to educational material for students in K-12]: http://www.tos.org/resources/links.html
47. American Geophysical Union:
    (a) Bright Students Training as Research Scientists (Bright STaRS):
        i. http://www.agu.org/education/diversity_programs/bstars.shtml
        ii. "High school students participating in after-school and summer research experiences in the Earth and space sciences are invited to participate in the AGU Bright STaRS program. The Bright STaRS program provides a dedicated forum for ~50 students to present their own research results to the scientific community and learn about exciting research, education, and career opportunities in the geosciences."

48. American Geological Institute, AGI:
    (a) AGI Education Department: http://www.agiweb.org/geoeducation.html
49. Society for Science & the Public (SSP):
    (a) Intel International Science & Engineering Fair (Intel ISEF), which is a pre-college science competition: http://www.societyforscience.org/isef/
    (b) Broadcom MASTERS^{TM} competition (which stands for Broadcom Math, Applied Science, Technology and Engineering for Rising Stars):
        i. Is a U.S. "national science, technology, engineering, and math competition for America's 6^{th}, 7^{th}, and 8^{th} graders."
        ii. http://www.societyforscience.org/masters or http://www.broadcomfoundation.org/masters/
    (c) Science resources: http://www.societyforscience.org/resources
    (d) Science News: http://www.sciencenews.org/
    (e) Science News for Kids (for "children of ages 9-14, their teachers and their parents"): http://www.societyforscience.org/sciencenewsforkids and http://www.sciencenewsforkids.org/
50. Institute for Operations Research and the Management Sciences (INFORMS):
    (a) Operations Research: The Science of Better, http://www.scienceofbetter.org/
51. Technion - Israel Institute of Technology:
    (a) SciTech - the summer camp for talented students (11^{th} and 12^{th} graders from all over the world): http://www.scitech.technion.ac.il/
52. USA Science & Engineering Festival: http://www.usasciencefestival.org/
53. Girl Scouts:
    (a) Girl Scouts of Western New York:
        i. STEM Resource Guide: http://www.gswny.org/Data/Documents/STEM%2520Resource%2520Guide%25202010-Oct-11.pdf
        ii. Also, see http://www.gswny.org/Programs/Awards/Gold/; scroll to the bottom of the page and look under the subsection heading, "Tell Us About Your Gold Award Project"
    (b) Science, Technology, Engineering and Math (STEM): http://www.girlscouts.org/program/program_opportunities/science/
54. American Museum of Science and Energy (AMSE):
    (a) http://www.amse.org/
    (b) Owned by the US Department of Energy, and managed under Oak Ridge National Laboratory
    (c) Educators: http://www.amse.org/content.aspx?article=1140&parent=30
    (d) Educational Programs: http://www.amse.org/content.aspx?article=1139&parent=30
    (e) Home school programs: http://www.amse.org/content.aspx?article=1169&parent=30
    (f) Online resources: http://www.amse.org/content.aspx?article=1170&parent=30

55. Center for Energy Workforce Development (CEWD):
    (a) Teachers and guidance counselors:
        i. http://www.cewd.org/educators_index.asp
        ii. Lesson plans for teachers: http://www.cewd.org/educators_lessonplans.asp
    (b) Parents: http://www.cewd.org/parents_index.asp
56. TryScience: http://tryscience.net/tryscinetmain.nsf/Welcome?OpenPage
57. The Dana Foundation:
    (a) Brainy Kids:
        i. http://www.dana.org/resources/brainykids/
        ii. Fun:
            A. http://dana.org/resources/brainykids/detail.aspx?folder_id=104
            B. Has interactive online games, activities, and fun quizzes on:
                - biology
                - health
                - neuroscience
                - astronomy
                - chemistry
                - ecology
        iii. The Lab:
            A. http://dana.org/resources/brainykids/detail.aspx?folder_id=106
            B. Has maps of the brain, virtual dissections, resources for science fairs, and virtual microscopes
        iv. Lesson Plans:
            A. http://dana.org/resources/brainykids/detail.aspx?folder_id=108
            B. Includes resources that cover the history of science and technology, lesson plans for K-12 science teachers, and science news for youths.
        v. The Mindboggling Workbook:
            A. http://www.dana.org/uploadedFiles/The_Dana_Alliances/mindboggling_workbook.pdf
            B. "A fun-filled activity book about the brain for children in grades K-3 (ages 5-9). Provides an introduction to how the brain works, what the brain does, its importance, and how to take care of it."
58. University of New Mexico:
    (a) Department of Mathematics and Statistics:
        i. UNM - PNM Statewide Mathematics Contest (sponsored by the PNM Foundation): http://mathcontest.unm.edu/
59. Center for Energy Workforce (CEWD):
    (a) Get Into Energy:
        i. http://www.getintoenergy.com/index.asp and http://www.getintoenergy.com/careers.asp
        ii. Fun educational resources for students: http://www.getintoenergy.com/students.asp
        iii. Career Quiz:

A. http://www.getintoenergy.com/search/careerquizj.asp
B. Help you find out more about career options in the energy field

iv. Career Resources:
A. http://www.getintoenergy.com/careerresources.asp
B. Has information on:
- Training Programs (technical schools and colleges)
- Work-based Programs (apprenticeships and internships)
- Featured Employers

v. Skills Needed in the Energy Field:
A. http://www.getintoenergy.com/skills.asp
B. List skills for different kinds of jobs in the energy field

vi. Information for parents: http://www.getintoenergy.com/Parents.asp

vii. Information for teachers and guidance counselors: http://www.getintoenergy.com/Educators.asp

60. University of Utah:
(a) Department of Electrical and Computer Engineering:
i. Prof. Cynthia Furse:
A. Cynthia Furse, *K-12 Engineering Outreach*, August 2007. Available online at: http://www.ece.utah.edu/~cfurse/K12.html; last accessed on December 10, 2010.
B. Cynthia Furse, *U Dream. U Design. U Create.*, Department of Electrical and Computer Engineering, University of Utah. Available online at: http://www.ece.utah.edu/~cfurse/NSF/; last accessed on December 10, 2010.

61. Society for Industrial and Applied Mathematics:
(a) Public Awareness:
i. Math Competitions, http://www.siam.org/publicawareness/competitions.php
ii. Moody's Mega Math Challenge (M3 Challenge) is an applied mathematics competition for high school students. Available online at: http://m3challenge.siam.org/; last accessed on December 13, 2010.
iii. *Math Matters, Apply It!*: http://www.siam.org/careers/matters.php
iv. Nuggets: http://www.siam.org/publicawareness/nuggets.php
(b) Society for Industrial and Applied Mathematics, "Unveiling Why Do Math," May 27, 2010. Available online at: http://www.siam.org/about/news-siam.php?id=1741; last accessed on December 13, 2010.

62. International Federation of Operational Research Societies (IFORS):
(a) Association of European Operational Research Societies (EURO):
i. *What is Operational Research?*: http://www.euro-online.org/display.php?pageid=197&
ii. Applications of OR in music, literature, and aesthetics: http://www.euro-online.org/display.php?pageid=211&
iii. 24 Hours Operations Research: http://www.24hor.org/
iv. Branding OR: http://www.euro-online.org/display.php?pageid=198&

63. American Institute of Aeronautics and Astronautics (AIAA):

(a) Students & Educators: http://www.aiaa.org/content.cfm?pageid=5
(b) Ask An Engineer: http://www.aiaa.org/content.cfm?pageid=214
(c) Kid's Place:
    i. http://www.aiaa.org/content.cfm?pageid=473
    ii. Enjoy games, puzzles, fun experiments, teen-recommended books and movies, and more.
(d) History of Flight Timeline: http://www.aiaa.org/content.cfm?pageid=260
(e) Ask Polaris:
    i. http://www.askpolaris.org/
    ii. Resource for career exploration in aerospace engineering and related fields

64. Massachusetts Institute of Technology:
    (a) MIT School of Engineering:
        i. Lemelson-MIT Program:
            A. http://web.mit.edu/invent/
            B. Inventor's Handbook: http://web.mit.edu/invent/h-main.html
            C. Games & Trivia; http://web.mit.edu/invent/g-main.html
            D. Links & Resources: http://web.mit.edu/invent/r-main.html

65. BT Group plc:
    (a) British Telecommunications plc (BT):
        i. BT Young Scientist & Technology Exhibition:
            A. http://www.btyoungscientist.com/
            B. http://www.btyoungscientist.com/all-you-need-to-know/
            C. Science and technology fair for high/secondary school students in Ireland

66. NHS Medical Careers:
    (a) http://www.medicalcareers.nhs.uk/Default.aspx
    (b) Provides information about careers in medicine for prospective medical students, medical students, medical school graduates (or young medical professionals), (medical speciality) trainers, and medical specialists.

67. British Science Association:
    (a) British Science Festival:
        i. http://www.britishscienceassociation.org/web/BritishScienceFestival/AboutFestival/index.htm
        ii. Festival Student Bursaries: http://www.britishscienceassociation.org/web/BritishScienceFestival/StudentBursaries/index.htm
    (b) National Science & Engineering Week: http://www.britishscienceassociation.org/web/NSEW/index.htm
    (c) Clubs, CREST Awards and Fairs (programs and activities for children and youth, 5-19 years of age): http://www.britishscienceassociation.org/web/ccaf/index.htm
    (d) National Science & Engineering Competition: http://www.britishscienceassociation.org/web/NSEC/index.htm and http://www.thebigbangfair.co.uk/nsec/

68. Research Councils UK (RCUK):
    (a) http://www.rcuk.ac.uk/per/Pages/Schools.aspx

(b) Schoolscience:
   i. http://www.schoolscience.co.uk/
   ii. For students and educators in K-12 to enrich the learning experiences of science topics, and help students connect classroom material to the real world.
   iii. Teacher Zone - professional resources for teachers: http://www.schoolscience.co.uk/teacher_zone.cfm
   iv. Interactive Learning Resources: http://www.schoolscience.co.uk/interactives.cfm
   v. Free Resources: http://www.schoolscience.co.uk/freebies.cfm
   vi. Competitions: http://www.schoolscience.co.uk/competitions.cfm
   vii. Research focus: http://www.schoolscience.co.uk/research_focus.cfm
   viii. Resources on the World Wide Web: http://www.schoolscience.co.uk/sciencelink.cfm

(c) Researchers in Residence (RinR):
   i. http://www.researchersinresidence.ac.uk/cms/schools-colleges/
   ii. For students in middle and high schools to job shadow (observe first-hand) a Ph.D. student or postdoctoral researcher in her/his research activities for up to a week, so that students can learn what doing research in her/his research area is like. In addition, the researcher would explain in laypeople's terms what her/his research is about. It can be considered as an externship program.

(d) Nuffield Bursaries:
   i. http://www.nuffieldfoundation.org/capacity-building
   ii. http://www.nuffieldfoundation.org/science-bursaries-schools-and-colleges
   iii. For high school juniors/seniors to pursue a research internship in science and engineering.

(e) CREST (Creativity in Science and Technology):
   i. http://www.britishscienceassociation.org/web/ccaf/CREST/index.htm
   ii. Program to help students get engaged in a science or engineering project, where they learn how to solve real problems in science or engineering.

69. Nuffield Foundation:
   (a) Science bursaries for schools and colleges: http://www.nuffieldfoundation.org/science-bursaries-schools-and-colleges
   (b) Students: http://www.nuffieldfoundation.org/students
   (c) Twenty First Century Science:
      i. http://www.21stcenturyscience.org/
      ii. "Twenty First Century Science is a set of GCSE science courses giving all 14-16-year-olds a worthwhile and inspiring experience of science. The strength of the programme is that it meets the needs, through flexible options, of those who will go on to be professional scientists and of those who will not."
      iii. The Courses: http://www.21stcenturyscience.org/the-courses/
      iv. Assessment overview: http://www.21stcenturyscience.org/assess/
      v. Teaching resources: http://www.21stcenturyscience.org/resources/
   (d) Science in Society:
      i. http://www.scienceinsocietyadvanced.org/
      ii. "Science in Society is an interesting and topical GCE advanced level course. It aims to develop the knowledge and skills that are needed for students to understand

how science works, analyse contemporary issues involving science and technology and communicate their scientific appreciation and understanding to others."

(e) Parents: http://www.nuffieldfoundation.org/parents
(f) Education: http://www.nuffieldfoundation.org/education
(g) Teachers (has excellent resources for science and mathematics): http://www.nuffieldfoundation.org/teachers
(h) Capacity building: http://www.nuffieldfoundation.org/capacity-building

70. The Story of Stuff Project (by Annie Leonard):
    (a) http://www.storyofstuff.com/
    (b) "The Story of Stuff Project was created by Annie Leonard to leverage and extend the film's impact. We amplify public discourse on a series of environmental, social and economic concerns and facilitate the growing Story of Stuff community's involvement in strategic efforts to build a more sustainable and just world."
    (c) Resources:
        i. http://www.storyofstuff.com/resources.php
        ii. The Story of Stuff Project PDFs: http://www.storyofstuff.com/dl-pdfs.php
        iii. Teaching Tools: http://www.storyofstuff.com/teach.php
        iv. More About Stuff: http://www.storyofstuff.com/aboutstuff.php
        v. Recommended Reading & Bibliography: http://www.storyofstuff.com/reading.php
        vi. Get Involved: http://www.storyofstuff.com/getinvolved.php
        vii. Curricula: http://storyofstuff.org/curricula.php

71. Facing the Future:
    (a) http://www.facingthefuture.org/
    (b) "*Facing the Future* engages students in learning by making academics relevant to their lives. We empower students to think critically, develop a global perspective, and participate in positive solutions for a sustainable future."
    (c) Curriculum Alignment with Education Standards: http://www.facingthefuture.org/Curriculum/AlignmentwithEducationStandards/tabid/116/Default.aspx
    (d) Global Sustainability Curriculum Finder: http://www.facingthefuture.org/Curriculum/FindCurriculumthatisRightforYou/tabid/68/Default.aspx
    (e) Download FREE Global Issues and Sustainability Curriculum: http://www.facingthefuture.org/Curriculum/DownloadFreeCurriculum/tabid/114/Default.aspx
    (f) Classroom Examples: How Engaging Curriculum Can Help Address Classroom Challenges, http://www.facingthefuture.org/ForEducators/ClassroomExamples/tabid/213/Default.aspx
    (g) Our Impact on Student Achievement: http://www.facingthefuture.org/ForEducators/OurImpactonStudentAchievement/tabid/73/Default.aspx
    (h) Action Project Database: http://www.facingthefuture.org/ServiceLearning/ActionProjectDatabase/tabid/94/Default.aspx
    (i) Service Learning Examples: http://www.facingthefuture.org/ServiceLearning/ExamplesofStudentsTakingAction/tabid/147/Default.aspx
    (j) Curriculum: http://www.facingthefuture.org/Curriculum/CurriculumHome/tabid/113/Default.aspx

72. U.S. Department of Energy:
    (a) Office of Science:
        i. U.S. Department of Energy (DOE) National Science Bowl®:
            A. http://www.scied.science.doe.gov/nsb/default.htm
            B. "The U.S. Department of Energy (DOE) National Science Bowl® is a nationwide academic competition that tests students' knowledge in all areas of science. High school and middle school students are quizzed in a fast paced question-and-answer format similar to Jeopardy. Competing teams from diverse backgrounds are comprised of four students, one alternate, and a teacher who serves as an advisor and coach."
        ii. Argonne National Laboratory:
            A. Division of Educational Programs:
                - Newton BBS Ask A Scientist: http://www.newton.dep.anl.gov/aas.htm
    (b) Office of Energy Efficiency and Renewable Energy (EERE):
        i. Kids Saving Energy:
            A. http://www.eere.energy.gov/kids/index.html
            B. K-12 Lesson Plans & Activities: http://www1.eere.energy.gov/education/lessonplans/
            C. Energy Savers: http://www.energysavers.gov/
            D. Games and activities: http://www.eere.energy.gov/kids/games.html
            E. Smart home: http://www.eere.energy.gov/kids/smart_home.html
            F. About renewable energy: http://www.eere.energy.gov/kids/renergy.html
    (c) Contest & Competitions: http://www.energy.gov/contests&competitions.htm
73. United States Department of Defense (DoD):
    (a) National Defense Education Program; Defense Advanced Research Projects Agency (DARPA):
        i. Resource for Students: http://www.ndep.us/GetInvoStu.aspx
        ii. Resource for Educators: http://www.ndep.us/GetInvoTea.aspx
74. Project Lead The Way:
    (a) http://www.pltw.org/
    (b) Getting started: http://www.pltw.org/getting-started/getting-started
    (c) Program support: http://www.pltw.org/program-support/program-support
    (d) Grants available to schools and teachers: http://www.pltw.org/pltw-in-the-news/grants-available-schools-teachers-and-classrooms
    (e) Students: http://www.pltw.org/students/students
    (f) Educators and Administrators: http://www.pltw.org/educators-administrators/educators-administrators-overview
    (g) Parents: http://www.pltw.org/parents/parents
75. National Science Teachers Association:
    (a) http://www.exploravision.org/
    (b) Science competition for K-12 students

76. American Mathematical Society:
    (a) Some career resources for mathematics: http://e-math.ams.org/samplings/samplings
77. American Institute of Physics (AIP):
    (a) Physics Success Stories: http://www.aip.org/success/
    (b) Physics is for you; Career Services Division:
        i. http://www.aip.org/careersvc/pify/
        ii. Physicists at work: http://www.aip.org/careersvc/pify/yellow.html
    (c) Society of Physics Students (SPS):
        i. Careers Using Physics (CUP):
            A. http://www.spsnational.org/cup/
            B. Advice: http://www.spsnational.org/cup/advice/index.html
            C. Resources: http://www.spsnational.org/cup/resources.html
            D. Preparing to Teach: http://www.spsnational.org/cup/teach/index.html
    (d) ComPADRE Digital Library:
        i. http://www.compadre.org/
        ii. The Physics Career Resource: http://www.compadre.org/careers/
    (e) Career guidance for high school and undergraduate students: http://www.aip.org/statistics/trends/career.html
    (f) Gayle A. Buck, Jack G. Hehn, and Diandra L. Leslie-Pelecky (Editors), "The Role of Physics Departments in Preparing K-12 Teachers," American Institute of Physics. Available online at: http://www.aip.org/education/teacherprep/; last accessed on January 9, 2010.
    (g) American Geophysical Union:
        i. Students & Teachers: http://www.agu.org/education/students_teachers.shtml
        ii. Diversity Programs: http://www.agu.org/education/diversity_programs/
78. Institute for Operations Research and the Management Sciences (INFORMS):
    (a) Career FAQ's: http://www.informs.org/Build-Your-Career/INFORMS-Student-Union/Career-Center/Career-FAQ-s
79. American Institute of Mathematics:
    (a) Math Teachers' Circle Network:
        i. Classroom Materials: http://www.mathteacherscircle.org/resources/classroommate html
        ii. Helpful Resources: http://www.mathteacherscircle.org/resources/general.html
    (b) Resources for the Math Community:
        i. http://www.aimath.org/mathcommunity/
        ii. David W. Farmer, "The AIM REU: individual projects with a common theme," in the *Proceedings of the Conference on Promoting Undergraduate Research in Mathematics*, American Mathematical Society, 2006. Available online at: http://www.aimath.org/mathcommunity/farmerREU.pdf; last accessed on January 9, 2010. ["AIM Research Experience for Undergraduates (REU)"]

iii. Sally Koutsoliotas and David W. Farmer, "Preparing students to give talks," American Institute of Mathematics. Available online at: http://www.aimath.org/mathcommunity/studenttalks.pdf; last accessed on January 9, 2010. ["Preparing students to give talks"]

80. Invent Now:
    (a) Camp Invention:
        i. "Summer enrichment program for children entering grades one through six."
        ii. "The Camp Invention program instills vital 21st century life skills such as problem-solving and teamwork through hands-on fun!"
        iii. Parents: http://www.invent.org/camp/parents.aspx
        iv. Teachers: http://www.invent.org/camp/teachers.aspx

81. Massachusetts Institute of Technology:
    (a) MIT School of Engineering:
        i. Lemelson-MIT Program:
            A. http://web.mit.edu/invent/
            B. Invention Dimension (for children): http://web.mit.edu/invent/invent-main.html

82. The Lemelson Foundation:
    (a) http://web.mit.edu/invent/w-foundation.html
    (b) Programs & Grants: http://www.lemelson.org/programs-grants
    (c) Grantmaking: http://www.lemelson.org/grantmaking

83. Smithsonian Institution:
    (a) Smithsonian Kids: http://www.si.edu/Kids
    (b) National Museum of American History:
        i. Lemelson Center for the Study of Invention and Innovation:
            A. http://inventionatplay.org/index.html
            B. Resources: http://inventionatplay.org/resources.html

84. Scholarships:
    (a) IEEE Presidents' Scholarship: http://www.ieee.org/education_careers/education/preuniversity/scholarship.html
    (b) ACM/SIGDA *P. O. Pistilli scholarship*:
        i. Supported by the Design Automation Conference which ACM/SIGDA sponsors, the objective of the P. O. Pistilli Scholarship is to increase the pool of professionals in Electrical Engineering and Computer Science from underrepresented groups (Women, African American, Hispanic, American Indian, and Disabled).
        ii. Scholarships of $4000 per year, renewable for up to 5 years, are awarded annually to 2-7 high school seniors from the above mentioned under represented groups who have a 3.00 GPA or better (on a 4.00 scale), have demonstrated high achievement in math and science courses, have expressed a strong desire to pursue careers in electrical engineering, computer engineering, or computer science, and who have demonstrated substantial financial need.
        iii. U.S. citizenship is not required, but applicants must be U.S. residents when they apply and must plan to attend an accredited US college or university.

iv. http://www.sigda.org/pistilli.html

(c) Engineering Education Service Center (EESC): http://www.engineeringedu.com/scholars.html

(d) ASME-ASME Auxiliary FIRST Clarke Scholarships: http://www.asme.org/Education/College/FinancialAid/High_School_Seniors.cfm and http://www.asme.org/Education/College/FinancialAid/Auxiliary_FIRST_Clarke.cfm

(e) International Petroleum Institutes High School Scholarships (for individuals entering a college program in engineering): http://www.asme-ipti.org/public/pagscholarshipprogra aspx

(f) American Institute of Chemical Engineers (AIChE):
   i. Fuels and Petrochemicals Division Scholarship (for high school students entering undergraduate programs in engineering or science that are related to fuels and petrochemicals): http://www.aiche.org/Students/Awards/F_PDScholarship.aspx
   ii. Minority Scholarship Awards for Incoming College Freshmen (for underrepresented minorities entering an undergraduate chemical engineering program): http://www.aiche.org/Students/Awards/MinorityScholarshipAwardsIncomingFreshmen.aspx

(g) Sallie Mae Fund:
   i. http://www.thesalliemaefund.org/smfnew/index.html
   ii. List of scholarship resources: http://www.thesalliemaefund.org/smfnew/sections/search.html
   iii. Top 10 Tips for Planning and Paying for College: http://www.thesalliemaefund.org/smfnew/fin_aid/index.html
   iv. Scholarships: http://www.thesalliemaefund.org/smfnew/scholarship/index.html and http://www.thesalliemaefund.org/smfnew/sections/apply.html
   v. Important information for parents about saving for college and getting financial aid:
      A. http://www.thesalliemaefund.org/smfnew/sections/download.html
      B. This information is also available in Spanish. Summaries are also available in other languages such as:
         - French
         - German
         - Italian
         - Korean
         - Russian
         - Simplified and Traditional Chinese
         - Tagalog
         - Vietnamese
      C. Top 10 Tips for Planning and Paying for College: http://www.thesalliemaefund.org/smfnew/fin_aid/index.html
   vi. Kids2College program: http://www.thesalliemaefund.org/smfnew/initiatives/kidscollege.html
   vii. For African-American individuals entering college:
      A. Black College Dollars: http://www.thesalliemaefund.org/smfnew/scholarship_directory/index.html

B. http://www.thesalliemaefund.org/smfnew/initiatives/aa.html

viii. For Hispanic Americans, or Latinos/Latinas:

A. http://www.thesalliemaefund.org/smfnew/pdf/Scholarship_Directory.pdf

B. Latino College Dollars: http://www.latinocollegedollars.org/

(h) *American Chemical Society*:

i. ACS Scholars Program (for underrepresented minorities in, or entering, an undergraduate program in chemistry, biochemistry, or chemical engineering): http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_SUPERARTICLE&node_id=1650&use_sec=false&sec_url_var=region1&__uuid=b3b583cf-18ae-4fb0-9375-33f75a0ccf49

ii. Project SEED Scholarships (for high school seniors who have worked at least one summer at a science institute under the Project SEED program): http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_SUPERARTICLE&node_id=2031&use_sec=false&sec_url_var=region1&__uuid=99bc6a62-3e78-4b2a-be3f-50b28f7ff265

(i) The Posse Foundation: http://www.possefoundation.org/

(j) Hispanic Scholarship Fund (HSF) scholarship programs for high school students: http://www.hsf.net/innerContent.aspx?id=426

(k) Asian & Pacific Islander American Scholarship Fund (APIASF): scholarships for individuals entering college as freshmen; see http://www.apiasf.org/scholarship_apiasf.html

(l) Nationally Coveted College Scholarships, Graduate School Fellowships & Postdoctoral Awards: http://scholarships.fatomei.com/

(m) *SPIE* Scholarship Program (for high school students entering college to study optics, photonics, imaging, optoelectronics, or related program): http://spie.org//x1733.xml?WT.svl=mddm14

(n) Susan G. Komen for the Cure®: The Komen College Scholarship Program, http://ww5.komen.org/ResearchGrants/CollegeScholarshipAward.html

(o) National Society of Professional Engineers's list of scholarships for high school students: http://www.nspe.org/Students/Scholarships/index.html

(p) AWM Essay Contest: Biographies of Contemporary Women in Mathematics; see http://www.awm-math.org/biographies/contest.html

(q) National Engineers Week Future City Competition (students from 6^{th}–8^{th} grades): http://www.futurecity.org/

(r) National Ocean Sciences Bowl:

i. http://www.nosb.org/ocean-careers/

ii. National Ocean Scholar Program (for high school seniors who are current/past participants of the Bowl, and are seeking a career in the ocean sciences or a marine-related field): http://www.nosb.org/ocean-careers/national-ocean-scholar-progra

(s) National Center for Women & Information Technology (NCWIT):

i. NCWIT Award for Aspirations in Computing (for young women in high school): http://www.ncwit.org/work.awards.aspiration.html

85. Resources for teachers/educators:

(a) Google:

i. Google Teacher Academy (for teachers to learn how to use Google technologies to facilitate teaching): http://www.google.com/educators/gta.html
ii. Classroom activities (suggestions): http://www.google.com/educators/activities.html

(b) IEEE Teacher In-Service Program (TISP):
i. http://www.ieee.org/education_careers/education/preuniversity/tispt/index.html
ii. Lesson Plans for Pre-university Instructors: http://www.ieee.org/education_careers/education/preuniversity/resources/index.html

(c) Global Challenge Award: http://www.globalchallengeaward.org/display/public/Home

(d) Teachers' Domain (to teach students about science, engineering, and the arts): http://www.teachersdomain.org/

(e) *TeachEngineering* digital library:
i. The *TeachEngineering* digital library provides teacher-tested, standards-based engineering content for K-12 teachers engineering content for K12 teachers to use in science and math classrooms. Engineering lessons connect real-world experiences with curricular content already taught in K-12 classrooms. Mapped to educational content standards, *TeachEngineering*'s comprehensive curricula are hands-on, free, and relevant to children's daily lives.
ii. http://www.teachengineering.com/index.php

(f) Engineering Pathway: http://www.engineeringpathway.com/ep/index.jhtml

(g) *American Society of Mechanical Engineers, ASME*: http://www.asme.org/Education/PreCollege/TeacherResources/

(h) *National Science Foundation* resources for the K-12 classroom: http://nsf.gov/news/classroom/engineering.jsp

(i) *NASA*: http://www.nasa.gov/audience/foreducators/index.html

(j) The Mathematical Association of America:
i. Pre-College Programs: http://www.maa.org/funding/pre_college.html. Also, see http://www.maa.org/funding/undergraduate.html.
ii. Special Interest Group of the Mathematical Association of America on the use of the World-Wide Web in Undergraduate Mathematics Instruction (Web SIGMAA). Available at: http://math.chapman.edu/websigmaa/index.php/Main_Page; last accessed on September 2, 2010.
iii. SIGMAA TAHSM (Teaching Advanced High School Mathematics). Available at: http://sigmaa.maa.org/tahsm/; last accessed on September 2, 2010.
iv. Special Interest Group on Statistics Education: http://sigmaa.maa.org/stat-ed/

(k) Math for America:
i. MfA Master Teacher Fellowship program:
A. The Math for America Master Teacher Fellowship program rewards exceptional public secondary school math teachers with a four-year Fellowship.
B. MfA Master Teacher Fellowships are currently available in Berkeley, Boston and New York City.
C. http://www.mathforamerica.org/web/guest/master-teachers
ii. MfA Early Career Fellows:

A. The Math for America Early Career Fellowship is awarded to public secondary school math teachers early in their careers.
B. The MfA Early Career Fellowship requires a commitment of four years and is available in New York City.
C. http://www.mathforamerica.org/early-career-fellows

iii. MfA Fellows:
A. http://www.mathforamerica.org/web/guest/mfa-fellows

iv. Teachers resources: http://www.mathforamerica.org/web/guest/teacher-resources and http://www.mathforamerica.org/teacher-resources/classroom (classroom resources)

v. Resources for professional development (teachers): http://www.mathforamerica.org/teacher-resources/professional

vi. http://www.mathforamerica.org/home

(l) Association for Symbolic Logic (ASL):
i. Guidelines on Logic Education: http://www.ucalgary.ca/aslcle/guidelines
ii. Educational Logic Software: http://www.ucalgary.ca/aslcle/logic-courseware

(m) Consortium for Ocean Leadership:
i. Educational Resources: http://www.oceanleadership.org/gulf-oil-spill/educational-resources/
ii. The JOIDES Resolution (The JR) scientific research vessel [Deep Earth Academy]:
A. Teacher Resources (to teach students about geology and physical geography): http://joidesresolution.org/node/46
B. Teachers at Sea/On-board Education Officer (for teachers to go on scientific expeditions on board): http://joidesresolution.org/node/453

iii. Integrated Ocean Drilling Program (IODP) – IODP United States Implementing Organization (IODP-USIO):
A. Teaching Materials: http://www.iodp-usio.org/Education/educ.html

iv. Deep Earth Academy (includes suggested "curriculum and classroom activities for kindergarten through college level"):
A. http://www.oceanleadership.org/education/deep-earth-academy/
B. For Educators: http://www.oceanleadership.org/education/deep-earth-academy educators/

(n) Virginia Institute of Marine Science (College of William and Mary):
i. Bridge Ocean Education Teacher Resource Center: http://web.vims.edu/bridge/?svr=www#

(o) American Geological Institute:
i. Awards for teachers: http://www.agiweb.org/education/awards/index.html
ii. Edward C. Roy, Jr. Award For Excellence in K-8 Earth Science Teaching (for middle school teachers in the US who are teaching earth science): http://www.agiweb.org/education/awards/ed-roy/
iii. Presidential Awards for Excellence in Mathematics & Science Teaching, PAEMST (for kindergarten and K-12 teachers in the US who are teaching students about STEM fields): http://www.agiweb.org/education/awards/paemst.html

iv. National Association of Geoscience Teachers (NAGT) Outstanding Earth Science Teacher Award: http://www.agiweb.org/education/awards/nagt.html
v. American Association of Petroleum Geologists' (AAPG) National Earth Science Teacher of the Year Award: http://www.agiweb.org/education/awards/aapg.html
vi. Curriculum Materials and Activities: http://www.agiweb.org/education/curriculum/index.html
vii. K-12 Professional Development Programs: http://www.agiweb.org/education/pd/index.html
viii. Educational Resources: http://www.agiweb.org/education/resource/index.html

(p) Institute for Broadening Participation:
  i. PathwaysToScience.org:
    A. For K-12 teachers (resources to encourage students to be interested in STEM): http://www.pathwaystoscience.org/Teachers.asp

(q) National Science Foundation:
  i. The National Science Digital Library (NSDL):
    A. Resources for K-12 Teachers: http://nsdl.org/resources_for/k12_teachers/

(r) National Academy of Engineering, NAE:
  i. NAE Grand Challenges:
    A. Includes a list of NAE Grand Challenges, which indicate some of the challenges faced by people on a global scale that can be partially solved by engineers. This can be used to get children and youths to be excited about engineering.
    B. NAE Grand Challenges:
      - Make solar energy economical
      - Provide energy from fusion
      - Develop carbon sequestration methods
      - Manage the nitrogen cycle
      - Provide access to clean water
      - Restore and improve urban infrastructure
      - Advance health informatics
      - Engineer better medicines
      - Reverse-engineer the brain
      - Prevent nuclear terror
      - Secure cyberspace
      - Enhance virtual reality
      - Advance personalized learning
      - Engineer the tools of scientific discovery
    C. http://www.engineeringchallenges.org/
  ii. NAE Grand Challenge K12 Partners Program:
    A. Can be used by schools/teachers to raise awareness of global challenges among students and to encourage students to plan career paths to tackle these challenges
    B. 5-Part Make it Happen Plan (includes suggested activities for students in elementary school to learn about basic science and engineering concepts that are

relevant to solve the NAE grand challenges): http://www.grandchallengek12.org/5-part-plan

C. http://www.grandchallengek12.org/about

iii. *National Academy of Engineering*'s technological literacy program for people (students, parents, and educators) to learn more about technology: http://www.nae.edu/nae/techlithome.nsf

(s) Women in Technology (WIT):

i. Girls In Technology (GIT):

A. Get Involved:

- http://www.girlsintechnology.org/getinvolved.cfm
- Teacher: teach girls about IT as an after-school activity or in a summer camp session
- Assistant Teacher: Assist instructors in GIT sessions, after-school activities, or summer camp sessions
- Develop Curriculum: Develop a curriculum for a supported GIT educational program
- Mentor: Mentor a girl in one of [GIT's] supported programs
- Job Shadow: "Let a girl shadow you at work"
- Guest Speaker: "Speak to a group of girls on a topic both you and they enjoy, such as computers, technology, education, how to take apart computers, how to build a web site, etc."

(t) Organization for Economic Co-operation and Development (OECD):

i. Programme for International Student Assessment (PISA):

A. *PISA 2009 Results*. Available online at: http://www.oecd.org/document/61/0,3343,en_32252351_32235731_46567613_1_1_1_1,00.html; last accessed on December 10, 2010. [Includes suggestions to improve learning outcomes, as well as education policies and practices.]

(u) American Institute of Aeronautics and Astronautics (AIAA):

i. K-12 Educators: http://www.aiaa.org/content.cfm?pageid=208

(v) Research Councils UK (RCUK):

i. Biotechnology and Biological Sciences Research Council (BBSRC):

A. Resources for schools and young people: http://www.bbsrc.ac.uk/society/schools/schools-index.aspx

B. Teaching resources: publications and web-based activities:

- Primary (ages 5-12) resources: http://www.bbsrc.ac.uk/society/schools/primary/primary-index.aspx
- Secondary (ages 12-16) and post-16 resources: http://www.bbsrc.ac.uk/society/schools/secondary/secondary-index.aspx

(w) Nuffield Foundation:

i. Education: http://www.nuffieldfoundation.org/education

ii. Teachers:

A. (Excellent) resources in science and mathematics: http://www.nuffieldfoundation.org/teachers

B. http://www.nuffieldfoundation.org/teachers-0

(x) Wellcome Trust:

i. Education resources: http://www.wellcome.ac.uk/Education-resources/index.htm
ii. *yourgenome.org*:
    A. http://www.yourgenome.org/
    B. Resources for teachers about genomics: http://www.yourgenome.org/landing_teachers.shtml
iii. Network of Science Learning Centers (Science Learning Centers):
    A. https://www.sciencelearningcentres.org.uk/
    B. Awards and Bursaries:
        - https://www.sciencelearningcentres.org.uk/centres/national/awards-and-bursaries
        - https://www.sciencelearningcentres.org.uk/about/impact-awards
    C. Resource collections: https://www.sciencelearningcentres.org.uk/resources
    D. Curriculum resources for primary, secondary, and tertiary education: https://www.sciencelearningcentres.org.uk/curriculum

86. Underrepresented minorities:
    (a) University of Washington:
        i. Department of Computer Science and Engineering:
            A. *AccessComputing*:
                - http://www.washington.edu/accesscomputing/
                - Has resources to help students with disabilities to pursue "undergraduate and graduate degrees and careers in computing fields".
                - It runs the "Summer Academy for Advancing Deaf & Hard of Hearing in Computing" for youths who are hearing impaired: http://www.washington.edu/accesscomputing/dhh/academy/index.html
    (b) Engineer Girl:
        i. Resources for students, parents, and teachers to encourage girls to explore careers and educational opportunities in engineering
        ii. Created by the National Academy of Sciences and The National Academy of Engineering
        iii. Contests for K-12 students: http://www.engineergirl.org/?id=4436
        iv. http://www.engineergirl.org/
    (c) Engineering Your Life: http://www.engineeryourlife.org/
    (d) GirlGeeks: http://www.girlgeeks.org/
    (e) *Women in Science, Technology, Engineering, and Mathematics ON THE AIR!*:
        i. Audio resources that describe stories about women in science, technology, engineering, and mathematics (STEM) fields
        ii. http://www.womeninscience.org/
    (f) *Women Scientists in History*: http://www.hypatiamaze.org/
    (g) Association for Women in Mathematics (AWM):
        i. http://www.awm-math.org/
        ii. Education:
            A. http://sites.google.com/site/awmmath/awm-resources/education

B. Includes information for students in middle school, high school, college and university (including graduate students). It also includes information for parents and teachers/educators.

iii. Women in Math, Science, and Society: http://sites.google.com/site/awmmath/women-in-math-science-and-society

iv. Essay contest on biographies of contemporary women in mathematics: http://sites.google.com/site/awmmath/programs/essay-contest

(h) Women in Technology (WIT):

i. Girls in Technology:

A. http://www.girlsintechnology.org/

B. WIT Education Foundation: provides educational programs for girls in technology

C. TeamBusiness Fundraiser: "A combined fundraiser and program for girls in Grades 9-12 across the Metro DC area. Each year, up to forty girls participate with mentors and WIT volunteers in a full-day business simulation workshop conducted by TeamBusiness USA. The teams competed as companies, learning how to run a technology company in a fun and exciting simulation environment."

D. Hispanic Youth Foundation: "In 2005, GIT established a partnership with the Hispanic Youth Foundation (HYF) and provided a grant to fund HYFs innovative Laptops for Learning Dollars program, providing laptops and Internet connections for elementary and middle school students and their families in Arlington County and the City of Manassas."

E. Empower Girls – CLCP Clubs: "Empower Girls after-school programs were held at Hybla Valley Elementary School and Sacramento Community Center. GIT/WITEF provided funding to run these programs in conjunction with the Fairfax County Computer Learning Center Partnership (CLCP). The selected centers serve economically challenged communities in Fairfax County."

(i) National Society of Black Engineers (NSBE) competitions for high school/K-12 students: http://www.nsbe.org/Programs/Competitions/NSBE-Jr-.aspx

(j) The Society of Mexican American Engineers and Scientists (MAES): MAES PreCollege Outreach Programs, http://www.maes-natl.org/index.php?module=ContentExpress&func=display&ceid=16&meid=236

(k) *Center for the Advancement of Hispanics in Science and Engineering Education* (CAHSEE):

i. STEM - The Science, Technology, Engineering & Mathematics Institute (for students from grades 5 through 11): http://www.cahsee.org/2programs/stem.asp.htm

ii. YEP - Young Educators Program (fellows would learn how to train students in the aforementioned STEM Institute): http://www.cahsee.org/2programs/yep.asp.htm

iii. CAYSA - Central American Young Scholar Awards: http://www.cahsee.org/2programs/caysa.asp.htm. "The CAYSA ceremonies honor more than 60 Washington, D.C. area high school seniors of Central American descent who have demonstrated remarkable success throughout all four years of high school. Students must be of Central American descent and have at least a 3.0 gpa."

iv. Scholarships: http://www.cahsee.org/6resources/scholarships.asp.htm
v. http://www.cahsee.org/about/about.asp.htm

(l) International Computer Science Institute (UC Berkeley):
i. Berkeley Foundation for Opportunities in Information Technology, BFOIT:
A. BFOIT Programs for women and underrepresented minorities (African Americans and Chicanos/Latinos) in middle/high school who are interested in electrical/computer engineering and computer science careers: http://www.bfoit.org/programs.html

(m) Institute for Broadening Participation:
i. PathwaysToScience.org:
A. PathwaysToScience.org is a portal website supporting pathways to the STEM fields: science, technology, engineering, and mathematics.
B. Particular emphasis is placed on connecting traditionally underrepresented groups with STEM programs and resources, including funding and mentoring opportunities.
C. For K-12 students: http://www.pathwaystoscience.org/K12.asp
D. STEM Resources by Institution (colleges, universities, and US national research laboratories): http://www.pathwaystoscience.org/Institution.asp
E. profiles of people and programs in STEM:
- http://www.pathwaystoscience.org/Profiles.asp
- Find out about the career paths of underrepresented minorities in STEM
- Find out about programs that are offered by institutions for underrepresented minorities in STEM

F. Directory of partners (organizations that cooperate with or support the Institute for Broadening Participation): http://www.pathwaystoscience.org/Partners.asp
G. Additional resources: http://www.pathwaystoscience.org/Ideaexchange.asp

ii. Maine Pathways to STEM (Science, Technology, Engineering & Mathematics):
A. http://www.mainestem.org/
B. K-12 Teachers & University Faculty: http://www.mainestem.org/METeachersFaculty asp
C. K-12 STEM Resources: http://www.mainestem.org/MEK12.asp

(n) Building Engineering and Science Talent, BEST:
i. http://www.bestworkforce.org/
ii. Publications: http://www.bestworkforce.org/publications.htm
iii. List of programs to help underrepresented minority students in K-12 schools explore careers in STEM: http://www.bestworkforce.org/links.htm

(o) American Indian Science and Engineering Society (AISES):
i. Pre-college programs:
A. http://www.aises.org/Programs
B. Resources: http://www.aises.org/Programs/Resources

8.2 Science & Engineering Outreach for Undergraduates, Grad Students, & Postdocs

Science, mathematics, and engineering outreach to undergraduates, graduate students, and postdocs:

1. Mac Hyman, "Good Choices for Great Careers in the Mathematical Sciences," talk given at 2008 SIAM Annual Meeting. Available at: http://client.blueskybroadcast.com/siam08/hyman/index.html; last accessed on August 25, 2010. Also, see http://meetings.siam.org/program.cfm?CONFCODE=AN08, http://www.siam.org/meetings/an08/program.php, and http://www.siam.org/meetings/an08/.
2. *Accreditation.org*:
   (a) Information about the accreditation of engineering degree programs around the world
   (b) http://www.accreditation.org/
3. John Baez, "How to Learn Math and Physics," Department of Mathematics, University of California, Riverside, December 24, 2007. Available at: http://math.ucr.edu/home/baez/books.html; last accessed on August 28, 2010.
4. *MentorNet*:
   (a) http://www.mentornet.net/
   (b) Enables people to network with scientists, engineers, and professors in Science, Technology, Engineering, and Mathematics (STEM)
   (c) Is very supportive of minorities, so that more minorities (particularly underrepresented minorities) can be attracted to STEM careers
5. *The Indus Entrepreneurs (TiE)* for networking among high-tech entrepreneurs, start-up co-founders, venture capitalists, and angel investors: http://www.tie.org/
6. National Academy of Engineering, NAE:
   (a) Includes a list of NAE Grand Challenges, which can provide some suggestions for research trajectories
   (b) Summit Series on the Grand Challenges: Includes the National Grand Challenges Summits
   (c) http://www.engineeringchallenges.org/
7. *National Society of Professional Engineers*:
   (a) Student Resources:
      i. http://www.nspe.org/Students/Resources/index.html
      ii. An Employment Guidelines Checklist for the Engineer Job Applicant: http://www.nspe.org/Students/Resources/checklist.html
   (b) Career Center: http://www.nspe.org/CareerCenter/index.html
   (c) A Sightseer's Guide to Engineering: http://www.engineeringsights.org/
8. *JustGarciaHill* "Study Skills for Budding Scientists": http://www.justgarciahill.org/index.php/science-study-skills.html
9. *NASA* resources for students:
   (a) http://www.nasa.gov/audience/forstudents/index.html

(b) NASA University Student Launch Initiative, or USLI: http://www.nasa.gov/offices/education/programs/descriptions/University_Student_Launch_Initiative.html

10. *iTunes U*:
    (a) *iTunes* is required to listen to or watch these lectures, talks, and presentations.
    (b) Access *iTunes U* at: http://www.apple.com/education/itunes-u/ or http://deimos3.apple.com/indigo/main/main.html?v0=WWW-AMUS-ITUNESU070521-N48LX
    (c) *iTunes U* is a set of webcast and podcasts, where you can easily find audio and video clips for lectures, seminars, announcements, virtual tours, and so on. For example, some professors from schools like MIT or Berkeley will provide audio/video clips of their lectures on *iTunes U*.
    (d) This can help in exploring different majors before a college student declares her/his major(s). If a student is not sure if she/he wants to double major in deaf studies and linguistics, this student can check out some linguistics lectures from her/his (preferred) college/university, if it uses *iTunes U*, or those from other universities.
11. Harvey Mudd College:
    (a) Francis Edward Su, *Math Fun Facts!*, Department of Mathematics, Harvey Mudd College: http://www.math.hmc.edu/funfacts/
12. Engineering Pathway: http://www.engineeringpathway.com/ep/index.jhtml
13. Rochester Institute of Technology, "Biology & Biotechnology Paid Co-op/Internships for 2011," Department of Biological Sciences, Rochester Institute of Technology: http://people.rit.edu/gtfsbi/Symp/summer.htm
14. *Mathematical Association of America (MAA)* information on educational pathways and career opportunities:
    (a) Undergraduate Students: http://www.maa.org/students/undergrad/
    (b) Graduate Students: http://www.maa.org/students/grad/
    (c) Underrepresented Groups: http://www.maa.org/programs/underrep.html
    (d) Mathematical Association of America (MAA) MathFest (for students in mathematics): http://www.maa.org/mathfest/
    (e) MAA Online Columns: http://www.maa.org/news/columns.html
15. New Zealand Institute of Mathematics and its Applications (NZIMA):
    (a) *MathsReach*: Careers (information about careers based on a higher education in mathematics or related field): http://www.mathsreach.org/Careers
16. *Engineers Dedicated to a Better Tomorrow (a.k.a., DedicatedEngineers)*:

Resources for College Students and Faculty/Staff Members: http://www.dedicatedengineers.org/intro_for_college.htm

    (a) http://www.dedicatedengineers.org/
17. American Institute of Physics:
    (a) GradschoolShopper.com:
        i. http://www.gradschoolshopper.com/
        ii. "Find information on graduate programs in physics, astronomy, and other physical sciences"

(b) Career guidance for high school and undergraduate students: http://www.aip.org/statistics/trends/career.html

(c) American Geophysical Union:

i. Diversity Programs: http://www.agu.org/education/diversity_programs/

18. *icademic.org* resources for the life sciences and engineering: http://www.icademic.org/

19. The Oceanography Society:

(a) Hands-On Oceanography: peer-reviewed activities appropriate for undergraduate and/or graduate classes in oceanography, http://www.tos.org/hands-on/index.html

20. outreach activities (including mentoring) to students in K-12:

(a) Research Councils UK (RCUK):

i. Researchers in Residence (RinR):

A. http://www.researchersinresidence.ac.uk/cms/

B. http://www.researchersinresidence.ac.uk/cms/researchers/

C. Mentor middle and high school students who are job shadowing (observing you first-hand) in your research activities for up to a week, so that they can learn what doing research in your research area is like. You should explain in laypeople's terms what your research is about. That is, be a mentor for the externships of middle and high school students.

21. competitions:

(a) Invent Now, Inc.:

i. Collegiate Inventors Competition: http://www.invent.org/collegiate/ [Resources for Patent Search Strategy are available. **This is the ultimate competition for US stu**]

(b) INFORMS Doing Good with Good OR - Student Competition:

i. Doing Good with Good OR-Student Competition is held each year to identify and honor outstanding projects in the field of operations research and the management sciences conducted by a student or student group that have a significant societal impact.

ii. http://www.informs.org/Recognize-Excellence/INFORMS-Prizes-Awards/Doing-Good-with-Good-OR

(c) AWM Essay Contest: Biographies of Contemporary Women in Mathematics; see http://www.awm-math.org/biographies/contest.html

(d) American Society of Mechanical Engineers (ASME):

i. Student Design Competition: http://www.asme.org/Events/Contests/DesignContest/Student_Design_Competition.cfm

ii. ASME Student Mechanism and Robot Design Competition: http://www.asme.org/Events/Contests/Student_Mechanism_Robot_2.cfm

(e) American Institute of Chemical Engineers (AIChE) competitions: http://www.aiche.org/Students/Awards/index.aspx

(f) Association for Unmanned Vehicle Systems International (AUVSI):

i. AUVSI Student Competitions:

A. http://www.auvsi.org/AUVSI/AUVSI/Home/Default.aspx, or http://www.auvsi.org/

B. Annual Intelligent Ground Vehicle Competition (IGVC): http://www.igvc.org/
C. Annual Student Unmanned Air System (SUAS) Competition: http://65.210.16.57/studentcomp2010/default.html
D. International Aerial Robotics Competition (IARC): http://iarc.angel-strike.com/
E. AUVSI and ONR's International Autonomous Surface Vehicle (ASV) Competition [ASVC]
F. AUVSI Foundation and ONR's (U.S. Office of Naval Research) 4th International RoboBoats Competition: http://www.auvsifoundation.org/AUVSI/FOUNDATION/Competitions/ASVCompetition/Default.aspx?C=00000000-0000-000
G. AUVSI Foundation and ONR's (U.S. Office of Naval Research) International RoboSub Competition (or AUVSI and ONR's International Autonomous Underwater Vehicle Competition): http://www.auvsifoundation.org/AUVSI/FOUNDATION/Competitions/AUVCompetition/Default.aspx
H. ONR: U.S. Office of Naval Research

(g) American Institute of Aeronautics and Astronautics (AIAA):
i. Design Competitions: http://www.aiaa.org/content.cfm?pageid=210

(h) National Aeronautics and Space Administration:
i. NASA's Langley Research Center:
A. SpaceTech Engineering Design Challenge: http://spacetech.larc.nasa.gov

(i) American Concrete Institute (ACI):
i. Competitions: http://www.concrete.org/STUDENTS/st_competitions.htm

22. underrepresented minorities:
(a) The Society of Women Engineers: http://societyofwomenengineers.swe.org/
(b) Association for Women in Science (AWIS): http://www.awis.org/ and http://www.awis.affiniscape.com/displaycommon.cfm?an=1&subarticlenbr=19
(c) Association for Women in Mathematics (AWM):
i. http://www.awm-math.org/
ii. Education:
A. http://sites.google.com/site/awmmath/awm-resources/education
B. Includes information for students in middle school, high school, college and university (including graduate students). It also includes information for parents and teachers/educators.
iii. Career advice and opportunities: http://sites.google.com/site/awmmath/awm-resources/career
iv. Women in Math, Science, and Society: http://sites.google.com/site/awmmath/women-in-math-science-and-society
v. Essay contest on biographies of contemporary women in mathematics: http://sites.google.com/site/awmmath/programs/essay-contest
(d) Sigma Delta Epsilon-Graduate Women in Science (GWIS): http://www.gwis.org/
(e) Society of Hispanic Professional Engineers (SHPE):
i. Advancing Hispanic Excellence in Technology, Engineering, Math and Science (AHETEMS) Foundation: http://www.ahetems.org/

ii. AHETEMS Scholarship Program: http://www.ahetems.org/scholarships/
iii. Graduate & Young Professional Fellowship Program (encourage young professionals to engage in **public policy**): http://www.ahetems.org/graduate/graduate-young-
iv. SHPE/GEM Fellowship (for graduate students in STEM at GEM Member Universities): http://www.ahetems.org/graduate/shpe-gem-graduate-award/. See http://www.gemfellowship.org/gem-universities/university-members for a list of GEM member universities.
v. Internship opportunities: http://www.ahetems.org/scholar-internships/
vi. http://oneshpe.shpe.org/wps/portal/national

(f) National Society of Black Engineers (NSBE):
i. Scholarships: http://www.nsbe.org/Programs/Scholarships.aspx
ii. Competitions for undergraduates and graduate students: http://www.nsbe.org/Programs/Competitions/Collegiate.aspx
iii. http://www.nsbe.org/

(g) The Society of Mexican American Engineers and Scientists (MAES):
i. MAES Undergraduate and Graduate Outreach Programs (including "GRE/Graduate Application Fee Waivers"): http://www.maes-natl.org/index.php?module=ContentExpress&func=display&ceid=90&meid=238
ii. Scholarships & Awards: http://www.maes-natl.org/index.php?meid=328
iii. MAES Scholarship Program: http://www.maes-natl.org/index.php?module=ContentExpress&func=display&ceid=518&meid=241

(h) SACNAS (Society for Advancement of Chicanos and Native Americans in Science):
i. Scholarships: http://www.sacnas.org/webadindex.cfm?webadcategory_id=7
ii. Fellowships: http://www.sacnas.org/webadIndex.cfm?webadcategory_id=5

(i) *Center for the Advancement of Hispanics in Science and Engineering Education* (CAHSEE):
i. YESP - Young Engineers & Scientists Program: http://www.cahsee.org/2programs/yesp.asp.htm. "This program places talented Hispanic college students in the research labs of government agencies."
ii. Scholarships: http://www.cahsee.org/6resources/scholarships.asp.htm

(j) American Geophysical Union:
i. Has a list of organizations for specific underrepresented ethnic-minority groups in the geosciences and physics:
A. http://www.agu.org/education/diversity_programs/
B. These organizations may have information about scholarships, fellowships, and educational material for K-12 and college students.

(k) Institute for Broadening Participation:
i. Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science (MS PHD'S®) initiative:
A. http://www.msphds.org/
B. Prospective Students/Mentees: http://www.msphds.org/prospective.asp
C. For MS PHD'S Students: http://www.msphds.org/students.asp
ii. PathwaysToScience.org:

A. Resources for undergraduate students: http://www.pathwaystoscience.org/Undergrads.asp
B. Resources for graduate students: http://www.pathwaystoscience.org/Grad.asp
C. Resources for postdocs: http://www.pathwaystoscience.org/Postdocs_portal.asp
D. STEM Resources by Institution (colleges, universities, and US national research laboratories): http://www.pathwaystoscience.org/Institution.asp
E. Additional resources: http://www.pathwaystoscience.org/Ideaexchange.asp

iii. National Alliance for Doctoral Studies in the Mathematical Sciences:
A. http://www.mathalliance.org/
B. Student/Alliance Scholars: http://www.mathalliance.org/scholars.asp
C. Alliance Mentors / Alliance Undergraduate Mentors: http://www.mathalliance.org/mentors.asp
D. Alliance Programs: http://www.mathalliance.org/programs.asp

iv. Alliances for Graduate Education and the Professoriate (AGEP):
A. http://www.agep.us/

v. Maine Pathways to STEM (Science, Technology, Engineering & Mathematics):
A. http://www.mainestem.org/
B. K-12 Teachers & University Faculty: http://www.mainestem.org/METeachersFaculty asp
C. Graduate & Undergraduate Students: http://www.mainestem.org/MEUndergradGrad.asp

(l) ARTSI (Advancing Robotics Technology for Societal Impact) Alliance:
i. http://artsialliance.org/
ii. "The ARTSI (Advancing Robotics Technology for Societal Impact) Alliance is a collaborative education and research project centered around robotics for healthcare, the arts, and entrepreneurship. Spelman College, a historically black college (HBCU) for women is leading the alliance in partnership with several other HBCUs and Research I (R1) institutions."
iii. Summer REU (Research Experience for Undergraduates) program: http://artsialliance.org/Summer-REU-Program

(m) Women in Technology (WIT):
i. http://www.womenintechnology.org/index.asp
ii. WIT Mentor-Protégé Program: http://www.womenintechnology.org/content.asp?contentid=59
iii. **WIT Career Transition Resource Guide**: http://www.womenintechnology.org/content.asp?contentid=146
iv. Girls In Technology (GIT):
A. Get Involved:
- http://www.girlsintechnology.org/getinvolved.cfm
- Teacher: teach girls about IT as an after-school activity or in a summer camp session
- Assistant Teacher: Assist instructors in GIT sessions, after-school activities, or summer camp sessions

- Develop Curriculum: Develop a curriculum for a supported GIT educational program
- Mentor: Mentor a girl in one of [GIT's] supported programs
- Job Shadow: "Let a girl shadow you at work"
- Guest Speaker: "Speak to a group of girls on a topic both you and they enjoy, such as computers, technology, education, how to take apart computers, how to build a web site, etc."

(n) Arizona State University:
   i. *Career*WISE:
      A. http://careerwise.asu.edu/
      B. Helpful resources for female graduate/Ph.D. students in science and engineering.

(o) American Indian Science and Engineering Society (AISES):
   i. Programs for undergraduates and grad students (including scholarships and internships):
      A. http://www.aises.org/Programs
      B. Resources: http://www.aises.org/Programs/Resources

8.3 Other Science and Engineering Outreach

Other Science and Engineering Outreach:

1. Frontiers of Engineering (networking event for mid-career engineers): http://www.naefrontiers.org/
2. Consortium for Ocean Leadership:
   (a) Resources for scientists in the marine sciences to use in outreach activities: http://www.oceanleadership.org/education/deep-earth-academy/scientists/
3. The Oceanography Society:
   (a) Education and Public Outreach (EPO): A Guide for Scientists [material that scientists and professors can use for outreach activities], http://www.tos.org/epo_guide/index.html
4. The Joy McCann Foundation:
   (a) McCann Scholar (for professors in medicine, science, and nursing): http://www.mccannfoundation.org/scholars.htm
   (b) The Joy McCann Professorship for Women in Medicine: http://www.mccannfoundation.org/medicine.htm
5. U.S. National Academies:
   (a) International Activities of the U.S. National Academies – Science, Engineering & Medicine: Working toward a better world:
      i. http://sites.nationalacademies.org/International/
      ii. Solving the grand challenges:
         A. Energy and the Environment
         B. Global Health
         C. Water Resources
         D. Agriculture and Food Security

E. International Security
F. Population

iii. Help other countries build/improve their capacities:
A. Cooperative Program with Pakistan
B. African Science Academies
C. Visiting Math Lecturer Program in Cambodia
D. Humanitarian Relief Efforts
E. Improved Road Safety
F. Science-based Decision Making for Sustainability
G. Science Academies' Input to G8 Summits

iv. Scientific Cooperation:
A. Building Bridges in the Middle East
B. Cooperation with Iran
C. Human Rights
D. Frontiers of Science and Engineering Symposia
E. Travel Grants
F. International Conference on Women's Issues in Transportation

v. Advising the U.S. Government:
A. Science & Technology in Foreign Policy
B. Health
C. Science and Security

6. National Academy of Engineering:
   (a) The Charles Stark Draper Prize ("to recognize innovative engineering achievements and their reduction to practice in ways that have led to important benefits and significant improvement in the well being and freedom of humanity"): http://www.draperprize.org/
   (b) NAE Grand Challenge Scholars Program: http://www.grandchallengescholars.org/

7. United States Department of Defense (DoD):
   (a) National Defense Education Program; Defense Advanced Research Projects Agency (DARPA):
      i. Resource for scientists and engineers to mentor youths, so that they would look into pursuing careers in science and engineering: http://www.ndep.us/GetInvoSci.aspx
      ii. STEM Learning Modules (SLM):
         A. http://www.ndep.us/ProgSLM.aspx
         B. Help educators develop programs in science and engineering in K-12 institutions, so that youths would be encouraged to explore careers in science and engineering

8. Hewlett-Packard Development Company:
   (a) HP Catalyst Initiative (grants for STEM education in colleges and universities): http://www.hp.com/hpinfo/socialinnovation/catalyst.html
   (b) HP EdTech Innovators Award (for higher educational institutions that integrate IT into the curricular): http://www.hp.com/hpinfo/socialinnovation/edtech.html

9. The William and Flora Hewlett Foundation (Hewlett Foundation):

(a) Funding Programs: http://www.hewlett.org/programs
(b) Grantseekers: http://www.hewlett.org/grants/grantseekers

10. The Sloan Consortium (Sloan-C):
    (a) Sloan-C Awards (for recognizing outstanding work in the field of online education) and Sloan-C Fellows: http://sloanconsortium.org/aboutus/awards
    (b) Mayadas Leadership Award in Online Education: http://sloanconsortium.org/mayadas_award
11. W.K. Kellogg Foundation:
    (a) Grant database: http://www.wkkf.org/grants/grants-database.aspx
12. Hewlett-Packard Company:
    (a) HP community investment for education, economic development, and the environment: http://www.hp.com/hpinfo/socialinnovation/focus.html
    (b) Entrepreneurship education:
        i. http://www.hp.com/hpinfo/globalcitizenship/society/social/entrepreneurship.html
        ii. HP Graduate Entrepreneurship Training through IT (GET-IT)
        iii. HP Entrepreneurship Learning Program (HELP)
    (c) HP Innovations in Education grants: http://www.hp.com/hpinfo/globalcitizenship/society/social/innovations.html
13. General Electric Company:
    (a) GE Foundation:
        i. Developing Futures™ in Education program (which encompasses the GE College Bound Program): http://www.ge.com/foundation/developing_futures_in_education/index.jsp
        ii. Environment, health and safety, and health industry training programs (outside the US): http://www.ge.com/foundation/international_programs/training.jsp
        iii. Student, education and scholarship initiatives: http://www.ge.com/foundation/international_programs/education_initiatives.jsp
14. The GRAMMY Foundation:
    (a) GRAMMY Foundation Grants:
        i. http://www2.grammy.com/GRAMMY_Foundation/Grants/
        ii. It funds **Scientific Research Projects** as well as *Archiving And Preservation Projects*.
        iii. Concerning scientific research projects: "The GRAMMY Foundation Grant Program awards grants to organizations and individuals to support research on the impact of music on the human condition. Examples might include the study of the effects of music on mood, cognition and healing, as well as the medical and occupational well-being of music professionals and the creative process underlying music." [E.g., look at music therapy as a possible research topic/area.]
15. The Dana Foundation:
    (a) http://www.dana.org/grants/
    (b) Has grants for:
        i. Brain and Immuno-Imaging

ii. Clinical Neuroscience
iii. Human Immunology
iv. Neuroimmunology of Brain Infections and Cancers

(c) Deadlines and Requests for Proposals (RFP): http://www.dana.org/grants/deadlines.aspx

16. Institute for Broadening Participation:
    (a) PathwaysToScience.org:
        i. Resources for faculty and administrators (to facilitate STEM outreach activities as well as the recruitment of underrepresented minorities to the student body and faculty): http://www.pathwaystoscience.org/Faculty.asp
17. National Center for Women & Information Technology (NCWIT):
    (a) NCWIT Academic Alliance Seed Fund (for developing and implementing initiatives in colleges and universities to recruit and retain women in computing and information technology): http://www.ncwit.org/work.awards.seed.html
    (b) NCWIT Symons Innovator Award (for outstanding women who have successfully built and funded an IT business): http://www.ncwit.org/work.awards.innovator.html
18. Women in Technology (WIT):
    (a) Girls In Technology (GIT):
        i. Get Involved:
            - http://www.girlsintechnology.org/getinvolved.cfm
            - Teacher: teach girls about IT as an after-school activity or in a summer camp session
            - Assistant Teacher: Assist instructors in GIT sessions, after-school activities, or summer camp sessions
            - Develop Curriculum: Develop a curriculum for a supported GIT educational program
            - Mentor: Mentor a girl in one of [GIT's] supported programs
            - Job Shadow: "Let a girl shadow you at work"
            - Guest Speaker: "Speak to a group of girls on a topic both you and they enjoy, such as computers, technology, education, how to take apart computers, how to build a web site, etc."
19. European Platform of Women Scientists (EPWS):
    (a) http://www.epws.org/
    (b) Members: http://www.epws.org/index.php?option=com_content&task=blogcategory&id=134&Itemid=4652

Commercializing academic research into products and services via start-ups:

1. Ben Franklin Technology Partners (BFTP):
    (a) Innovation Works (IW):
        i. For universities in the Pittsburgh metropolitan area
        ii. University Innovation Grants (UIGs) / University Grants:
            A. For technology validation, market research, prototype development, and intellectual property evaluation

B. Available online at: http://www.innovationworks.org/OurPrograms/UniversityGrants/tabid/115/Default.aspx; last accessed on November 14, 2010.

8.4 Electrical and Computer Engineering & Computer Science Outreach

Electrical and computer engineering, and computer science outreach:

1. IEEE:
   (a) *IEEE-USA Salary Service* provides a survey of jobs in electrical and computer engineering: http://www.ieeeusa.org/careers/salary/
   (b) *IEEE Santa Clara Valley Section PACE*: Professional Activities Committee for Engineers (PACE); see http://www.ewh.ieee.org/r6/scv/PACE/
   (c) *IEEE Santa Clara Valley Section*: http://ewh.ieee.org/r6/scv/ and http://www.ieee.org/scv
   (d)
2. Association for Computing Machinery, ACM:
   (a) Sanjeev Arora, Boaz Barak, and Luca Trevisan, "Survey Papers and Essays," in *Theory Matters Wiki: Theoretical Computer Science (TCS) Advocacy Wiki*, SIGACT Committee for the Advancement of Theoretical Computer Science, ACM Special Interest Group on Algorithms and Computation Theory (SIGACT), Association for Computing Machinery, February 25, 2010. Available at: http://theorymatters.org/pmwiki/pmwiki.php?n=Main.SurveyCollection; last accessed on September 14, 2010.
   (b) Online Resources for Graduating Students: http://www.acm.org/membership/student/resources-for-grads
3. VLSI design and verification:
   (a) *DVClub* for individuals interested in VLSI verification: http://www.dvclub.org/
   (b) *DeepChip.com*: http://www.deepchip.com
4. undergraduates:
   (a) *Humanitarian FOSS Project*:
      i. Where FOSS refers to Free and Open Source Software
      ii. For computer science and engineering students
      iii. http://www.hfoss.org/
   (b) *SIGDA Design Automation Summer School*:
      i. *NSFSRCSIGDADAC Design Automation Summer School*
      ii. http://www.sigda.org/dass.html
      iii. Travel grants are provided to defray travel and accommodation expenses
   (c) *Young Student Support Program at DAC*:
      i. Also known as *DAC Young Student Support Program*
      ii. http://www.sigda.org/youngstudent.html
      iii. Travel grants are provided to defray travel and accommodation expenses
   (d) *ACM Student Research Competition at Design Automation Conference*:
      i. Sponsored by *Microsoft Research*
      ii. http://www.sigda.org/studentcomp.html

iii. Also, see *ACM Student Research Competition* @ http://src.acm.org/.

(e) Job database for positions in the Video Game, Animation, VFX, and Software/Technology industries: http://www.creativeheads.net/

5. graduate students:
   (a) *SIGDA Design Automation Summer School*:
      i. *NSFSRCSIGDADAC Design Automation Summer School*
      ii. http://www.sigda.org/dass.html
      iii. Travel grants are provided to defray travel and accommodation expenses
   (b) *Young Student Support Program at DAC*:
      i. Also known as *DAC Young Student Support Program*
      ii. http://www.sigda.org/youngstudent.html
      iii. Travel grants are provided to defray travel and accommodation expenses
   (c) *ACM Student Research Competition at Design Automation Conference*:
      i. Sponsored by *Microsoft Research*
      ii. http://www.sigda.org/studentcomp.html
      iii. Also, see *ACM Student Research Competition* @ http://src.acm.org/.
   (d) *SIGDA University Booth at DAC*:
      i. Or, *SIGDA/DAC University Booth*
      ii. http://www.sigda.org/ubooth.html
   (e) *SIGDA Ph.D. Forum at DAC*:
      i. http://www.sigda.org/phdforum.html
      ii. http://www.sigda.org/daforum/
   (f) *DAC Graduate Scholarship*:
      i. *A. Richard Newton Graduate Scholarships* to Support Graduate Research and Study
      ii. http://www.sigda.org/gradscholarship.html

6. competitions, and programming contests and challenges:
   - *SIGDA CADathlon at ICCAD*:
     (a) http://www.sigda.org/programs/cadathlon/
     (b) http://www.sigda.org/cadathlon.html
     (c) Travel grants are provided to defray travel and accommodation expenses
   - ISPD Programming Contest: http://www.ispd.cc/contests/
   - ACM International Workshop on Timing Issues in the Specification and Synthesis of Digital Systems (TAU Workshop):
     (a) Power Grid Simulation Contest: http://www.tauworkshop.com/PREVIOUS/contest_2011.html
   - IEEE Computer Society Simulator Design competition: http://www.computer.org/portal/web/competition
   - *DAC/ISSCC Student Design Contest*:
     (a) http://www.dac.com
   - *ACM/IEEE International Conference on Formal Methods and Models for Codesign – Design Contest*:
     (a) MEMOCODE Hardware/Software Co-Design Contest (MEMOCODE HW/SW co-design contest)
     (b) http://www-memocode2010.imag.fr/

(c) http://memocode2010.csail.mit.edu/redmine/wiki/memocode2010/Results

- *International Low Power Design Contest*:
  (a) ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED) – Design Contest
  (b) The International Symposium on Low Power Electronics and Design is holding the International Low Power Design Contest to provide a forum for universities and research organizations to showcase original "power-aware" designs and to highlight the innovations and design choices targeted at low power.
  (c) The goal is to encourage and highlight design-oriented approaches to power reduction.
  (d) http://www.islped.org/2010/index.html
- *University LSI Design Contest @ ASP-DAC*:
  (a) Application areas or types of circuits of the original LSI circuit designs include (but are not limited to):
    i. Analog, RF and Mixed-Signal Circuits
    ii. Digital Signal Processing
    iii. Microprocessors
    iv. Custom ASIC
  (b) Methods or technology used for implementation include:
    i. Full Custom and Cell-Based LSIs
    ii. Gate Arrays
    iii. FPGA/PLDs.
  (c) http://www.aspdac.com/aspdac2011/cfd/
- IEEE Programming Challenge at IWLS: http://www.iwls.org/challenge/
- IEEE Asian Solid-State Circuits Conference (A-SSCC) Student Design Contest: http://a-sscc2010.a-sscc.org/contest.html
- *VLSI Conference 2011 - Design Contest*:
  (a) Design/project fields include (but not limited to):
    i. Digital Integrated Circuits
    ii. Analog Integrated Circuits
    iii. FPGA based designs
    iv. Computer Architectures/ Processors
    v. Reconfigurable Computing Systems
    vi. SoC / Platform-based designs
    vii. Embedded Systems
    viii. MEMS/Optics/Bio-Chips
    ix. Innovative Design Methodologies and Verification Techniques.
  (b) http://vlsiconference.com/vlsi2011/submissions_design_contest.html
- *Satisfiability Modulo Theories Competition* (SMT-COMP):
  (a) Competition for SMT solvers
  (b) http://www.smtcomp.org/2010/
- *SAT Competition 201X*, where $X > 0$ & $X mod 2 = 1$:
  (a) The purpose of the competition is to identify new challenging benchmarks and to promote new solvers for the propositional satisfiability problem (SAT) as well as to compare them with state-of-the-art solvers.
  (b) http://www.satcompetition.org/

- *SAT-Race 201X*, where $X > 0$ & $X mod 2 = 0$:
  (a) SAT-Race 201X is a competitive event for solvers of the Boolean Satisfiability (SAT) problem.
  (b) In contrast to the SAT Competitions, the focus of SAT-Race is on application benchmarks only.
  (c) http://baldur.iti.uka.de/sat-race-2010/
- Hardware Model Checking Competition (HWMCC): http://fmv.jku.at/hwmcc10/
- *CADE ATP System Competition* (CASC):
  (a) It is a yearly competition of fully automated theorem provers for classical first order logic.
  (b) http://www.cs.miami.edu/~tptp/CASC/
- Apple Design Awards: http://developer.apple.com/wwdc/ada/index.html
- *International Constraint Solver Competition*:
  (a) Also known as:
    i. International Constraint Solver Competition (CSP, Max-CSP and Weighted-CSP competition)
    ii. International CSP Solver Competition (CSP, Max-CSP and Weighted-CSP competition)
  (b) The Fourth International Constraint Solver Competition (CSC'2009) is organized to improve our knowledge of what is behind the efficiency of constraint satisfaction algorithms, heuristics, solving strategies, and constraint systems.
  (c) http://cpai.ucc.ie/
- International Conference on Field-Programmable Technology (FPT 201X):
  (a) FPT Design Competition: http://cas.ee.ic.ac.uk/people/as999/FPTDesignComp/
- International Microwave Symposium: Student Design Competitions – Jan (includes AMS circuit simulation, and AMS/RF EDA); http://ims2011.org/Technical_Program/Student_Design_Competitions.html
- *QBFEVAL'1X*:
  (a) QBF Solver competition for solvers to determine Quantified Boolean Formula (QBF) satisfiability.
  (b) QBFLIB is a collection of instances, solvers, and tools related to Quantified Boolean Formula (QBF) satisfiability. See http://www.qbflib.org/.
  (c) http://www.qbflib.org/index_eval.php
- *Pseudo-Boolean Competition 201X*:
  (a) Competition for pseudo-Boolean solvers.
  (b) http://www.cril.univ-artois.fr/PB10/
- *Answer Set Programming System Competition*:
  (a) http://dtai.cs.kuleuven.be/events/ASP-competition/
- *Max-SAT Evaluation, Max-SAT 201X*:
  (a) Competition for Max-SAT solvers
  (b) http://www.maxsat.udl.cat/
  (c) http://www.maxsat.udl.cat/09/
- *IEEEXtreme 24 Hour Programming Challenge*:
  (a) Programming contest for college students
  (b) http://portal.ieee.org/web/membership/students/scholarshipsawardscontests/ieeextreme.html

- *ACM International Collegiate Programming Contest* (ACM-ICPC or ICPC):
  (a) Programming contest for college students
  (b) Official web page: http://cm.baylor.edu/welcome.icpc
  (c) Other web resources:
    i. *Wikipedia*: http://en.wikipedia.org/wiki/ACM_International_Collegiate_Programming_Contest
    ii. :
    iii. :
    iv. *Valladolid Online Judge Site*: http://acm.uva.es/
    v. *ACMSolver :: Art of Programming Contest, Tips and Tricks for C, C++, Java*: http://www.acmsolver.org/
  (d)
- *TopCoder* coding and design contests:
  (a) The contests cover various fields, such as:
    i. Algorithm
    ii. Conceptualization
    iii. Specification
    iv. Architecture
    v. Component Design
    vi. Component Development
    vii. Assembly
    viii. Test Scenarios
    ix. Test Suites
    x. UI Prototype
    xi. Rich Internet Application (RIA) Build
    xii. Bug Race
    xiii. Marathon Match
    xiv. High School (for high school students)
    xv. Copilot Opportunities
  (b) http://www.topcoder.com/
- IEEE Presidents' Change the World competition:
  (a) The IEEE Presidents Change the World Competition recognizes students who develop unique solutions to real-world problems using engineering, science, computing and leadership skills to benefit their community, the world at large, or both.
  (b) http://www.ieeechangetheworld.org/
- Google Code Jam (programming contest): http://code.google.com/codejam/ and http://en.wikipedia.org/wiki/Google_Code_Jam
- *RoboCup*™ competitions:
  (a) Has different categories, including soccer, rescue operations, and home applications.
  (b) http://www.robocup.org/
- ICFP Programming Contest (ICFP refers to International Conference on Functional Programming): http://icfpcontest.org/
- Student Cluster Competition (SCC):
  (a) SCC is held at each (annual) SC conference, which is the International Conference for High Performance Computing, Networking, Storage, and Analysis. IEEE

Computer Society and the Association for Computing Machinery are the sponsors for this conference.

(b) During SC10, teams consisting of six students, undergraduate and/or high school, will showcase the amazing power of clusters and the ability to utilize open source software to solve interesting and important problems. They will compete in real-time on the exhibit floor to run a workload of real-world applications on clusters of their own design while never exceeding the dictated power limit.

(c) During SC10 in New Orleans, teams will assemble, test and tune their machines and run the HPCC benchmarks until the starting bell rings on Monday night at the Exhibit Opening Gala where they will be given the competition data sets. In full view of conference attendees, teams will execute the prescribed workload while showing progress and science visualization output on large high-resolution displays in their areas. Teams race to correctly complete the greatest number of application runs during the competition period until the close of the exhibit floor on Wednesday evening.

(d) http://sc10.supercomputing.org/?pg=studentcluster.html

- Cypress Semiconductor Corporation:
  (a) ARM Cortex-M3 PSoC® 5 Design Challenge: http://www.cypress.com/?id=3271
- Mentor Graphics:
  (a) PCB Technology Leadership Awards (PCB design contest): http://www.mentor.com/products/pcb-system-design/tla/index.cfm?v=mentorgraphics&p=handout:tla&a=print_card&g=sdd&s=1x1&c=ocid_2203&cmpid=3911, or http://www.mentor.com/go/tla
- INFORMS Data Mining Contest:
  (a) http://ifors.org/web/call-for-participation-informs-data-mining-contest-2
  (b) http://kaggle.com/informs2010
- INFORMS Doing Good with Good OR - Student Competition:
  (a) Doing Good with Good OR-Student Competition is held each year to identify and honor outstanding projects in the field of operations research and the management sciences conducted by a student or student group that have a significant societal impact.
  (b) http://www.informs.org/Recognize-Excellence/INFORMS-Prizes-Awards/Doing-Good-with-Good-OR
- HPC Challenge Award Competition: http://www.hpcchallenge.org/
- Sphere Online Judge, SPOJ (programming contest): http://www.spoj.pl/
- High Performance and Scientific Computing Contest (Argonne National Laboratory, U.S. Department of Energy, DOE): https://wiki.alcf.anl.gov/index.php/HPSC_Contest_Information
- Argonne National Laboratory, ANL; Mathematics and Computer Science Division:
  (a) J. H. Wilkinson Prize for Numerical Software (for developers of numerical software): http://www.mcs.anl.gov/research/opportunities/wilkinsonprize/index.php
- Society for Industrial and Applied Mathematics, SIAM:

(a) SIAM/ACM Prize in Computational Science and Engineering: http://www.siam.org/prizes/sponsored/cse.php. [For developers of mathematical and computational tools and methods for the solution of science and engineering. Or, for developers of computational science and engineering software.]

7. Sun HPC Software Programming Challenge (Oracle Corporation): http://wikis.sun.com/display/HPCContest/Home
8. News media:
   - —
   - **News media for Electronic Design Automation**
   - *EDACafe*: http://www.edacafe.com/
   - *SIGDA E-Newsletter* (SIGDA Electronic Newsletter): http://www.sigda.org/newsletter/
   - *DeepChip.com*: http://www.deepchip.com
   - —
   - **News media for Electrical and Computer Engineering**
   - *EE Times* (Electronic Engineering Times): http://www.eetimes.com/
   - *EDN* (Electrical Design News): http://www.edn.com/
   - *IEEE Spectrum*: http://spectrum.ieee.org/
   - *The Institute* (from IEEE): http://www.theinstitute.ieee.org
   - *IEEE-USA Today's Engineer*: http://www.todaysengineer.org/
   - *DeepChip.com*: http://www.deepchip.com
   - —
   - **News media for Computer Science and Engineering, Information Systems, and IT**
   - *ACM TechNews*: http://technews.acm.org/
   - *TechCareers*: http://www.techcareers.com/
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   - **Other News Media**
   - *iTunes U*
   - *YouTube EDU*
9. underrepresented minorities:
   (a) women:
      i. IEEE Women in Engineering (WIE): http://www.ieee.org/membership_services/membership/women/index.html?WT.mc_id=WIE_nav1

ii. ACM-W: http://women.acm.org/
iii. Computer Research Association's Committee on the Status of Women in Computing Research (CRA-W):
    A. http://www.cra-w.org/
    B. Computing Research Association's Committee on the Status of Women (CRA-W) and the Coalition to Diversify Computing (CDC), *CompArch Summer School on Parallel Programming and Architectures*. Available at: http://www.princeton.edu/~archss/; last accessed on September 3, 2010.
iv. National Center for Women & Information Technology: http://www.ncwit.org/
v. African-American Women in Technology organization (AAWIT): http://www.aawit.net/09/index.cfm
vi. Grace Hopper Celebration of Women in Computing (conference for female IT students, professors, and professionals): http://gracehopper.org/ or http://gracehopper.org/2010/
vii. Anita Borg Institute for Women and Technology:
    A. Has many programs for female students and professionals: http://anitaborg.org/

9 Scholarships, Fellowships, Awards, and Financial Aid

Resources for scholarships, fellowships, and financial aid:

1. —
2. **Lists of Scholarships and Fellowships**
3. List of scholarships:
    (a) Engineering Education Service Center, EESC (Engineering): http://www.engineeringedu.com/scholars.html
    (b) High Performance and Embedded Architecture and Compilation, HiPEAC (Computer Science and Engineering): http://www.hipeac.net/all_jobs_op
    (c) Office of Doctoral Programs at USC Viterbi School of Engineering, **University of Southern California**. External Fellowships and other support: http://viterbi.usc.edu/students/phd/fellowships-and-other-support/external-fellowships.htm. USC Fellowships: http://viterbi.usc.edu/students/phd/fellowships-and-other-s usc-fellowships.htm
    (d) Columbia College, **Columbia University** in the City of New York: http://www.college.columbia.edu/students/fellowships/catalog
    (e) **New York University** School of Law: http://www.law.nyu.edu/financialaid/supplementalaid/fellowships/index.htm
    (f) Swedish Institute:
        i. The Swedish Institute, a government agency, administers over 500 scholarships each year for students and researchers coming to Sweden to pursue their objectives at a Swedish university.
        ii. Study in Sweden: scholarships, http://www.studyinsweden.se/Scholarships/

iii. Swedish Institute (SI): http://www.si.se/English/Navigation/Scholarships-and-exch
[Has special programs for Pakistanis and Turkish citizens]

(g) The Swedish Foundation for International Cooperation in Research and Higher Education (STINT):
i. http://www.stint.se/en
ii. Scholarships and grants: http://www.stint.se/en/scholarships_and_grants

(h) Center for the Advancement of Hispanics in Science and Engineering Education (CAHSEE): http://www.cahsee.org/6resources/scholarships.asp.htm

(i) University of Wisconsin-Madison:
i. Grants Information Collection: A Cooperating Collection of the Foundation Center Library Network, http://grants.library.wisc.edu/

(j) *Find A PhD*: http://www.findaphd.com/

(k) QS World Grad School Tour Scholarships (QS Quacquarelli Symonds Limited): http://graduateschool.topuniversities.com/world-grad-school-tour/scholarships

(l) GlobalGrant (requires paid access to the list of scholarships and fellowships): http://www.globalgrant.com/en/stipendier.html and http://www.globalgrant.com/

(m) Stockholm University:
i. http://www.su.se/pub/jsp/polopoly.jsp?d=777&a=1770
ii. http://www.su.se/pub/jsp/polopoly.jsp?d=797
iii. http://www.su.se/pub/jsp/polopoly.jsp?d=788
iv. http://www.su.se/pub/jsp/polopoly.jsp?d=777&a=1769

(n) NordForsk (in Norwegian): http://www.nordforsk.org/index.cfm

(o) Wallenberg Scholars (in Swedish): http://www.wallenberg.com/default.aspx or http://www.wallenberg.com/in-english.aspx

(p) Royal Institute of Technology (in Swedish): http://www.kth.se/aktuellt/stipendier/stipendier-och-anslag-1.2024

(q) European Commission:
i. Marie Curie Fellowships:
A. http://cordis.europa.eu/fp7/people/home_en.html
B. http://ec.europa.eu/research/mariecurieactions/
C. http://ec.europa.eu/research/fp6/mariecurie-actions/action/fellow_en.html
D. http://www.mariecurie.org/
ii. Euraxess: http://ec.europa.eu/euraxess/
iii. http://ec.europa.eu/index_en.htm

(r) Science Please (for research positions in life sciences in The Netherlands and Belgium, including Ph.D. and postdoc positions): http://www.scienceplease.com/ or http://www.scienceplease.com/about-us

(s) University of Gothenburg:
i. ResearchResearch: http://www.researchresearch.com/ or http://www.gu.se/english/research/scholarships/ResearchResearch/
ii. Scholarship links: http://www.gu.se/english/research/scholarships/scholarship_links/
iii. Scholarships at University of Gothenburg: http://www.gu.se/english/research/scholarships/gu/

(t) Princeton University; The Graduate School: http://gradschool.princeton.edu/financial/

(u) National Association for Bilingual Education:
   i. List of Scholarships: http://www.nabe.org/scholarship.html

(v) **Pennsylvania State University**:
   i. Office of Engineering Diversity; Penn State College of Engineering:
      A. Undergraduate Student Scholarships: http://www.engr.psu.edu/oed/UnderScholarsh html
      B. Graduate Student Scholarships: http://www.engr.psu.edu/oed/GradScholarships.html
      C. High School Student Scholarships: http://www.engr.psu.edu/oed/HighSchoolSchola html
      D. Disabled Student Scholarships: http://www.engr.psu.edu/oed/DisabScholarships.html
      E. Corporate Office of Engineering Diversity (OED) Scholarships: http://www.engr.psu.edu/oed/OEDScholarships.html
   ii. University Fellowships Office:
      A. http://sites.google.com/site/psuufo/
      B. Prestigious Scholarships: http://sites.google.com/site/psuufo/prestigious
      C. Penn State Scholarships: http://sites.google.com/site/psuufo/internal-scholar
      D. Other resources: http://sites.google.com/site/psuufo/resources

(w) **Peterson's** college search:
   i. *College Scholarship Search*: http://www.petersons.com/college-search/scholarship-search.aspx

(x) Society for Industrial and Applied Mathematics (SIAM):
   i. Fellowship & Research Opportunities: http://www.siam.org/students/resources/fellowship.php

(y) Institute of International Education (IIE):
   i. *Funding for US Study Online*:
      A. http://www.fundingusstudy.org/

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5. **Scholarships and Fellowships in Electrical and Computer Engineering**

6. IEEE:
   (a) IEEE Awards, Competitions, and Scholarships: http://www.ieee.org/membership_services/membership/students/awards/index.html
   (b) IEEE Circuits and Systems Society Pre-Doctoral Scholarships: Announced via email from IEEE Circuits and Systems Society
   (c) IEEE Power & Energy Society:
      i. G. Ray Ekenstam Memorial Scholarship:
         A. http://www.ieee-pes.org/g-ray-ekenstam-memorial-scholarship
         B. "The Scholarship Fund awards, on an annual basis, a scholarship to a qualified undergraduate student who seeks an electrical engineering degree in the field of power or a related discipline, from an accredited US university or college."

(d) IEEE Reliability Society:
   i. IEEE Reliability Society Scholarship: http://www.ieee.org/portal/cms_docs_relsoc/relsoc/newsflipper/RS_Scholarship_Application.pdf [Look under the tab/option on "Useful Information" in the panel on the left.]

7. The George Michael Memorial HPC Fellowship Program:
   (a) The Association of Computing Machinery (ACM), IEEE Computer Society and SC Conference series have established the High Performance Computing (HPC) Ph.D. Fellowship Program. The SC conference is the International Conference for High Performance Computing, Networking, Storage, and Analysis. IEEE Computer Society and the Association for Computing Machinery are the sponsors for this conference.
   (b) Every year, up to three fellowship recipients will each receive a stipend of at least $5,000 (U.S.) for one academic year, plus travel support to attend the SC conference.
   (c) See http://sc10.supercomputing.org/?searchterm=fellowship&pg=GeorgeMichaelMemo
   html

8. Intel:
   (a) Intel Foundation Fellowship:
      i. Intel Foundation Ph.D. Fellowship
      ii. http://www.intel.com/education/highered/studentprograms/fellowship.htm
      iii. This awards two-year fellowships to Ph.D. candidates pursuing leading-edge work in fields related to Intel's business and research interests.
      iv. Fellowships are available at select U.S. universities, by invitation only, and focus on Ph.D. students who have completed at least one year of study.
      v. The fellowship includes a cash award (tuition/fees/stipend), an Intel mentor, and the opportunity to participate in an internship at Intel.

9. IBM:
   (a) http://www-304.ibm.com/jct01005c/university/scholars/phdfellowship
   (b) IBM Ph.D. Fellowship Award
   (c) The IBM Ph.D. Fellowship Awards is an intensely competitive program which honors exceptional Ph.D. students in many academic disciplines and areas of study, for example: computer science and engineering, electrical and mechanical engineering , physical sciences (including chemistry, material sciences, and physics), mathematical sciences (including optimization), business sciences (including financial services, communication, and learning/knowledge), and service sciences, management, and engineering.
   (d) IBM Herman Goldstine Postdoctoral Fellowship in Mathematical Sciences: http://domino.research.ibm.com/comm/research_projects.nsf/pages/goldstine.index.html
   (e) Josef Raviv Memorial Postdoctoral Fellowship; see http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.josef.raviv.general.info.html, http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.raviv.winner.html, and http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.raviv.winner2008.html

10. AMD: Ph.D. fellowship, http://developer.amd.com/programs/fellowship/Pages/default.aspx
11. Qualcomm, *Qualcomm Innovation Fellowship* for Ph.D. students in Electrical Engineering and Computer Science at Stanford, UC Berkeley, UCLA, UCSD, and USC: http://www.qualcomm.com/innovation/research/university_relations/innovation_fellowship/qinf10.html
12. NVIDIA:
    (a) NVIDIA Fellowship Program; see http://www.nvidia.com/page/fellowship_programs.html
13. Automatic RF Techniques Group (ARFTG):
    (a) Microwave Measurement Student Fellowship (for "graduate students who show promise and interest in pursuing research related to improvement of radio frequency and microwave measurement techniques"): http://www.arftg.org/student_fellowship.html
14. Gallium Arsenide Applications Symposium (GAAS) Association:
    (a) GAAS PhD Student Fellowship (for Ph.D. students who have accepted papers at the European Microwave Integrated Circuits Conference, EuMIC): http://www.gaas-symposium.org/english/awards_fellowship.htm and http://www.eumweek.com/2010/EuMIC.asp?id=c
15. The Institution of Engineering and Technology, IET:
    (a) Hudswell International Research Scholarship: http://www.theiet.org/about/scholarships-a ambition/postgraduate1/hudswell-what.cfm
    (b) IET Postgraduate Scholarship: http://www.theiet.org/about/scholarships-awards/ambition/postgraduate1/postgrad-what.cfm
16. —
17. **Scholarships and Fellowships in Computer Science**
18. ACM Special Interest Group on Symbolic and Algebraic Manipulation (SIGSAM): List of Ph.D. positions in computer algebra and symbolic computation, as listed by SIGSAM; see http://www.sigsam.org/opportunities.phtml?searchterm=fellowship
19. Carnegie Mellon University:
    (a) women@SCS School of Computer Science:
        i. Individuals, Corporations & Organizations: http://women.cs.cmu.edu/Resources/Funding/
20. IBM:
    (a) http://www-304.ibm.com/jct01005c/university/scholars/phdfellowship
    (b) IBM Ph.D. Fellowship Award
    (c) The IBM Ph.D. Fellowship Awards is an intensely competitive program which honors exceptional Ph.D. students in many academic disciplines and areas of study, for example: computer science and engineering, electrical and mechanical engineering , physical sciences (including chemistry, material sciences, and physics), mathematical sciences (including optimization), business sciences (including financial services,

communication, and learning/knowledge), and service sciences, management, and engineering.

(d) IBM Herman Goldstine Postdoctoral Fellowship in Mathematical Sciences: http://domino.research.ibm.com/comm/research_projects.nsf/pages/goldstine.index.html

(e) Josef Raviv Memorial Postdoctoral Fellowship; see http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.josef.raviv.general.info.html, http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.raviv.winner.html, and http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.raviv.winner2008.html

21. Computing Innovation Fellows (CIFellows); post my profile on http://cifellows.org/profiles/; also see http://www.cifellows.org/
22. Microsoft:
    (a) Microsoft Research Graduate Women's Scholarship: http://research.microsoft.com/en-us/collaboration/awards/fellows-women.aspx
    (b) Microsoft Research PhD Fellowship: http://research.microsoft.com/en-us/collaboration/awards/apply-us.aspx
23. Google:
    (a) Google Fellowship Program; see http://googleblog.blogspot.com/2009/05/best-and-brightest.html
24. NVIDIA:
    (a) NVIDIA Fellowship Program; see http://www.nvidia.com/page/fellowship_programs.html
25. Facebook Ph.D. Fellowship: http://www.facebook.com/careers/fellowship.php
26. Yahoo! Labs: Yahoo! Key Scientific Challenges Program, http://labs.yahoo.com/ksc
27. Qualcomm, *Qualcomm Innovation Fellowship* for Ph.D. students in Electrical Engineering and Computer Science at Stanford, UC Berkeley, UCLA, UCSD, and USC: http://www.qualcomm.com/innovation/research/university_relations/innovation_fellowship/qinf10.html and http://www.qualcomm.com/innovation/research/university_relations/innovation_fellowship/
28. Computing Research Association (CRA): Outstanding Undergraduate Researchers, http://www.cra.org/awards/undergrad-current/
29. European Research Consortium for Informatics and Mathematics (ERCIM):
    (a) ERCIM Alain Bensoussan Fellowship Programme (for Ph.D. degree holders in selected research areas): http://fellowship.ercim.eu/ and http://www.ercim.eu/news/283-fellowship-programme; research areas are listed at: http://fellowship.ercim.eu/home/topic. Deadlines are on April 30 and September 30 annually.
30. *Theory Matters Wiki*; Theoretical Computer Science (TCS) Advocacy Wiki:
    (a) Funding Opportunities and Tips: http://theorymatters.org/pmwiki/pmwiki.php?n=Main.FundingOpportunities
31. Kurt Gödel Research Prize Fellowship:
    (a) 2 Ph.D. (pre-doctoral) fellowships

(b) 2 post-doctoral fellowships
(c) 1 unrestricted fellowship
(d) [Scope of the] original fellowship proposals [includes] the areas of:
    i. set theory
    ii. recursion theory
    iii. proof theory/intuitionism
    iv. model theory
    v. computer assisted reasoning
    vi. philosophy of mathematics
(e) All fellowship proposals, regardless of subject area, will be judged according to:
    i. the relevance and resemblance of the research (finished and proposed) to the great insights and originality of Kurt Gödel
    ii. its general interest and clarity of motivation
    iii. its rigorous scientific quality and depth.
(f) http://fellowship.logic.at/

32. Hewlett-Packard Company:
    (a) Hewlett-Packard Labs India (Bengaluru / Bangalore):
        i. *BITS - HP Labs India Ph.D. Fellowship* for Research related to Information Technologies:
            A. http://www.hpl.hp.com/india/bits-hplindia_phd/index.html or http://www.hpl.hp.com/india/bits-hplindia_phd/
            B. http://www.hpl.hp.com/india/bits-hplindia_phd/iiitbphd.html
            C. BITS, Pilani and HP Labs India jointly offer a unique PhD fellowship for research in Information and Communication Technologies (ICT) relevant to fast-growing markets like India.
            D. HP Labs India currently has ongoing Ph.D. Fellowships with BITS Pilani and IIIT, Bangalore: http://www.hpl.hp.com/india/bits-hplindia_phd/university.html
        ii. Open Innovation Office:
            A. http://www.hpl.hp.com/open_innovation/
            B. HP Labs Innovation Research Program (IRP): http://www.hpl.hp.com/open_innovation/irp/index.html

33. Code for America (CfA):
    (a) CfA Fellowship (develop web applications for local governments in the US): http://codeforamerica.org/fellows/

34. University of Minnesota, Twin Cities:
    (a) College of Science and Engineering:
        i. Charles Babbage Institute:
            A. Adelle and Erwin Tomash Graduate Fellowship (for Ph.D. candidates doing research in the history of IT/computing - all but dissertation Ph.D. students only): http://www.cbi.umn.edu/research/tfellowship.html
            B. Arthur L. Norberg Travel Fund (short-term grants-in-aid to help scholars with travel expenses to use archival collections at the Charles Babbage Institute): http://www.cbi.umn.edu/research/ntravelfund.html

35. —

36. **Scholarships and Fellowships in Biomedical Engineering**

37. Whitaker International Fellows and Scholars Program:
    (a) For graduate/Ph.D. students and postdocs in biomedical engineering
    (b) http://www.whitaker.org/home

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39. **Scholarships and Fellowships in Optical Engineering**

40. *SPIE* – The International Society for Optical Engineering:
    (a) "SPIE Scholarship Program" for undergraduates or graduate students studying optics, photonics, imaging, or optoelectronics program or related discipline (e.g., physics, electrical engineering): http://spie.org//x1733.xml?WT.svl=mddm14
    (b) Other scholarships (including scholarships for students doing research in nanolithography techniques and lasers): http://spie.org/x1736.xml

41. *Kidger Optics Associates* Michael Kidger Memorial Scholarship (to a college freshman, or sophomore of optical design): http://www.kidger.com/mkms_requirements.html

42. —

43. **Scholarships and Fellowships in Mechanical Engineering**

44. American Society of Mechanical Engineers (ASME):
    (a) Graduate Teaching Fellowships (for Ph.D. students in mechanical engineering): http://www.asme.org/Education/College/FinancialAid/Graduate_Teaching_Fellowships.cfm
    (b) ASME Scholarships:
        i. http://www.asme.org/Education/College/FinancialAid/Scholarships.cfm
        ii. US Undergraduates: http://www.asme.org/Education/College/FinancialAid/US_Undergraduates.cfm
        iii. Graduate Students: http://www.asme.org/Education/College/FinancialAid/Graduate_Students.cfm
        iv. International Students: http://www.asme.org/Education/College/FinancialAid/International_Undergraduates.cfm
    (c) Auxiliary Scholarships:
        i. http://www.asme.org/Education/College/FinancialAid/Auxiliary_Scholarships.cfm
        ii. Undergraduate Scholarships: http://www.asme.org/Education/College/FinancialAid/Undergraduate_Scholarships.cfm
        iii. Graduate Scholarships: http://www.asme.org/Education/College/FinancialAid/Graduate_Scholarships.cfm
        iv. Rice-Cullimore Scholarship (for international graduate students in the US): http://www.asme.org/Education/College/FinancialAid/RiceCullimore_Scholarship.cfm

(d) International Petroleum Institutes College Scholarships (for undergraduates): http://www.asme-ipti.org/public/pagscholarshipprograms.aspx
(e) International Petroleum Institutes Graduate Fellowship (for individuals entering a graduate program in mechanical engineering, and has an interest in the petroleum industry): http://www.asme-ipti.org/public/pagscholarshipprograms.aspx and http://www.asme.org/Communities/Students/Grad/Fellowships.cfm

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46. **Scholarships and Fellowships in Civil Engineering**
47. American Society of Civil Engineers (ASCE):
    (a) Jack E. Leisch Memorial National Graduate Fellowship (for graduate students in transportation/traffic engineering): http://www.asce.org/Content.aspx?id=25021
    (b) Scholarships & Fellowships (for undergraduates and graduate students): http://www.asce.org/Content.aspx?id=18337
48. American Concrete Institute (ACI):
    (a) ACI Foundation Fellowships & Scholarships: http://www.concrete.org/STUDENTS/ST_SCHOLARSHIPS.HTM
49. Institute of Transportation Engineers:
    (a) Burton W. Marsh Fellowship for Graduate Study in Traffic and Transportation Engineering: http://www.ite.org/education/Burton_W_MarshFellowship.asp
50. —

51. **Scholarships and Fellowships in Chemical Engineering**
52. American Institute of Chemical Engineers (AIChE) scholarships (includes scholarships for underrepresented minorities): http://www.aiche.org/Students/Scholarships/index.aspx
53. —

54. **Scholarships and Fellowships in Aerospace Engineering**
55. American Institute of Aeronautics and Astronautics (AIAA):
    (a) AIAA Foundation Scholarships:
        i. http://www.aiaa.org/content.cfm?pageid=211
        ii. For undergraduates and graduate students
        iii. Named scholarships for undergraduates are:
            A. http://www.aiaa.org/content.cfm?pageid=226
            B. A. Thomas Young Scholarship
            C. L. S. "Skip" Fletcher Scholarship
            D. Sam F. Iacobellis Scholarship
            E. Robert L. Crippen Scholarship
            F. E. C. "Pete" Aldridge Scholarship
            G. Liquid Propulsion Technical Committee Scholarship
            H. Space Transportation Technical Committee Scholarship
            I. Digital Avionics Technical Committee Scholarship (4)

J. Next Century of Flight Scholarship (2)
K. Leatrice Gregory Pendray Scholarship

iv. Awards for graduate students:
A. http://www.aiaa.org/content.cfm?pageid=227
B. Martin Summerfield Propellants and Combustion Graduate Award
C. Guidance, Navigation, And Control Graduate Award
D. Gordon C. Oates Air Breathing Propulsion Graduate Award
E. William T. Piper, Sr. General Aviation Systems Graduate Award
F. Orville and Wilbur Wright Graduate Award
G. John Leland Atwood Graduate Award
H. Open Topic Graduate Award

(b) Student Design Competition Award: http://www.aiaa.org/content.cfm?pageid=401

56. —

57. **Scholarships and Fellowships in Mathematics**

58. Association for Women in Mathematics (AWM):
   (a) Travel grants: http://sites.google.com/site/awmmath/programs/travel-grants
   (b) Alice T. Schafer Mathematics Prize for excellence in mathematics by an undergraduate woman: http://sites.google.com/site/awmmath/programs/schafer-prize
   (c) The *Ruth I. Michler Memorial Prize* of the AWM is awarded annually to a woman recently promoted to Associate Professor or an equivalent position in the mathematical sciences: http://sites.google.com/site/awmmath/programs/michler-prize

59. Seth Bonder Scholarship for Applied Operations Research in Health Services: http://www.informs.org/Recognize-Excellence/INFORMS-Community-Prizes-and-Awards/Seth-Bonder-Scholarship-for-Applied-Operations-Research-in-Health-Services

60. Oberwolfach Foundation:
   (a) Oberwolfach Prize (for young European mathematicians): http://www.mfo.de/programme/prize/
   (b) John Todd Fellowship (or John Todd Award) [for young excellent mathematicians working in numerical analysis]: http://www.mfo.de/programme/todd/

61. Clay Mathematics Institute: Clay Research Award, http://www.claymath.org/research_award/

62. —

63. **Scholarships and Fellowships in Science**

64. *Science.gov* (USA.gov for Science):
   (a) Internship and Fellowship Opportunities in Science for Undergraduate Students: http://www.science.gov/internships/undergrad.html
   (b) Graduate Students/Postdoctoral Fellowships: http://www.science.gov/internships/graduate.html

65. Heinz Family Philanthropies:

(a) Teresa Heinz Scholars for Environmental Research program (for Ph.D./MS students working on their thesis in environmental science/engineering) at selected universities: http://www.heinzfamily.org/programs/environmentalscholars.html
(b) http://www.heinzfamily.org/

66. Mayo Clinic:
    (a) Postbaccalaureate Research Education Program (PREP): http://www.mayo.edu/mgs/postbac-program.html

67. *American Chemical Society (ACS)*:
    (a) ACS-Hach Land Grant Undergraduate Scholarship (for chemistry undergraduates at a partner institution of ACS, and who plan to become chemistry teachers in US high schools): http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_SUPERARTICLE&node_id=2243&use_sec=false&sec_url_var=region1&__uuid=eb054647-53e0-4594-81e8-8ef49159f3f4
    (b) ACS-Hach Second Career Teacher Scholarship (for graduates in chemistry or related areas who are entering an education masters program or teacher certification program): http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_SUPERARTICLE&node_id=2244&use_sec=false&sec_url_var=region1&__uuid=4c27333f-4aad-481e-aaa4-f1db045d4eb4
    (c) ACS Scholars Program (for undergraduate underrepresented minorities majoring in chemistry, biochemistry, or chemical engineering): http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_SUPERARTICLE&node_id=1650&use_sec=false&sec_url_var=region1&__uuid=b3b583cf-18ae-4fb0-9375-33f75a0ccf49
    (d) Scholarships: http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_TRANSITIONMAIN&node_id=630&use_sec=false&sec_url_var=region1&__uuid=98e85c05-be75-4283-a97c-7a63ab4c3178

68. European Molecular Biology Organization:
    (a) EMBO Short-Term Fellowships (for junior researchers, including Ph.D. students): http://www.embo.org/programmes/fellowships/short-term.html
    (b) EMBO Long-Term Fellowships (for junior researchers/postdocs): http://www.embo.org/programmes/fellowships/long-term.html

69. L'ORÉAL:
    (a) "For Women in Science" program: http://www.lorealusa.com/forwomeninscience or http://www.lorealusa.com/_en/_us/index.aspx?direct1=00008&direct2=00008/00001
    (b) Alternatively, go to http://www.lorealusa.com/_en/_us/ and select the "For Women in Science" tab.
    (c) Check out the "L'Oréal USA Fellowships for Women in Science" (US postdocs), "UNESCO-L'Oréal Fellowships for Women in Science" (for female Ph.D. students and postdocs in the life sciences), and the "L'Oréal-UNESCO Awardss for Women in Science" (for distinguished female scientists)

70. American Institute of Physics (AIP):
    (a) AIP and Member Society Government Science Fellowships:

i. http://www.aip.org/gov/fellowships.html
ii. American Institute of Physics State Department Science Fellowship: http://www.aip.org/gov/fellowships/sdf.html
iii. American Institute of Physics Congressional Science Fellowship: http://www.aip.org/gov/fellowships/cf.html
iv. American Physical Society Congressional Science Fellowship: http://www.aps.org/policy/fellowships/congressional.cfm
v. American Geophysical Union Congressional Science Fellowship: http://www.agu.org/sci_pol/cong_fellowship/
vi. Optical Society of America Congressional Science Fellowships: http://www.osa.org/about_osa/public_policy/congressional_fellowships/default.aspx
vii. For US citizens with good track records in research

(b) American Geophysical Union:
i. Research Grants and Awards: http://www.agu.org/about/honors/research_grants/
ii. Student Travel Grants: http://www.agu.org/education/grants/travel.shtml
iii. Research Grants & Awards: http://www.agu.org/education/grants/research.shtml
iv. Mass Media Fellowship: http://www.agu.org/news/mass_media_fellowship/

(c) Society of Physics Students (SPS):
i. SPS Scholarships: http://www.spsnational.org/programs/scholarships/
ii. SPS Awards: http://www.spsnational.org/programs/awards/

71. Consortium for Ocean Leadership:
(a) Employment, Internships, and Opportunities [includes funding opportunities for researchers (professors, postdocs, and grad students)]: http://www.oceanleadership.org/about-ocean-leadership/ocean-of-opportunities/
(b) HBCU Fellowship: Ocean Leadership/IODP-USIO for Students of Historically Black Colleges and Universities, http://www.oceanleadership.org/education/diversity/hbcu-fellowship/
(c) HBCU Educator at Sea: http://www.oceanleadership.org/education/diversity/hbcu-educator/
(d) MS PHD's Professional Development Program: The Minorities Striving and Pursuing Higher Degrees of Success in the Earth System Sciences (MS PHD'S) Professional Development Program, http://www.oceanleadership.org/education/diversity/ms-phds-professional-development-program/
(e) Schlanger Ocean Drilling Fellowship Program (merit-based awards for outstanding graduate students to conduct research related to the Integrated Ocean Drilling Program): http://www.oceanleadership.org/programs-and-partnerships/usssp/schlanger-fellowship/

72. American Geological Institute Foundation:
(a) William L. Fisher Congressional Geoscience Fellowship (for young geoscientists to get engaged in **public policy**): http://www.agifoundation.org/govtaffairs.html and http://www.agifoundation.org/endowments.html

(b) AGI Minority Participation Program: Minority Participation Program Geoscience Student Scholarships for "underrepresented ethnic-minority (undergraduate or graduate) students in the geosciences", http://www.agiweb.org/mpp/index.html

73. Lady Davis Institute/Jewish General Hospital:
    (a) Awards for "graduate students (in biomedical science) and post-doctoral fellows/clinical fellows": http://www.ladydavis.ca/en/awards
74. Adolph C. and Mary Sprague Miller Institute for Basic Research in Science:
    (a) Miller Fellowships (for outstanding recent Ph.D.s / postdoctoral fellowship): http://millerinstitute.berkeley.edu/topage.php?nav=11&to=1 or http://millerinstitute.berkeley.edu/page.php?nav=11
    (b) Visiting Miller Research Professorships (for professors and research scientists): http://millerinstitute.berkeley.edu/topage.php?nav=24&to=1 or http://millerinstitute.berkeley.edu/page.php?nav=24
    (c) Miller Research Professorships (for professors in the UC system): http://millerinstitute.berkeley.edu/topage.php?nav=15&to=1 or http://millerinstitute.berkeley.edu/page.php?nav=15
    (d) Miller Senior Fellowships (Nominations are solicited by invitation only; Senior Fellow appointments are made to tenured UC Berkeley faculty for five years, possibly renewable for a subsequent five years, but no longer.): http://millerinstitute.berkeley.edu/topage.php?nav=126&to=1
75. Fundação para a Ciência e a Tecnologia (FCT); Ministério da Ciência, Technologia e Ensino Superior (MCTES): International Prize Fernando Gil in Philosophy of Science, http://alfa.fct.mctes.pt/apoios/premios/fernando_gil/index.phtml.pt
76. Wellcome Trust:
    (a) Wellcome Trust Sanger Institute:
        i. http://www.sanger.ac.uk/workstudy/
        ii. Postdoctoral fellows (for research in genomics): http://www.sanger.ac.uk/workstudy/career/postdocs/
        iii. Graduate program (for research in genomics): http://www.sanger.ac.uk/workstudy/phd/
        iv. Student placements and work experience (for research in genomics): http://www.sanger.ac.uk/workstudy/placements/
77. Paul B. Beeson Career Development Awards in Aging Research Program (formerly the Beeson Physician Faculty Scholars Program):
    (a) http://www.beeson.org/
    (b) "Today, the Beeson program continues to foster the independent research careers of clinically trained investigators – a growing cadre of talented physician-scientists – whose research and leadership are enhancing the health and quality of life of Americans, particularly older people."
    (c) About the Program: http://www.beeson.org/program_hx.cfm
78. American Mathematical Society:
    (a) AMS Fellowships and Scholarships:
        i. http://e-math.ams.org/programs/ams-fellowships/ams-fellowships

ii. AMS Centennial Research Fellowship Program: http://e-math.ams.org/programs/ams-fellowships/centennial-fellow/emp-centflyer
iii. Waldemar J. Trijitzinsky Memorial Awards: http://e-math.ams.org/programs/ams-fellowships/trjitzinsky/trjitzinsky-award
iv. Other Sources of Funding: http://e-math.ams.org/programs/funding/funding

79. —
80. **Scholarships and Fellowships in Medicine**
81. Sarnoff Medical Student Research Fellowship Program (for US medical students interested in cardiovascular research): http://www.sarnoffendowment.org/
82. Mayo Clinic:
    (a) Postbaccalaureate Research Education Program (PREP): http://www.mayo.edu/mgs/postbac-program.html
83. Paul B. Beeson Career Development Awards in Aging Research Program (formerly the Beeson Physician Faculty Scholars Program):
    (a) http://www.beeson.org/
    (b) "Today, the Beeson program continues to foster the independent research careers of clinically trained investigators – a growing cadre of talented physician-scientists – whose research and leadership are enhancing the health and quality of life of Americans, particularly older people."
    (c) About the Program: http://www.beeson.org/program_hx.cfm
84. —
85. **Scholarships and Fellowships in Science and Engineering**
86. National Academies:
    (a) Research Associateship Programs (graduate, postdoctoral, and senior level research opportunities): http://sites.nationalacademies.org/pga/rap/
    (b) Ford Foundation Fellowship Programs (predoctoral, dissertation or postdoctoral fellowships for individuals seeking academic careers in science and engineering): http://sites.nationalacademies.org/PGA/FordFellowships/index.htm
    (c) http://nationalacademies.org/grantprograms.html
    (d) http://sites.nationalacademies.org/pga/fellowships/
    (e) List of Fellowship, Scholarship, and Grant Databases: http://sites.nationalacademies.org/PGA/Fellowships/PGA_046300
    (f) List of Outside Fellowships, Scholarships, and Grants Websites: http://sites.nationalacademies.org/PGA/Fellowships/PGA_046301
    (g) Awards for junior and mid-career researchers: http://www.nasonline.org/site/PageServer?pagename=AWARDS_main
    (h) National Academy of Engineering, NAE:
        i. NAE Grand Challenges Scholars Program: http://www.grandchallengescholars.org/
    (i) National Science Foundation:

i. International Research Fellowship Program (IRFP) for junior scientists and engineers: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5179
ii. Integrative Graduate Education and Research Traineeship Program (IGERT) for undergraduates and graduate students in STEM: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12759
iii. National Science Foundation's Graduate Research Fellowship Program (GRFP) for students seeking research degrees in STEM: http://www.nsfgrfp.org/
iv. NSF Alliances for Graduate Education and the Professoriate (AGEP) program (to help underrepresented minorities obtain graduate degrees in STEM and prepare them for faculty positions in academia): http://www.nsfagep.org/
v. National Science Foundation's (NSF) East Asia and Pacific Summer Institutes (EAPSI) program:
   A. http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5284
   B. The East Asia and Pacific Summer Institutes (EAPSI) provide U.S. graduate students in science and engineering:
      - first-hand research experiences in Australia, China, Japan, Korea, New Zealand, Singapore or Taiwan
      - an introduction to the science, science policy, and scientific infrastructure of the respective location
      - an orientation to the society, culture and language.
   C. "The primary goals of EAPSI are to introduce students to East Asia and Pacific science and engineering in the context of a research setting, and to help students initiate scientific relationships that will better enable future collaboration with foreign counterparts."
   D. "All institutes, except Japan, last approximately eight weeks from June to August. Japan lasts approximately ten weeks from June to August (specific dates are available and updated at http://www.nsfsi.org/)."
   E. Example of Ph.D. student, Jakub Szefer, from Prof. Ruby Lee's lab at Princeton University, who interned with Prof. Cheng Chen-Mou from National Taiwan University: http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=118116&org=NSF

87. United States Department of Defense (DoD):
   (a) National Defense Education Program; Defense Advanced Research Projects Agency (DARPA):
      i. Science, Mathematics, and Research for Transformation (SMART) scholarship program:
         - http://smart.asee.org/
         - Co-organized by the American Society for Engineering Education
      ii. National Security Science and Engineering Faculty Fellowships (NSSEFF): http://www.ndep.us/ProgNSSEFF.aspx

88. National Society of Professional Engineers:
   (a) Scholarships for undergraduates and graduate students: http://www.nspe.org/Students/Scholarships/index.html
   (b) NSPE-PEC George B. Hightower, P.E. Fellowship (for an outstanding engineering graduate student): http://www.nspe.org/InterestGroups/PEC/Resources/Awards/hightower_fellowship.html

(c) PEG Management Fellowship:
   i. http://www.nspe.org/InterestGroups/PEG/Resources/AwardsAndScholarships/peg_fellowship.html
   ii. "This scholarship is designed for graduate students who are pursuing an MBA, a master's degree in engineering management, or a master's degree in public administration."

89. Technion – Israel Institute of Technology:
   (a) Department of Mathematics: Anna and Paul Erdos postdoctoral Fellowship, http://www.math.technion.ac.il/Site/people/positions.html
   (b) Lady Davis Postdoctoral Fellowship
   (c) Department of Electrical Engineering:
      i. The Andrew and Erna Finci Viterbi Fellowship Program (for graduate and postdoctoral fellows), http://webee.technion.ac.il/Research/Fellowship-Programs
      ii. Lady Davis Fellowship Trust: Technion Fellowships (for visiting professors, postdoctoral researchers, as well as Masters and Ph.D. students), http://ldft.huji.ac.il/upload/info/
      iii. http://webee.technion.ac.il/Research/Fellowship-Programs

90. Hebrew University:
   (a) Lady Davis Fellowship Trust: Technion Fellowships (for visiting professors, postdoctoral researchers, as well as Masters and Ph.D. students), http://ldft.huji.ac.il/upload/info/infoHUa.html

91. Hertz Foundation:
   (a) The Graduate Fellowship Award: http://www.hertzfoundation.org/dx/Fellowships/award.aspx
   (b) Thesis Prize: http://www.hertzfoundation.org/dx/Fellowships/thesis_winners.aspx

92. Krell Institute, Inc.:
   (a) DOE Computational Science Graduate Fellowship: http://www.krellinst.org/csgf/index.shtml

93. The Winston Churchill Foundation of the United States:
   (a) The Churchill Scholarship: http://winstonchurchillfoundation.org/index.php?hide=1&section=eligibility

94. American Society for Engineering Education:
   (a) http://blogs.asee.org/fellowships/
   (b) Fellowship programs: http://www.asee.org/fellowship-programs
   (c) Awards: http://www.asee.org/member-resources/awards/full-list-of-awards
   (d) DuPont Minorities in Engineering Award:
      i. http://www.asee.org/member-resources/awards/full-list-of-awards/national-awards/special#DuPont_Minorities_in_Engineering_Award
      ii. **"The DuPont Minorities in Engineering Award is conferred for outstanding achievements by an engineering or engineering technology educator in increasing student diversity within engineering and engineering technology programs."**

95. Alexander von Humboldt-Stiftung/Foundation:
    (a) Feodor Lynen Research Fellowship for Postdoctoral Researchers (junior postdocs): http://www.humboldt-foundation.de/web/feodor-lynen-fellowship-postdoc.html
    (b) Friedrich Wilhelm Bessel Research Award (mid-career researchers): http://www.humboldt-foundation.de/web/bessel-award.html
    (c) Georg Forster Research Fellowship for Postdoctoral Researchers (for non-German junior postdocs "with above average qualifications"): http://www.humboldt-foundation.de/web/georg-forster-fellowship-postdoc.html
    (d) Humboldt Research Fellowship for Postdoctoral Researchers (junior postdocs): http://www.humboldt-foundation.de/web/771.html
    (e) Sofja Kovalevskaja Award (junior postdocs): http://www.humboldt-foundation.de/web/kovalevskaja-award.html
    (f) Fraunhofer-Bessel Research Award: http://www.humboldt-foundation.de/web/fraunhofer-bessel-award.html
    (g) http://www.humboldt-foundation.de/web/home.html
96. Santa Fe Institute: Omidyar Postdoctoral Fellowship; see http://www.santafe.edu/education/fellowships/omidyar-postdoctoral/
97. Applied Materials: Applied Materials Graduate Fellowship
98. American Society of Naval Engineers (ASNE):
    (a) (Undergraduate and Graduate) Scholarships: http://www.navalengineers.org/awards/scholarships/Pages/ASNELandingPage.aspx
99. Lindau Meeting of Nobel Laureates and Students in Lindau (Oak Ridge Associated Universities, ORAU):
    (a) Graduate Student Award program:
        i. http://www.orau.org/lindau/
        ii. A student nominated to participate in this program must:
            A. Be a U.S. citizen
            B. Be currently enrolled as a full-time graduate student
            C. Be currently sponsored by, or working on, and supported by projects sponsored by, the agency to which the nomination is made, such as the U.S. Department of Energy Office of Science, the National Institutes of Health or other federal agency
            D. Have completed by June 2011 two years (but not more than four years) of study toward a doctoral degree in medicine or physiology, or in a related discipline, including the basic biomedical (or life) sciences
100. Research Councils UK (RCUK):
    (a) RCUK Academic Fellowships:
        i. http://www.rcuk.ac.uk/ResearchCareers/fellowships/Pages/home.aspx
        ii. http://www.rcuk.ac.uk/ResearchCareers/fellowships/Pages/about.aspx
        iii. Dorothy Hodgkin Postgraduate Awards:
            A. http://www.rcuk.ac.uk/ResearchCareers/dhpa/Pages/home.aspx

B. "Dorothy Hodgkin Postgraduate Awards (DHPA) is a UK scheme to bring outstanding students from India, China, Hong Kong, South Africa, Brazil, Russia and the developing world to come and study for PhDs in top rated UK research facilities."

(b) International Funding Opportunities:
   i. http://www.rcuk.ac.uk/international/funding/FundingOpps/Pages/home.aspx
   ii. Early Career Researchers: http://www.rcuk.ac.uk/international/funding/FundingOpps/Pages/EarlyCareer.aspx

(c) Engineering and Physical Sciences Research Council:
   i. Programs:
      A. Physical sciences:
         - Organic synthetic chemistry studentships: http://www.epsrc.ac.uk/about/progs/physsci/Pages/organicstudentships.aspx
         - Analytical science studentships: http://www.epsrc.ac.uk/about/progs/physsci/Pages/analyticalstudentships.aspx
      B. Mathematical sciences:
         - Fellowships (for postdoctoral research): http://www.epsrc.ac.uk/about/progs/maths/Pages/fellowships.aspx
   ii. Funding:
      A. http://www.epsrc.ac.uk/funding/Pages/default.aspx
      B. Grants available [has funds for (new/junior) professors and to support international collaboration]: http://www.epsrc.ac.uk/funding/grants/Pages/default.aspx
      C. Calls for proposals (open/current funding calls for applications and future/proposed calls): http://www.epsrc.ac.uk/funding/calls/Pages/default.aspx
      D. Studentships (training grants for Ph.D. and Masters students, including international students): http://www.epsrc.ac.uk/funding/students/Pages/default.aspx
      E. Fellowships (from junior scientists and engineers engaged in postdoctoral research to senior researchers): http://www.epsrc.ac.uk/funding/fellows/Pages/default.aspx

(d) Biotechnology and Biological Sciences Research Council (BBSRC):
   i. "The UK's leading funding agency for academic research and training in the non-clinical life sciences"
   ii. Funding research:
      A. http://www.bbsrc.ac.uk/funding/funding-index.aspx
      B. Fellowships (for early career scientists, for supporting individuals seeking a change in research directions or scientists who are returning to research, and senior researchers): http://www.bbsrc.ac.uk/funding/fellowships/fellowships-index.aspx
      C. Studentships (Doctoral training grants, Masters training grants, postgraduate awards, and undergraduate research grants): http://www.bbsrc.ac.uk/funding/studentships/studentships-index.aspx
      D. Special opportunities (current calls for funding): http://www.bbsrc.ac.uk/funding/opportunities/opportunities-index.aspx

E. Apply for funding (information about the process of applying for research funds): http://www.bbsrc.ac.uk/funding/apply/apply-index.aspx

(e) Science and Technology Facilities Council:
   i. STFC Grants and Awards:
      A. http://www.stfc.ac.uk/Funding+and+Grants/501.aspx
      B. "The Science and Technology Facilities Council offers grants and support in Particle Physics, Astronomy, Nuclear Physics and Facility Development. It also provides support for research infrastructure, training, knowledge exchange and public engagement activities through a variety of funding schemes and activities."
      C. STFC Funding Opportunities: http://www.stfc.ac.uk/Funding%20and%20Grants/598.aspx
      D. Postgraduate Studentships: http://www.stfc.ac.uk/Funding+and+Grants/637.aspx or http://www.stfc.ac.uk/Funding%20and%20Grants/636.aspx
   ii. Fellowship opportunities:
      A. http://www.stfc.ac.uk/Funding%20and%20Grants/508.aspx
      B. "Fellowship opportunities in Astronomy, Solar and Planetary Science, Particle Physics, Particle Astrophysics, Nuclear Physics, Development of STFC Neutron, Laser and Synchrotron Facilities within the UK."
      C. There are postdoctoral and advanced research fellowships.
   iii. Innovations Partnership Schemes (IPS and mini-IPS): http://www.stfc.ac.uk/19213.aspx
   iv. IPS Fellowships:
      A. http://www.stfc.ac.uk/19226.aspx
      B. The IPS fellowship is a scheme designed to support a role to develop the commercial exploitation of technologies. This is not a research orientated fellowship.
   v. Follow-on-Funding:
      A. http://www.stfc.ac.uk/19207.aspx
      B. "Follow on Funding is intended to provide financial support at the very early or pre-seed stage of turning research outputs into a commercial proposition. Unlike the other research councils, in STFC, industry partners are not allowed. If you have an industry partner, please use the mini-IPS or IPS scheme."
      C. "STFC staff, grant funded academics and researchers at CERN and ESO are eligible to apply for follow-on-funds (see the research grants handbook for CERN and ESO eligibility). STFC staff should first investigate whether they can be funded through proof of concept funding."

(f) Natural Environment Research Council:
   i. Grants and studentships on the web:
      A. http://www.nerc.ac.uk/research/gotw.asp
      B. Grants on the web: http://gotw.nerc.ac.uk/goti.asp?c=1
   ii. Funding:
      A. http://www.nerc.ac.uk/funding/
      B. Postgraduate training:

- Postgraduate eligibility (requires UK/EU citizenship): http://www.nerc.ac.uk/funding/available/postgrad/eligibility.asp

C. Research Fellowship Scheme [for all nationalities]: http://www.nerc.ac.uk/funding/available/fellowships/

D. Research Experience Placements (REP) scheme [for undergraduates]: http://www.nerc.ac.uk/funding/available/rep.asp

E. Research Grants:
- Eligibility: http://www.nerc.ac.uk/funding/available/researchgrants/eligibility.asp

iii. **Other potential sources of funding**:

A. http://www.nerc.ac.uk/funding/otherfunding.asp

B. Look at the "Higher Education Funding Councils" for each country (England, Wales, Northern Ireland, and Scotland)

101. Nuffield Foundation:

(a) Undergraduate research bursaries in science: http://www.nuffieldfoundation.org/undergraduate-research-bursaries-0

(b) Funding for social policy projects in the UK:

i. http://www.nuffieldfoundation.org/social-policy

ii. http://www.nuffieldfoundation.org/children-and-families-law-society-educat

(c) Apply for funding: http://www.nuffieldfoundation.org/apply-for-funding

(d) Africa program: http://www.nuffieldfoundation.org/africa-programme-0

(e) Nuffield Farming Scholarships Trust:

i. Nuffield Farming Scholarships: http://www.nuffieldscholar.org/

(f) The Nuffield Trust (or, The Nuffield Trust for Research and Policy Studies in Health Services):

i. Fellowships:

A. http://www.nuffieldtrust.org.uk/fellowships/index.aspx?id=43

B. Rock Carling fellowship (for senior researchers in public health): http://www.nuffieldtrust.org.uk/fellowships/index.aspx?id=112

C. John Fry Fellowship (for senior researchers in public health): http://www.nuffieldtrust.org.uk/fellowships/index.aspx?id=109

D. Harkness Fellowships in Health Care Policy:
- "Since September 2009 The Nuffield Trust have been the proud co-sponsors of the prestigious Harkness Fellowships programme with The Commonwealth Fund."
- "These offer an unparalleled opportunity for the health policy analysts of the future to conduct original research and learn about healthcare in North America."
- "Mid-career health policy researchers and practitioners (including doctors, health services managers, journalists and government officials) are supported to spend 9 to 12 months in the United States conducting a policy-oriented research project and working with leading U.S. health policy experts."

102. U.S. Department of Homeland Security (DHS):

(a) DHS Scholarship and Fellowship Program: http://www.orau.gov/dhsed/

103. ACT, Inc.:
   (a) Barry M. Goldwater Scholarship and Excellence in Education Program (for US residents who will be college upperclassmen in STEM fields in the following academic year): http://www.act.org/goldwater/

104. Massachusetts Institute of Technology:
   (a) MIT School of Engineering:
      i. Lemelson-MIT Program:
         A. http://web.mit.edu/invent/
         B. Lemelson-MIT Awards for Invention and Innovation: http://web.mit.edu/invent/a-main.html

105. —

106. **Scholarships and Fellowships in Various Fields (Including Creative Arts, Teaching, and Sports)**

107. U.S. Department of Education:
   (a) Robert C. Byrd Honors Scholarship Program:
      i. High school graduates who have been accepted for enrollment at institutions of higher education (IHEs), have demonstrated outstanding academic achievement, and show promise of continued academic excellence may apply to states in which they are residents.
      ii. http://www2.ed.gov/programs/iduesbyrd/index.html
   (b) **Jacob K. Javits Fellowships Program**:
      i. This program provides fellowships to students of superior academic ability – selected on the basis of demonstrated achievement, financial need, and exceptional promise – to undertake study at the doctoral and Master of Fine Arts level in selected fields of arts, humanities, and social sciences.
      ii. http://www2.ed.gov/programs/jacobjavits/index.html
   (c) Close Up Fellowship Program:
      i. This program provides financial aid to enable low-income students, their teachers, and recent immigrants to come to Washington, D.C., to study the operations of the three branches of the federal government.
      ii. http://www2.ed.gov/programs/closeup/index.html
   (d) **B.J. Stupak Olympic Scholarships**:
      i. This program provides financial assistance to athletes who are training at the U.S. Olympic Education Center or one of the U.S. Olympic training centers and who are pursuing a postsecondary education at institutions of higher education (IHEs).
      ii. http://www2.ed.gov/programs/olympic/index.html
   (e) **Teacher Education Assistance for College and Higher Education (TEACH) Grant Program**:
      i. Through the College Cost Reduction and Access Act of 2007, Congress created the Teacher Education Assistance for College and Higher Education (TEACH) Grant Program that provides grants of up to $4,000 per year to students who intend to teach in a public or private elementary or secondary school that serves students from low-income families.

ii. http://studentaid.ed.gov/PORTALSWebApp/students/english/TEACH.jsp

(f) Scholarship search engine: https://studentaid2.ed.gov/getmoney/scholarship/

(g) Financial Aid:
   i. http://www2.ed.gov/finaid/landing.jhtml?src=rt
   ii. http://studentaid.ed.gov/PORTALSWebApp/students/english/funding.jsp
   iii. Paying for college: http://www.college.gov
   iv. Student Aid (has information for students at all levels and parents): http://studentaid.ed.gov/
   v. Student Aid Eligibility: http://studentaid.ed.gov/PORTALSWebApp/students/english/aideligibility.jsp?tab=funding
   vi. Federal Student Aid: http://federalstudentaid.ed.gov/
   vii. Academic Competitiveness Grant: The Academic Competitiveness Grant provides up to $750 for the first year of undergraduate study and up to $1,300 for the second year of undergraduate study. See http://studentaid.ed.gov/PORTALSWebApp/students/english/NewPrograms.jsp.

(h) Free Application for Federal Student Aid (FAFSA):
   i. Financial Aid Estimator Tool (FAFSA4caster): http://www.fafsa4caster.ed.gov/F4CApp/index/index.jsf
   ii. http://www.fafsa.ed.gov/

(i) Federal Pell Grant Program: http://www2.ed.gov/programs/fpg/index.html

108. European Commission:

(a) Erasmus Programme (for Europeans): http://ec.europa.eu/education/lifelong-learning-doc80_en.htm

(b) Erasmus Mundus (for non-Europeans): http://ec.europa.eu/education/external-relation-doc72_en.htm

109. Woodrow Wilson Foundation:

(a) **The Woodrow Wilson-Rockefeller Brothers Fund Fellowships for Aspiring Teachers of Color (for underrepresented minorities seeking a career as a K-12 public school teacher in the US)**: http://www.woodrow.org/teaching-fellowships/wwrbf/index.php

(b) **Woodrow Wilson Teaching Fellowship (for a MS program in teacher education, who would teach at high-need urban and rural schools or ≥ 3 years)**: http://www.wwteachingfellowship.org/

(c) **Leonore Annenberg Teaching Fellowship (for a MS program in teacher education, who would teach at high-need urban and rural schools or ≥ 3 years)**: http://www.woodrow.org/teaching-fellowships/annenberg/index.php

(d) MMUF Travel & Research Grants (for graduate students who participated in the Mellon Mays Undergraduate Fellowship Program): http://www.woodrow.org/higher-education-fell-opportunity/research/index.php

(e) MMUF Dissertation Grants (for graduate students who participated in the Mellon Mays Undergraduate Fellowship Program): http://www.woodrow.org/higher-education-fellowshi-opportunity/dissertation/index.php

(f) Charlotte W. Newcombe Doctoral Dissertation Fellowship (for Ph.D. students writing their theses on ethical or religious values in all fields of the humanities and social sciences): http://www.woodrow.org/higher-education-fellowships/religion_ethics/index.php

(g) **Woodrow Wilson Dissertation Fellowship in Womens Studies**: http://www.woodrow.org/higher-education-fellowships/women_gender/index.php

(h) Doris Duke Conservation Fellowship program (Masters students seeking careers as practicing conservationists): http://www.woodrow.org/higher-education-fellowships/conservation/index.php

(i) Thomas R. Pickering Graduate Foreign Affairs Fellowship:

i. Prior to joining the United States Department of State Foreign Service, this fellowship supports students entering a Masters program in the following fields:

A. **public policy**
B. international affairs
C. public administration
D. academic fields such as:

- business
- economics
- political science
- sociology
- foreign languages

ii. http://www.woodrow.org/higher-education-fellowships/foreign_affairs/pickering_grad/index.php

(j) Thomas R. Pickering Undergraduate Foreign Affairs Fellowship (for undergraduates seeking to join the United States Department of State Foreign Service): http://www.woodrow.org/higher-education-fellowships/foreign_affairs/pickering_undergrad/index.php

110. Burroughs Wellcome Fund:

(a) Career Awards for Medical Scientists (post-Ph.D.): http://www.bwfund.org/pages/188/Career-Awards-for-Medical-Scientists/

(b) **Career Award for Science and Mathematics Teachers (science or mathematics K-12 teachers in North Carolina public schools)**: http://www.bwfund.org/pages/379/Career-Awards-for-Science-and-Mathematics-Teachers/

111. Susan G. Komen for the Cure®: The Komen College Scholarship Program, http://ww5.komen.org/ResearchGrants/CollegeScholarshipAward.html

112. University of Kansas Madison & Lila Self Graduate Fellowship (Ph.D. fellowships for business, economics, and STEM): http://www2.ku.edu/~selfpro/

113. Nationally Coveted College Scholarships, Graduate School Fellowships & Postdoctoral Awards: http://scholarships.fatomei.com/

114. The Andrew W. Mellon Foundation:

(a) Fellowships & Scholarships for undergraduates: http://www.mmuf.org/undergraduates/explore-your-opportunities/fellowships-scholorships

115. Siebel Scholars Foundation:

(a) For students in selected business, bioengineering, and computer science graduate programs
(b) Only available for students at selected universities.
(c) http://www.siebelscholars.com/scholars
(d) http://www.siebelscholars.com/

116. Aspen Institute (for leaders, e.g. in business, education, community service, and politics):
(a) Catto Fellowship Program: http://www.aspeninstitute.org/leadership-programs/catto-fellowship-program
(b) Rodel Fellowship Program: http://www.aspeninstitute.org/leadership-programs/aspen-institute-rodel-fellowships-public-le-/about-rodel-fellowship-program
(c) Henry Crown Fellowship Program: http://www.aspeninstitute.org/leadership-programs/henry-crown-fellowship-program

117. Smithsonian Institution:
(a) Postdoctoral Fellowships, Predoctoral Fellowships, and Graduate Student Fellowships:
i. http://www.si.edu/ofg/infotoapply.htm
ii. http://www.si.edu/ofg/fell.htm
iii. http://www.si.edu/ofg/ofgapp.htm
iv. fields of research and study:
A. **American History, American Material and Folk Culture, and the History of Music and Musical Instruments**
B. History of Science and Technology
C. **History of Art, Design, Crafts, and the Decorative Arts**
D. Anthropology, Archaeology, Linguistics, and Ethnic Studies
E. Evolutionary, Systematic, Behavioral, Environmental, and Conservation Biology
F. Earth, Mineral, and Planetary Science
G. Materials Characterization and Conservation
(b) Internship opportunities: http://www.si.edu/ofg/internopp.htm
(c) Research centers: http://www.si.edu/research/. [It also has lots of information for K-12 teachers. It has resources, funding, and internship opportunities for undergraduates and graduate students pursing research in various aspects of humanities, social science, and natural science.]
(d) Freer Gallery of Art / Arthur M. Sackler Gallery:
i. Fellowships: http://www.asia.si.edu/research/fellowships.asp
(e) National Museum of American History:
i. Jerome and Dorothy Lemelson Center for the Study of Invention and Innovation:
A. The Lemelson Center Fellows Program (for Ph.D. students and postdocs): http://invention.smithsonian.org/resources/research_fellowships.aspx

118. Intercollegiate Studies Institute (ISI):
(a) William E. Simon Fellowship for Noble Purpose (for American undergraduates who are planning to use the fellowship grant for serving humanity – in their own ways): http://www.isi.org/programs/fellowships/simon.html

(b) **Richard M. Weaver Fellowship (for Americans who are attending a graduate program and are intending to pursue a career in academia/teaching)**: http://www.isi.org/programs/fellowships/richard_weaver.html
(c) Western Civilization Fellowships (for Americans who are attending a graduate program about Western culture/civilization): http://www.isi.org/programs/fellowships/western_civilization.html
(d) Salvatori Fellowship (for Americans who are attending a graduate program about early American history): http://www.isi.org/programs/fellowships/salvatori.html
(e) Bache Renshaw Fellowship for Doctoral Study in Education (for Americans who plan to attend doctoral programs in education): http://www.isi.org/programs/fellowships/bache_renshaw.html
(f) http://www.isi.org/programs/fellowships/fellowships.html

119. Le Fonds québécois de la recherche sur la nature et les technologies (The Quebec Research Fund on nature and technology):
    (a) Scholarships: http://www.fqrnt.gouv.qc.ca/en/bourses/index.htm
120. Horatio Alger Association of Distinguished Americans, Inc.:
    (a) Scholarship Programs (for US high school seniors who have faced and overcome great obstacles in their young lives): https://www.horatioalger.org/scholarships/sp.cfm
    (b) Awards:
        i. http://www.horatioalger.org/aboutus.cfm
        ii. Horatio Alger Award: "dedicated community leaders who demonstrate individual initiative and a commitment to excellence; as exemplified by remarkable achievements accomplished through honesty, hard work, self-reliance and perseverance over adversity"
        iii. International Horatio Alger Award: "recipients of this award must have overcome humble beginnings and/or adversity to achieve success. They serve as outstanding role models to the international community and are committed to the Association's mission of encouraging and educating today's young people."
        iv. Norman Vincent Peale Award: "a Member who has made exceptional humanitarian contributions to society, who has been an active participant in the Association, and who continues to exhibit courage, tenacity and integrity in the face of great challenges. "
121. The W. Garfield Weston Foundation:
    (a) Entrance Awards & Upper Year Garfield Weston Awards (for students pursuing college or CEGEP studies in Canada): http://www.garfieldwestonawards.ca/en/about
122. Canadian Merit Scholarship Foundation (http://www.cmsf.ca/): Loran Award (undergraduate funding for Canadian citizens and permanent residents), http://www.loranaward.ca/
123. StartingBloc:
    (a) StartingBloc Fellowship:

i. http://www.startingbloc.org/fellowship
ii. For people who believe that economic value creation and social value creation are complementary... For people who believe in making money and doing good, and creating social and economic impact...
iii. The Institute for Social Innovation is a "conference" to learn about global issues, "corporate social responsibility, social entrepreneurship, cross sector partnerships and sustainability. Sessions are led by top academics, corporate innovators, social entrepreneurs, activists and government officials."

124. The John D. and Catherine T. MacArthur Foundation:
    (a) Applying for Grants: http://www.macfound.org/site/c.lkLXJ8MQKrH/b.913959/k.E1BE/Applying_for_Grants.htm
    (b) Financial & Grant Information: http://www.macfound.org/site/c.lkLXJ8MQKrH/b.938093/k.9E4C/Financial__Grant_Information.htm
    (c) MacArthur Fellows Program: http://www.macfound.org/site/c.lkLXJ8MQKrH/b.959463/k.9D7D/Fellows_Program.htm

125. Wenner-Gren Foundations (The Wenner-Gren Center Foundation for Scientific Research, The Axel Wenner-Gren Foundation for International Exchange of Scientists and The Foundation Wenner-Grenska Samfundet): Fellowships (for Swedish postdocs), http://www.swgc.org/stipendier.aspx
126. Égide:
    (a) EGIDE Latitudes: http://www.egidelatitudes.fr/jahia/Jahia/site/egidelatitudes
    (b) Call for applications to scholarship opportunities (including a scholarship for French citizens to study abroad): http://www.egide.asso.fr/jahia/Jahia/accueil/appels
    (c) Eiffel excellence scholarship programme (organized by the French Ministry of Foreign and European Affairs):
        i. http://www.egide.asso.fr/jahia/Jahia/appels/eiffel
        ii. For non-French citizens pursuing advanced degrees.

127. Gottlieb Daimler and Karl Benz Foundation:
    (a) **Ph.D. fellowship for international students to study in Germany**; see http://www.daimler-benz-stiftung.de/home/fellowship/en/start.html

128. The San Diego Foundation:
    (a) San Diego Foundation Community Scholarship Program:
        i. http://www.sdfoundation.org/GrantsScholarships/Scholarships.aspx
        ii. Available scholarships: http://www.sdfoundation.org/GrantsScholarships/Scholarships/ForStudents/AvailableScholarships.aspx. Also, see http://www.sdfoundation.org/GrantsScholarships/Scholarships/ForStudents/AvailableScholarships/CommonApplicationScholarships.aspx#twomey
        iii. It has scholarships for:
            A. graduating high school seniors
            B. current undergraduates
            C. non-traditional college students:
                - mature-age students
                - mature student

- adult learner
- adult student
- adults who are returning to college

D. people pursuing teaching certificates
E. students attending grad school
F. students attending trade/vocational school
G. foster youth
H. students in various ethnic groups
I. students in different geographical locations
J. **students pursuing education in certain fields, such as engineering, nursing, music, and arts and humanities**

iv. Separate Scholarships: http://www.sdfoundation.org/GrantsScholarships/Scholarships/ForStudents/AvailableScholarships/SeparateScholarships.aspx
v. Other Scholarships and Financial Aid Resources: http://www.sdfoundation.org/GrantsScholarships/Scholarships/ForStudents/AvailableScholarships/OtherScholarshipsandFinancialAidResources.aspx
vi. Financial Aid Information: http://www.sdfoundation.org/GrantsScholarships/Scholarships/ForStudents/Resources/FinancialAidInformation.aspx

(b) Grant Opportunities (for non-profit organizations): http://www.sdfoundation.org/GrantsScholarships/ForNonprofits/GrantOpportunities.aspx

129. Ewing Marion Kauffman Foundation:
(a) Kauffman Dissertation Fellowship Program (for "Ph.D., D.B.A., or other doctoral students at accredited U.S. universities to support dissertations in the area of entrepreneurship"): http://www.kauffman.org/research-and-policy/kauffman-dissertation-fellow.aspx
(b) Kauffman Junior Faculty Fellowship in Entrepreneurship Research:
i. http://www.kauffman.org/research-and-policy/kauffman-junior-faculty-fellow.aspx
ii. "to recognize tenured or tenure-track junior faculty members at accredited U.S. universities who are beginning to establish a record of scholarship and exhibit the potential to make significant contributions to the body of research in the field of entrepreneurship"
(c) Ewing Marion Kauffman Prize Medal for Distinguished Research in Entrepreneurship (for promising young scholars in the field of entrepreneurship): http://www.kauffman.org/research-and-policy/kauffman-prize-medal-for-entrepreneurship-re.aspx
(d) Kauffman Legal Fellowship Program (for post-J.D. research fellowship): http://www.kauffman.org/research-and-policy/kauffman-legal-fellowship-program.aspx
(e) Kauffman Global Scholars Program (for non-American top young entrepreneurs): http://www.kauffman.org/entrepreneurship/kauffman-global-scholars-program.aspx
(f) Entrepreneur Fellows program (for M.D.s and Ph.D.s who want to become high-tech start-up entrepreneurs): http://www.kauffman.org/entrepreneurship/entrepreneur-fello

aspx

(g) Entrepreneur Postdoctoral Fellows program (for postdocs who want to become high-tech start-up entrepreneurs): http://www.kauffman.org/entrepreneurship/entrepreneur-po aspx

(h) Kauffman Fellows Program ("to educate and train future venture capitalists and future leaders of high-growth companies"): http://www.kauffman.org/entrepreneurship/kauffman-fellows.aspx

(i) Kauffman Foundation Outstanding Postdoctoral Entrepreneur Award: http://www.kauffman.org/entrepreneurship/outstanding-postdoctoral-entrepreneur-award.aspx

130. Killam Fellowships Program:
    (a) http://www.killamfellowships.com/
    (b) The Killam Fellowships Program allows undergraduate students from Canada and the United States to participate in a program of binational residential exchange.
    (c) Killam Fellows spend either one semester or a full academic year as an exchange student in the host country.

131. Canada Council for the Arts:
    (a) Killam Research Fellowship:
        i. http://killam.canadacouncil.ca/welcome.asp
        ii. For researchers in the following fields, and interdisciplinary fields between these fields:
            A. humanities
            B. social sciences
            C. natural sciences
            D. health sciences
            E. engineering
        iii. For outstanding researchers who are Canadian citizens or permanent residents
    (b) Killam Prizes (and Killam Research Fellowships): http://www.canadacouncil.ca/prizes/killam

132. Killam Trusts:
    (a) Killam Scholarship and Prize Programs (multiple fields in selected Canadian universities): http://www.killamtrusts.ca/index.asp
    (b) Killam Award winners: http://www.killamtrusts.ca/awardwinners.asp
    (c) Killam Scholarship and Prize Programs at various institutions (including universities): http://www.killamtrusts.ca/uofAlberta.asp

133. U.S. Department of State:
    (a) Bureau of Educational and Cultural Affairs:
        i. Institute of International Education (administrator of program):
            A. Council for International Exchange of Scholars:
                - Fulbright Programs (for U.S. and non-U.S. Scholars): http://www.cies.org/Fulbright_programs.htm; http://www.cies.org/about_fulb.htm; http://us.fulbrightonline.org/about.html; http://foreign.fulbrightonline.org/; http://exchanges.state.gov/academicexchanges/index/fulbright-program.html; and http://fulbright.state.gov/

- Hubert H. Humphrey Fellowship Program:
  - For mid-career professionals in the following fields: economic development/finance and banking, agricultural and rural development, natural resources, environmental policy, and climate change, human resource management, communications/journalism, teaching of English as a foreign language, educational administration, planning, and policy, substance abuse education, treatment, and prevention, HIV/AIDS policy and prevention, public health policy and management, **public policy** analysis and public administration, law and human rights, urban and regional planning, trafficking in persons - policy and prevention, technology policy and management, and higher education administration
  - http://www.humphreyfellowship.org/
  - http://exchanges.state.gov/globalexchanges/humphrey-fellowship.html

B. International programs for scholars (search under each continent): http://www.iie.org/en/Our-Global-Reach

ii. International Documentary Filmmakers Fellowship:
   A. http://exchanges.state.gov/cultural/docfilmmakers.html
   B. http://smpa.gwu.edu/doccenter/fellowship.php
   C. For "emerging or mid-career documentary filmmakers"
   D. Intensive six-week program at the Documentary Center, The George Washington University

iii. Office of English Language Programs:
   A. English Language Fellow Program (for "highly qualified U.S. educators in the field of Teaching English to Speakers of Other Languages, TESOL"): http://exchanges.state.gov/englishteaching/el-fellow.html
   B. English Language Specialist Program:
      - http://exchanges.state.gov/englishteaching/el-specialist.html
      - U.S. academics in the fields of Teaching English as a Foreign Language (TEFL) / Teaching English as a Second Language (TESL) and Applied Linguistics
   C. E-Teacher Scholarship Program (for English teaching professionals living outside of the United States): http://exchanges.state.gov/englishteaching/eteacher.html
   D. English Access Microscholarship Program (Access):
      - http://exchanges.state.gov/englishteaching/eam.html
      - The English Access Microscholarship Program (Access) provides a foundation of English language skills to non-elite, 14 - 18 year old students through afterschool classes and intensive summer learning activities.
   E. http://exchanges.state.gov/englishteaching/index.html

iv. Office of Global Educational Programs:
   A. Community College Initiative:
      - For "individuals from Brazil, Egypt, Ghana, Indonesia, Pakistan, South Africa, Turkey, and selected countries in Central America to spend one year studying at community colleges in the United States and earn a vocational certificate."

- "The program provides academic instruction in selected fields including agriculture, applied engineering, business management and administration, health professions, information technology, media, and tourism and hospitality management, while also immersing participants in U.S. society and cultural life."
- "Participants are recruited from historically underserved populations and may not have had opportunities for formal job training or higher education. Most participants are in their early- to mid-twenties and many already have work experience."
- http://exchanges.state.gov/globalexchanges/community-colleges-initiat
html

B. **Benjamin A. Gilman International Scholarship Program**:
   - "The Benjamin A. Gilman International Scholarship Program provides scholarships to U.S. undergraduates with financial need for study abroad, including students from diverse backgrounds and students going to non-traditional study abroad destinations."
   - "The applicant must be receiving a Federal Pell Grant or provide proof that he/she will be receiving a Pell Grant at the time of application or during the term of his/her study abroad."
   - http://exchanges.state.gov/globalexchanges/gilman-scholarship-program
html

C. Global Undergraduate Exchange Program (Global UGRAD Program):
   - http://exchanges.state.gov/academicexchanges/guep.html
   - The Global Undergraduate Exchange Program (also known as the Global UGRAD Program) provides one semester and academic year scholarships to outstanding undergraduate students from underrepresented sectors in East Asia, Eurasia and Central Asia, the Near East and South Asia and the Western Hemisphere for non-degree full-time study combined with community service, internships and cultural enrichment.

D. Professors and Research Scholars: http://exchanges.state.gov/jexchanges/programs/professor.html

E. Short-Term Scholar: http://exchanges.state.gov/jexchanges/programs/shortterm.html

F. Student, College/University:
   - http://exchanges.state.gov/jexchanges/programs/ucstudent.html
   - The College/University Student Program gives foreign students the opportunity to study at an American degree-granting post-secondary accredited educational institution, including colleges and universities. Students may participate in degree and non-degree programs. They must pursue a full-time course of study and maintain satisfactory advancement toward the completion of their academic program.

G. Study of the United States Institutes for Scholars:
   - Study of the United States Institutes for Scholars are designed to strengthen curricula and improve the quality of teaching about the United States in academic institutions overseas.

- Foreign university faculty, secondary educators and other scholars spend approximately four weeks at host universities where they take part in a series of lectures, seminar discussions and site visits related to each institute's theme.
- They learn about American educational philosophies, explore new teaching methods and pursue related research interests.
- Interests of these institutes:
  - American Politics and Political Thought
  - Contemporary American Literature
  - Journalism and Media
  - Religious Pluralism in the United States
  - Secondary School Educators
  - U.S. Culture and Society
  - U.S. Foreign Policy
  - U.S. National Security
- http://exchanges.state.gov/academicexchanges/scholars.html

H. Study of the United States Institutes for Student Leaders:
- Study of the United States Institutes for Student Leaders are five-to-six-week academic programs for foreign undergraduate leaders.
- Hosted by U.S. academic institutions throughout the United States, the Student Leader Institutes include an intensive academic component, an educational tour of other regions of the country, local community service activities and a unique opportunity for participants to get to know their American peers.
- http://exchanges.state.gov/academicexchanges/students.html
- Interests of the institutes:
  - Comparative **Public Policy** for Pakistani Student Leaders
  - Energy and the Environment
  - Global Environmental Issues
  - New Media
  - Religious Pluralism in the U.S.
  - Social Entrepreneurship
  - U.S. Foreign Policy for East Asian Student Leaders
  - Western Hemisphere Student Leaders
  - Women's Leadership

I. Edmund S. Muskie Graduate Fellowship:
- http://exchanges.state.gov/academicexchanges/muskie.html
- The Edmund S. Muskie Graduate Fellowship Program (Muskie) confers fellowships for Master's degree-level study in the U.S. in the fields of business administration, economics, education, environmental policy and management, international affairs, journalism/mass communications, law, library and information science, public administration, public health and **public policy** for students and professionals from Eurasia.
- Candidates are recruited through a merit-based competition administered by the International Research & Exchanges Board (IREX).
- U.S. host campuses are also selected through a competition process and

generally provide tuition waivers of fifty percent.
- Approximately 145 fellowships are awarded each academic year.

J. Critical Language Scholarship Program:
- http://exchanges.state.gov/academicexchanges/sli2.html
- The Critical Language Scholarship (CLS) Program provides overseas foreign language instruction and cultural enrichment experiences in 13 critical need languages for U.S. students in higher education.
- The CLS Program is part of a U.S. government effort to expand dramatically the number of Americans studying and mastering critical need foreign languages.
- Undergraduate, master's and doctoral-level students of diverse disciplines and majors are encouraged to apply for the seven-to-10-week-long programs.
- Participants are expected to continue their language study beyond the scholarship period, and later apply their critical language skills in their future professional careers.

K. Critical Language Enhancement Award (CLEA):
- http://exchanges.state.gov/academicexchanges/clea2.html
- The Critical Language Enhancement Award (CLEA) provides funding to eligible Fulbright U.S. Student Program Grantees who intend to use one of the following languages for their Fulbright project:
  - Arabic (all dialiects)
  - Azeri
  - Bangla/Bengali
  - Bhasa Indonesia
  - Chinese (Mandarin Only)
  - Farsi
  - Gujarati
  - Hindi
  - Korean
  - Marathi
  - Pashto
  - Punjabi
  - Russian
  - Turkish
  - Urdu

v. Office of International Visitors:

A. International Visitor Leadership Program (IVLP):
- http://exchanges.state.gov/ivlp/index.html
- http://exchanges.state.gov/ivlp/ivlp.html
- The Office of International Visitors manages and funds the International Visitor Leadership Program (IVLP).
- Launched in 1940, the IVLP is a professional exchange program that seeks to build mutual understanding between the U.S. and other nations through carefully designed short-term visits to the U.S. for current and emerging foreign leaders.

- These visits reflect the International Visitors' professional interests and support the foreign policy goals of the United States.

vi. Program Search (find international exchange programs sponsored by the Bureau of Educational and Cultural Affairs): http://exchanges.state.gov/index/search.html

134. Mexican American Legal Defense and Educational Fund (MALDEF):
    (a) Scholarship Resources: http://maldef.org/leadership/scholarships/
    (b) MALDEF Law School Scholarship Program:
        i. MALDEF's Law School Scholarship Program provides several scholarships in varying amounts to deserving law students with a commitment to advancing the civil rights of Latinos.
        ii. MALDEF's Law School Scholarship Program is open to all law students who will be enrolled full-time in an American-accredited law school in 2010-2011.
        iii. Scholarships are awarded to students based on their commitment to serve the Latino community through law; their past achievement and potential for achievement; and their financial need.
        iv. http://maldef.org/leadership/scholarships/law_school_scholarship_program/index.html
    (c) Undergraduate Scholarship Resource Guide: http://maldef.org/leadership/scholarships/resources/index.html

135. Ashoka:
    (a) Ashoka Fellows (to promote and support social entrepreneurship): http://www.ashoka.org/fellows

136. Heinz Family Foundation:
    (a) Heinz Award Criteria:
        i. http://heinzawards.net/awards/criteria
        ii. The Heinz Endowments
        iii. Attributes and qualities of awardees:
            A. an enormous capacity to love
            B. smile
            C. take risks
            D. question
            E. work hard
            F. believe in the power of the individual to improve the lives of others
        iv. "Candidates [should] possess a remarkable mix of vision, optimism, creativity and hard work which, when combined, produce tangible achievements of lasting good."
        v. Nominees must exhibit the following personal characteristics:
            A. A passion for excellence that goes beyond intellectual curiosity;
            B. A concern for humanity rooted in a deep sensitivity for the well-being of others;
            C. A knowledge of self which acknowledges weaknesses but relies on individual strengths;
            D. A gritty determination that will see a job through to completion despite the inevitable setbacks;

E. A broad vision which extends far beyond the particular and embraces something universal.

vi. Work of the candidates for a Heinz Award must meet the following criteria:
   A. Be significant and not a "quick fix."
   B. Have an enduring and meaningful impact.
   C. Be creative and innovative, and
   D. Be sufficiently tangible to serve as a model for replication elsewhere.

vii. "In addition, candidates should be actively working in the field in which they are nominated with the hope that, in receiving this award, their potential for future societal contribution will be enhanced."

(b) Categories:
   i. Arts & Humanities
   ii. Environment
   iii. Human Condition
   iv. **Public Policy**
   v. Technology, Economy, + Employment

137. Echoing Green:
   (a) Echoing Green Fellowship:
      i. http://www.echoinggreen.org/fellowship
      ii. Has information on eligibility, the benefits of the fellowship, and application cycle and dates.
   (b) Echoing Green Fellows: http://www.echoinggreen.org/fellows

138. Ben Franklin Technology Partners (BFTP):
   (a) Innovation Works (IW):
      i. AlphaLab:
         A. "An immersive environment where entrepreneurs can tap IW's onsite experts for business and market advice and exchange ideas with other entrepreneurs launching in similar markets"

139. Carnegie Corporation of New York:
   (a) Carnegie Scholars Program (not available in 2010): http://carnegie.org/programs/carnegie-scholars/

140. New York Women's Foundation:
   (a) Finch Scholar Program (with the Finch College Alumnae Association):
      i. http://www.nywf.org/internship.html and http://www.finchcollege.org/
      ii. "Our partnership with the Finch Scholar Program allows us to provide practical community service experience to an outstanding local student enrolled in college. The internship affords the Finch Scholar opportunities to work in meaningful ways in a nonprofit organization with exposure to social change philanthropy, participatory grantmaking, advocacy and **public policy**. Generally, we offer one scholarship per year with a stipend."
      iii. http://www.finchcollege.org/newFinchScholarPrgm.html
      iv. http://www.finchcollege.org/newscholarships.html

141. The Rockefeller Foundation:

(a) The Bellagio Center:
   i. http://www.rockefellerfoundation.org/bellagio-center
   ii. Residency Programs:
      A. http://www.rockefellerfoundation.org/bellagio-center/residency-programs
      B. "The Bellagio Residency program offers scholars, artists, thought leaders, policymakers and practitioners a serene setting conducive to focused, goal-oriented work, and the unparalleled opportunity to establish new connections with fellow residents, across a stimulating array of disciplines and geographies. The Bellagio Center community generates new knowledge to solve some of the most complex problems facing our world and creates art that inspires reflection, understanding, and imagination."
      C. Scholarly Residencies:
         - "Researchers in the humanities, natural sciences, social sciences and other academic disciplines"
         - "The Center typically offers one-month residencies for no more than 12 scholars and scientists at a time. Individuals in any discipline and from any part of the world are welcome to apply. The Center maintains a core focus on projects consistent with the Foundation's mission to expand opportunities for poor or vulnerable people and to help see that the benefits of globalization are shared more widely. It also seeks to include beyond that core a wide variety of projects from all academic disciplines."
         - http://www.rockefellerfoundation.org/bellagio-center/residency-progra scholarly-residencies
      D. Creative Artist Residencies:
         - "Artists, composers, writers"
         - "Bellagio creative artist residencies for composers, novelists, playwrights, poets, video/filmmakers and visual artists provide time for disciplined work, individual reflection, and collegial engagement, uninterrupted by the usual professional and personal demands. The Center typically offers one-month stays for no more than three to five creative artists at a time. Artists of significant achievement from any country are welcome to apply."
         - http://www.rockefellerfoundation.org/bellagio-center/residency-progra creative-artist-residencies
      E. Practitioner Residencies:
         - "Policymakers, nonprofit leaders, journalists and public advocates"
         - "The Center offers residencies to professionals in fields relevant to the Rockefeller Foundation's issue areas. The Center maintains a core focus on projects consistent with our mission, to expand opportunities for poor or vulnerable people and to help see that the benefits of globalization are shared more widely. We seek practitioner applicants with demonstrated leadership qualities and the capacity to contribute to the intellectual life at the Center."
         - http://www.rockefellerfoundation.org/bellagio-center/residency-progra practitioner-residencies
   iii. **Creative Arts Fellowships**:
      A. "This high-profile program hosts visual artists at the Bellagio Center for three-month residencies that inspire creativity and promote interaction between the

arts and other fields. Creative Arts Fellows, like other participants in Bellagio residency programs, have the time and space to work independently during the day. They also enjoy and benefit from a lively community of scholars, writers, policymakers and other artists who gather in the evening for dinner and occasional presentations. The combination of private work space, an extended stay, a generous stipend and a unique group of fellow residents makes a Creative Arts Fellowship at the Bellagio Center a remarkable opportunity."

B. http://www.rockefellerfoundation.org/bellagio-center/creative-arts-fel

142. Wellcome Trust:
    (a) Wellcome Trust Book Prize:
        i. http://www.wellcomebookprize.org/About-the-prize/index.htm
        ii. "The Wellcome Trust Book Prize celebrates the best of medicine in literature by awarding 25 000 each year for the finest fiction or non-fiction book centered around medicine."

143. The Kennedy Memorial Trust:
    (a) http://www.kennedytrust.org.uk/
    (b) Kennedy Scholarship: http://www.kennedytrust.org.uk/display.aspx?Id=1165&pid=0
    (c) Frank Knox Fellowships: http://www.kennedytrust.org.uk/display.aspx?Id=1175&pid=0

144. Foreign & Commonwealth Office / United Kingdom:
    (a) Chevening scholarships:
        i. http://www.fco.gov.uk/en/about-us/what-we-do/scholarships/
        ii. "The Chevening programme, has, over 26 years, provided more than 30,000 Scholarships at Higher Education Institutions (HEIs) in the UK for postgraduate students or researchers from countries across the world."
    (b) **Marshall Scholarships** finance young Americans of high ability to study for a graduate degree in the United Kingdom: http://www.marshallscholarship.org/

145. Ministry of Education, Culture, Sports, Science and Technology (MEXT) / Japan:
    (a) http://www.mext.go.jp/english/
    (b) Monbukagakusho Scholarship:
        i. http://en.wikipedia.org/wiki/Monbukagakusho_Scholarship
        ii. http://project.monbusho.org/old/ and http://www.monbusho.org/

146. Institute of International Education (IIE):
    (a) GE Foundation Scholar-Leaders Program:
        i. http://www.iie.org/en/Programs/GE-Foundation-Scholar-Leaders-Program
        ii. "The GE Foundation Scholar-Leaders Program began in 1987 in Mexico and now supports outstanding students in higher education in fourteen countries around the world. The program initially provided traditional financial support for university education, but has developed into an exciting Leadership Development Program to complement the student's academic curriculum."
        iii. Eligibility: "Students in their first year of study in engineering, technology, business, finance, management, or economics attending a participating university. GE Foundation Scholar-Leaders qualification requirements vary by region."

147. British Council:
    (a) Shine! 2011: International Student Awards:
        i. http://www.educationuk.org/shine
        ii. For international students in the United Kingdom
    (b) Funding your studies:
        i. http://www.britishcouncil.org/learning-funding-your-studies.htm
        ii. Education UK: http://www.educationuk.org/pls/hot_bc/page_pls_user_advice?x=&y=&a=0&d=4460
        iii. 9/11 Scholarship Fund:
            A. http://www.britishcouncil.org/911scholarships.htm
            B. "The 9/11 Scholarship Fund supports international students who were directly affected by the 2001 terrorist events in the US. Find out more how each scholarship offers the opportunity to study at a UK college or university every year."
    (c) *Youth in Action* European program: http://www.britishcouncil.org/youthinaction
    (d) British Council Arts Group:
        i. Support and funding overview: http://www.britishcouncil.org/arts-support-and-fun htm
        ii. Visual arts support and funding: http://www.britishcouncil.org/arts-visual-arts-fu htm
        iii. Drama and dance support and funding: http://www.britishcouncil.org/arts-performing-arts-funding.htm
        iv. Literature support and funding: http://www.britishcouncil.org/arts-literature-supp htm
        v. Film support and funding: http://www.britishcouncil.org/arts-film-funding.htm
        vi. Music support and funding: http://www.britishcouncil.org/arts-music-funding.htm
        vii. Architecture, design, fashion support and funding: http://www.britishcouncil.org/arts-adf-funding.htm
        viii. International Short Film Festival Support Scheme: http://www.britishcouncil.org/arts-film-short-films-scheme.htm

148. Alfred P. Sloan Foundation:
    (a) Sloan Research Fellowships:
        i. http://www.sloan.org/fellowships
        ii. Hold a Ph.D. (or equivalent) in chemistry, physics, mathematics, computer science, economics, neuroscience or computational and evolutionary molecular biology, or in a related interdisciplinary field;
        iii. Be members of the regular faculty (i.e., tenure track) of a degree-granting college or university in the United States or Canada; and
        iv. Normally, be no more than six years from completion of the most recent Ph.D. or equivalent as of the year of their nomination.

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150. **Scholarships and Fellowships in Business (including Finance, Entrepreneurship, and Accounting)**

151. IREX:

(a) Opportunities "for individuals, organizations, universities, and alumni": http://www.irex.org/apply

(b) Edmund S. Muskie Graduate Fellowship Program:

i. : http://www.irex.org/application/edmund-s-muskie-graduate-fellowship-progr

ii. "The Muskie Program is open to graduate students and professionals from Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan for one-year non-degree, one-year degree, or two-year degree study in the United States."

iii. "Eligible fields of study for the Muskie Program are: business administration, economics, education, environmental management, international affairs, journalism and mass communication, law, library and information science, public administration, public health, and **public policy**."

152. Sponsors for Educational Opportunity (SEO):

(a) Alternative Investment Fellowship Program:

i. http://www.seo-usa.org/Fellowship

ii. Eligibility:

A. http://www.seo-usa.org/FellowshipEligibility

B. The program is open to professionals traditionally underrepresented in alternative investments who are in the first year (or second year with a third-year offer) of an analyst program at an investment bank.

C. Corporate finance, M&A, leveraged finance and structured finance analysts are preferred.

D. Management consultants will also be considered.

(b) The SEO Scholars Program:

i. http://www.seo-usa.org/Scholars

ii. The SEO Scholars Program is a rigorous out-of-school academic enrichment program that prepares motivated New York City public high school students of color to gain admission to and succeed at competitive colleges and universities throughout the country. Numerous studies confirm that rigorous academics are the single most important factor for low-income and minority students in gaining college admission and earning a degree. However, U.S. Department of Education research shows that "A" work in low-income schools equals "C" work in affluent schools.

iii. Admissions: http://www.seo-usa.org/ScholarsAdmissions

iv. Roadmap To Success: http://www.seo-usa.org/ScholarsRoadmapToSuccess

v. Enrichment Programs: http://www.seo-usa.org/ScholarsEnrichmentPrograms

vi. Volunteering: http://www.seo-usa.org/ScholarsVolunteering

vii. Andrew Golkin Fund:

A. http://www.seo-usa.org/ScholarsAndrewGolkinFund

B. http://www.seo-usa.org/andrewgolkinfund/index.html

viii. Franklin H. and Shirley B. Williams Scholarship Fund: http://www.seo-usa.org/ScholarsFHSBW

ix. The Advantages of Attending a Competitive College: http://www.seo-usa.org/ScholarsAdvantages

(c) Career program:

i. http://www.seo-usa.org/Career

ii. The SEO Career Program places students of color interested in finance, philanthropy, business and corporate law in internships with competitive pay, rigorous training, support through mentors, and broad access to industry professionals.
iii. Sponsors for Educational Opportunity (SEO) is the nation's premiere summer internship program for talented underrepresented students of color that can lead to full-time job offers.
iv. SEO offers internship opportunities in the following areas:
   A. Corporate Financial Leadership: http://www.seo-usa.org/Career/Corporate_Financial_Leadership
   B. Banking/Asset Management Areas:
      - Investment Banking: http://www.seo-usa.org/Career/Investment_Banking
      - Sales & Trading: http://www.seo-usa.org/Career/Sales_&_Trading
      - Investment Research: http://www.seo-usa.org/Career/Investment_Research
      - Transaction Services: http://www.seo-usa.org/Career/Transaction_Services
      - Asset Management: http://www.seo-usa.org/Career/Asset_Management
      - Accounting/Finance: http://www.seo-usa.org/Career/Accounting/Finance
      - Information Technology: http://www.seo-usa.org/Career/Information_Technology
   C. Corporate Law: http://www.seo-usa.org/Career/Corporate_Law
   D. Nonprofit: http://www.seo-usa.org/Career/Nonprofit
   E. SEO-U: Freshmen and Sophomore Training: http://www.seo-usa.org/Career/SEO-U:Freshmen_&_Sophomore_Training
v. Application Deadlines: http://www.seo-usa.org/CareerApplicationDeadlines
vi. Eligibility Information: http://www.seo-usa.org/CareerEligibilityInfo
vii. Application Tips: http://www.seo-usa.org/CareerApplicationTips
viii. Interview Tips: http://www.seo-usa.org/CareerInterviewTips

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154. **Scholarships for Studying Abroad**

155. U.S. Department of State:
   (a) Bureau of Educational and Cultural Affairs:
      i. Benjamin A. Gilman International Scholarship:
         A. http://exchanges.state.gov/globalexchanges/gilman-scholarship-program.html
         B. "The Benjamin A. Gilman International Scholarship Program provides scholarships to U.S. undergraduates with financial need for study abroad, including students from diverse backgrounds and students going to non-traditional study abroad destinations. Established under the International Academic Opportunity Act of 2000, Gilman Scholarships provide up to $5,000 for American students to pursue overseas study for college credit."

C. Critical Need Languages: Students studying critical need languages are eligible for up to $3,000 in additional funding as part of the Gilman Critical Need Language Supplement program. Those critical need languages include:
   - Arabic
   - Chinese
   - Korean
   - Russian
   - Turkic (Azerbaijani, Kazakh, Kyrgyz, Turkish, Turkmen, Uzbek)
   - Persian (Farsi, Dari, Kurdish, Pashto, Tajiki)
   - Indic (Hindi, Urdu, Nepali, Sinhala, Bengali, Punjabi, Marathi, Gujurati, Sindhi)

D. http://www.iie.org/en/Programs/Gilman-Scholarship-Program

E. http://www.iie.org/en/Programs/Gilman-Scholarship-Program/About-the-Pr

156. Council on International Educational Exchange (CIEE):
    (a) CIEE Scholarships: http://www.ciee.org/study/scholarships/index.aspx

157. IES Abroad (formerly Institute of European Studies / Institute for the International Education of Students):
    (a) Scholarships and Financial Aid: https://www.iesabroad.org/IES/Scholarships_and_Aid/financialAid.html
    (b) IES Abroad Need-Based Financial Aid: https://www.iesabroad.org/IES/Scholarships_and_Aid/Need-Based/needBasedFinancialAid.html
    (c) IES Abroad Merit-Based Scholarships: https://www.iesabroad.org/IES/Scholarships_and_Aid/Merit_Based/meritBasedFinancialAid.html
    (d) IES Abroad Public University Grants: https://www.iesabroad.org/IES/Scholarships_and_Aid/publicScholarship.html

158. American Institute For Foreign Study (AIFS):
    (a) AIFS Study Abroad Programs:
        i. http://www.aifsabroad.com/programs.asp
        ii. AIFS Study Abroad Scholarships: http://www.aifsabroad.com/scholarships.asp

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160. **Scholarships and Fellowships in Public Policy and Public Health**

161. The Commonwealth Fund:
    (a) Commonwealth Fund fellowship programs:
        i. http://www.commonwealthfund.org/Fellowships.aspx
        ii. "Commonwealth Fund fellowship programs are designed to give promising young researchers the opportunity for in-depth study of various health care policy topics, working with investigators, policy analysts, government officials, and others in a number of U.S. and international settings."
        iii. The Commonwealth Fund/Harvard University Fellowship in Minority Health Policy: http://www.commonwealthfund.org/Fellowships/Minority-Health-Policy-Fel aspx

    iv. Harkness Fellowships in Health Care Policy and Practice: http://www.commonwealthfund.org/Fellowships/Harkness-Fellowships.aspx
    v. Australian-American Health Policy Fellowship: http://www.commonwealthfund.org/Fellowships/Australian-American-Health-Policy-Fellowships.aspx
    vi. Ian Axford (New Zealand) Fellowships in Public Policy: http://www.commonwealthfund.org/Fellowships/Ian-Axford-Fellowships.aspx

162. American Institute of Aeronautics and Astronautics (AIAA):
    (a) Federal Government Fellows Program:
        i. http://www.aiaa.org/content.cfm?pageid=731
        ii. Shaping U.S. **public policy** concerning aerospace research and the aerospace industry

163. IEEE-USA:
    (a) Congressional Fellowship
    (b) Engineering & Diplomacy (State Department) Fellowship
    (c) For IEEE-USA members to support the creation and modification of technology-related public policies
    (d) http://ieeeusa.org/policy/govfel/default.asp

164. American Mathematical Society:
    (a) Fellowships and Awards (Policy and Advocacy: Government Relations & Programs):
        i. http://e-math.ams.org/policy/government/fellow-awards/fellow-awards
        ii. Mass Media Fellowships: http://e-math.ams.org/programs/ams-fellowships/media-fellow/massmediafellow
        iii. AMS-AAAS Congressional Fellowship: http://e-math.ams.org/programs/ams-fellowships/ams-aaas/ams-aaas-congressional-fellowship

165. American Association for the Advancement of Science:
    (a) AAAS Science & Technology Policy Fellowships: http://fellowships.aaas.org/index.shtml

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167. **Scholarships and Fellowships in Social Science and Humanities**

168. United States Institute of Peace (USIP):
    (a) Jennings Randolph Peace Scholarship Dissertation Program (for Ph.D. students working on topics related to peace, conflict, and international security): http://www.usip.org/grants-fellowships/jennings-randolph-peace-scholarship-dissertation-

169. Library of Congress:
    (a) Kluge Fellowships:
        i. Research in the humanities and social sciences, especially interdisciplinary, cross-cultural or multilingual
        ii. Open to scholars worldwide with a Ph.D. or other terminal advanced degree conferred within seven years of the July 15 deadline
        iii. http://www.loc.gov/loc/kluge/fellowships/kluge.html

(b) J. Franklin Jameson Fellowship Research in American History (junior postdocs): http://www.loc.gov/loc/kluge/fellowships/jameson.html
(c) Kislak Short Term Fellowship Opportunities in American Studies (students, postdocs, and faculty): http://www.loc.gov/loc/kluge/fellowships/kislakshort.html
(d) Kislak Fellowship in American Studies (Ph.D. requirement): http://www.loc.gov/loc/kluge/fellowships/kislak.html

170. American Historical Association (AHA):
(a) AHA Research Grants: http://www.historians.org/prizes/Grants.htm
(b) Fellowships: http://www.historians.org/prizes/Fellowships.htm

171. American Sociological Association:
(a) ASA Dissertation Award: http://www.asanet.org/about/awards/dissertation.cfm

172. American Psychological Association:
(a) Scholarships, Grants, and Awards: http://www.apa.org/about/awards/index.aspx

173. American Anthropological Association (AAA):
(a) AAA Minority Dissertation Fellowship Program (for minority Ph.D. candidates in anthropology): http://www.aaanet.org/cmtes/minority/Minfellow.cfm
(b) Margaret Mead Award (for young scholars in anthropology): http://www.aaanet.org/about/Prizes-Awards/AAA-Margaret-Mead-Award.cfm
(c) COSWA Award:
i. The COSWA Award (formerly the Squeaky Wheel Award), sponsored by the Committee on the Status of Women in Anthropology (COSWA), recognizes individuals who have demonstrated the courage to bring to light and investigate practices in anthropology that are potentially discriminatory to women, or have acted to improve the status of women in anthropology through activities that raise awareness of women's contribution to anthropology or identify barriers to full participation by women in anthropology.
ii. http://www.aaanet.org/about/Prizes-Awards/COSWA-Award.cfm
(d) David M. Schneider Award (for Ph.D. students in anthropology): http://www.aaanet.org/about/Prizes-Awards/David-Schneider-Award.cfm
(e) Links to "Section Prizes & Awards": http://www.aaanet.org/about/Prizes-Awards/section_awards.cfm
(f) List of national (US) and international "Grants and Fellowships": http://www.aaanet.org/profdev/fellowships/
(g) http://www.aaanet.org/

174. National Academy of Social Insurance:
(a) John Heinz Dissertation Award (Ph.D. students writing their thesis on the planning and implementation of social insurance): http://www.nasi.org/studentopps/heinz

175. National Endowment for the Humanities's Division of Research Programs, grants and fellowship opportunities: http://www.neh.gov/grants/

176. *The Henry Luce Foundation*'s Luce Scholars Program to help US graduates learn more about Asia and Asian culture(s): http://www.hluce.org/lsprogram.aspx
177. Institute for Humane Studies at George Mason University:
    (a) Humane Studies Fellowships:
        i. http://www.theihs.org/programs/humane-studies-fellowships
        ii. Humane Studies Fellowships are awarded to graduate students and outstanding undergraduates planning academic careers with liberty-advancing research interests.
        iii. The fellowships are open to students in a range of fields, such as economics, philosophy, law, political science, anthropology, and literature.
178. The Gilder Lehrman Institute of American History: Gilder Lehrman History Scholars & Gilder Lehrman One-Week Scholars (for sophomores or juniors majoring in American history or American Studies), http://www.gilderlehrman.org/education/hs_program_details.php
179. Myra Sadker Foundation:
    (a) http://www.sadker.org/awards.html
    (b) Teacher Award: Designed to promote and support teacher projects (K-12) that help students learn about and respect group differences, promote fairness, and in other ways build upon the values and contributions of Myra Sadker's work. Each project should have a gender dimension.
    (c) Student Award: Designed to encourage student ideas, activities and projects (K-12) that promote respect for group differences, fairness, and in other ways build upon the values and contributions of Myra Sadker's work. Each project should have a gender dimension.
    (d) Doctoral Dissertation Award: Designed to promote and support graduate students engaged in educational equity research. Doctoral level dissertations that explore or promote educational equity and fairness based on gender, race, ethnicity, religion, class, sexual orientation, or other such variables will be considered for support. Each dissertation should have a gender dimension.
180. IREX:
    (a) Opportunities "for individuals, organizations, universities, and alumni": http://www.irex.org/apply
    (b) Edmund S. Muskie Graduate Fellowship Program:
        i. : http://www.irex.org/application/edmund-s-muskie-graduate-fellowship-progr
        ii. "The Muskie Program is open to graduate students and professionals from Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan for one-year non-degree, one-year degree, or two-year degree study in the United States."
        iii. "Eligible fields of study for the Muskie Program are: business administration, economics, education, environmental management, international affairs, journalism and mass communication, law, library and information science, public administration, public health, and **public policy**."
    (c) Legal Education and Development (LEAD) Fellowship:
        i. http://www.irex.org/application/legal-education-and-development-lead-fello
        ii. Legal Education and Development Fellowship Program (LEAD) in Tajikistan

iii. Eligibility:
   A. Is a citizen, national, or permanent resident qualified to hold a valid passport issued by Tajikistan;
   B. Is the recipient of an undergraduate degree in law (four- or five-year study) by the time of the application;
   C. Is able to begin the academic exchange program in the United States in the summer of 2011;
   D. Is able to receive and maintain a United States J-1 visa.

(d) Community Solutions Program:
   i. http://www.irex.org/application/community-solutions-information-applicants
   ii. "a professional development program for the best and brightest global community leaders working in Transparency & Accountability, Tolerance/Conflict Resolution, Environmental Issues, and Women's Issues"
   iii. "Competition for the Community Solutions Program is merit-based and open to community leaders, ages 25-38 at the time of application"

(e) Crimea Undergraduate Exchange Program (Crimea UGRAD) Application:
   i. http://www.irex.org/application/crimea-undergraduate-exchange-program-crim
   ii. "The Crimea UGRAD Program is open to undergraduate students from the Autonomous Republic of Crimea for one academic year of non-degree study in a US university or community college."

181. *Demos*:

(a) The Ed Baker Fellowship in Democratic Values:
   i. http://www.demos.org/edbakerfellowship.cfm
   ii. "Based in our New York offices, Ed Baker Fellows will give voice to strong democratic values within a wide range of potential issues, including voting rights, citizen engagement, immigration policy and civic inclusion, campaign finance reform and money in politics, and media reform, among others."

(b) Fellows Program:
   i. http://www.demos.org/fellowsapp.cfm
   ii. http://www.demos.org/program.cfm?currentprogramID=5A196E48-3FF4-6C82-50CBC
   iii. "The Fellows Program at Demos provides support and community for writers and thinkers with well-defined projects that aim to advance the values at the core of Demos' programs and mission: a robust and inclusive democracy; shared prosperity; strong & effective public governance; and global interdependence."

182. Research Councils UK (RCUK):

(a) Economic and Social Research Council (ESRC):
   i. Academic (funding opportunities for students, postdocs, and professors): http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/index_academic.aspx
   ii. Professorial Fellowships (for leading senior social scientists): http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/opportunities/professorial/
   iii. Funding opportunities:
      A. http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/index_government.aspx
      B. http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/opportunities/

C. ESRC Research Funding Guide / ESRC's Funding Rules: http://www.esrcsocietytoday
ac.uk/ESRCInfoCentre/opportunities/research_funding
D. Eligibility for Research Council Funding: http://www.esrcsocietytoday.
ac.uk/ESRCInfoCentre/opportunities/eligibility
E. Current Funding Opportunities: http://www.esrcsocietytoday.ac.uk/
ESRCInfoCentre/opportunities/current_funding_opportunities/
F. Forthcoming funding opportunities: http://www.esrcsocietytoday.ac.
uk/ESRCInfoCentre/opportunities/forthcoming_opportunities/
G. Placement Fellows Scheme: http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/
opportunities/placement/
H. Professorial Fellowships: http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/
opportunities/professorial/
I. Early Career Researchers (including Postdoctoral Fellowships, International Training, and Networking Opportunities): http://www.esrcsocietytoday.
ac.uk/ESRCInfoCentre/opportunities/earlycareer/
J. Postgraduate and Career Development Opportunities: http://www.esrcsocietytoday.
ac.uk/ESRCInfoCentre/opportunities/postgraduate/
K. International Funding Opportunities: http://www.esrcsocietytoday.ac.
uk/ESRCInfoCentre/opportunities/international/
L. Joint Funding Opportunities: http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/
opportunities/jointfunding/
M. Annual competitions: http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/
opportunities/annual/index.aspx#3

(b) Arts and Humanities Research Council (AHRC):
i. Funding Opportunities:
A. http://www.ahrc.ac.uk/FundingOpportunities/Pages/default.aspx
B. Fellowships: http://www.ahrc.ac.uk/FundingOpportunities/Pages/
Fellowships.aspx
C. Fellowships - route for early career researchers: http://www.ahrc.ac.uk/
FundingOpportunities/Pages/Fellowshipserc.aspx
D. Placement Fellowship based in the Department for Culture, Media and Sport (DCMS) - Climate Change: http://www.ahrc.ac.uk/FundingOpportunities/
Pages/PlacementFellowshipDCMS-Climatechange.aspx
E. Placement Fellowship based in the Department for Culture, Media and Sport (DCMS) - Health and Wellbeing: http://www.ahrc.ac.uk/FundingOpportunities/
Pages/PlacementFellowshipDCMShealthandwellbeing.aspx
F. Research Grants - route for early career researchers: http://www.ahrc.ac.
uk/FundingOpportunities/Pages/RG-EarlyCareers.aspx
G. Research Grants - Speculative Research: http://www.ahrc.ac.uk/FundingOpportuniti
Pages/RG-SpeculativeResearch.aspx
H. Research Grants - Standard Route: http://www.ahrc.ac.uk/FundingOpportunities/
Pages/RG-StandardRoute.aspx
I. Postgraduate Funding (for Masters and Ph.D. students): http://www.ahrc.
ac.uk/FundingOpportunities/Pages/summaryinformationforprospectivepostgr
aspx
J. Browse Funding Opportunities: http://www.ahrc.ac.uk/FundingOpportunities/

Pages/BrowseOpportunities.aspx

183. World Bank Institute (WBI):
    (a) Or The World Bank Group
    (b) Scholarships: http://wbi.worldbank.org/wbi/scholarships or http://www.worldbank.org/wbi/scholarships/home.html
184. —
185. **Fellowships in Art and Music**
186. The Kresge Foundation:
    (a) http://www.kresge.org/index.php/what/detroit_program/kresge_arts_in_detroit/
    (b) Kresge Artist Fellowships:
        i. "Kresge Artist Fellowships seek to advance the art forms and professional careers of artists from the visual, performing and literary arts as well as elevate the profile of the artistic community and encourage creative expression in the region. Each year, Kresge will provide funding for 18 fellowships of $25,000 each, which are awarded to artists living and working in metropolitan Detroit."
        ii. "The fellowships recognize creative vision and commitment to excellence within a wide range of artistic disciplines, including artists who have been classically and academically trained, self taught artists and artists whose art forms have been passed down through cultural and traditional heritage."
        iii. "Kresge Arts in Detroit is committed to supporting artists from diverse cultural backgrounds at all stages of their professional careers."
        iv. http://kresge.collegeforcreativestudies.edu/
        v. http://kresge.collegeforcreativestudies.edu/kaf_guidelines.html
        vi. Information Sessions: http://kresge.collegeforcreativestudies.edu/kaf_sessions.html
    (c) Kresge Eminent Artist Award:
        i. "Kresge Eminent Artist Award recognizes an exceptional artist for his or her professional achievements and contributions to the cultural community, and encourages that individual's pursuit of a chosen art form as well as an ongoing commitment to metropolitan Detroit. Each year, one highly accomplished individual will be presented with the award which includes a $50,000 prize."
        ii. http://kresge.collegeforcreativestudies.edu/eminent-artist-award.html
187. Guggenheim Fellowships from the *John Simon Guggenheim Memorial Foundation*: http://www.gf.org/applicants
188. The John F. Kennedy Center for the Performing Arts:
    (a) DeVos Institute of Arts Management at the Kennedy Center:
        i. DeVos Institute Programs:
            A. Kennedy Center Fellowship Program:
                - http://www.kennedy-center.org/education/artsmanagement/fellowships.cfm

- http://www.kennedy-center.org/education/artsmanagement/fellowships/home.html
- "The Kennedy Center Fellowship Program began in 2001, and provides comprehensive study to 10 arts managers at the Kennedy Center with coursework in strategic planning, marketing, and development; three practical work rotations in Center departments; and a series of professional development seminars. The paid fellowships are full-time and last nine months from September through May."

B. DeVos Institute Summer International Fellowship Program at the Kennedy Center:
- http://www.kennedy-center.org/education/artsmanagement/fellowships.cfm
- http://www.kennedy-center.org/education/artsmanagement/international_faq.cfm
- "The Summer International Fellowship Program provides practical experience to 15 mid-to-high level arts leaders currently working in international nonprofit performing arts organizations. This full-time, four-week intensive program takes place at the Kennedy Center each July; Fellows attend each summer for three consecutive years. While at the Center, the fellows take classes and refine strategic plans for their home organizations."

C. U.S. Department of State International Exchange Programs:
- http://www.kennedy-center.org/education/state/
- "The U.S. Department of State and The Kennedy Center have teamed to produce international exchange opportunities through the Performing Artists Cultural Visitors Program and International Cultural Fellows Mentoring Program."
- Performing Artists Cultural Visitors Program: http://www.kennedy-center.org/education/state/cultural/
- International Cultural Fellows Mentoring Program: http://www.kennedy-center.org/education/state/fellows/
- "Visitors, comprised of modern and hip-hop dancers, theater technicians/designers/actors, as well as classical and jazz musicians, engage with American colleagues in the creation and performance of their discipline in Washington, D.C. and in another American city."
- "The Fellows, comprised of arts managers and presenters from outside the United States, attend arts management seminars led by Kennedy Center staff, travel to another American city to study with a mentor organization, and visit New York City to meet with experts in their field."

(b) The National Symphony Orchestra (NSO):

i. National Symphony Orchestra Youth Fellowship Program:
- http://www.kennedy-center.org/nso/nsoed/youthfellowship.cfm
- http://www.kennedy-center.org/explorer/artists/?entity_id=10811&source_type=B
- "Now in its 30th season, the National Symphony Orchestra Youth Fellowship Program is an orchestral training project for high school musicians."

- "From its inception in 1980-81 to the present, the program provides Washington metropolitan area high school students with scholarships to study privately with NSO members, as well as opportunities to observe NSO rehearsals; attend concerts; and to participate in seminars, discussions, and master classes with musicians, conductors, and NSO and Kennedy Center management."
- "There are 20 students in the NSO Youth Fellowship Program for 2009-10."
- "Participation by ethnic minorities is encouraged."
- "Priority is given to students entering 10th grade in order to provide as sustained a training as possible."

189. League of American Orchestras:
    (a) Fellowships:
        i. http://www.americanorchestras.org/learning_and_leadership/fellowships.html
        ii. Orchestra Management Fellowship Program:
            A. http://www.americanorchestras.org/learning_and_leadership/omfp.html
            B. "This year-long, highly competitive program is designed to launch executive careers in orchestra management."
            C. "Along with an intense course of study, fellows undertake a series of residencies with orchestras of various sizes across the U.S. receiving invaluable work experience and the support of host orchestra staff, in particular that of the orchestras executive director."
            D. "Fellows also participate in other League leadership seminars throughout the year and receive a comprehensive overview of the classical music industry."
        iii. "The League's Fellowship programs identify and prepare the future leaders of tomorrow, today."
        iv. "Long-term curricula, developed for conductors, executive directors, and managers looking to advance, provide intensive education, hands-on learning, and valuable networking opportunities."

190. Americans for the Arts:
    (a) Event scholarships (scholarships to attend events): http://www.artsusa.org/events/scholarships.asp
    (b) http://www.artsusa.org/news/annual_awards/default.asp
    (c) Alene Valkanas State Arts Advocacy Awardhttp://www.artsusa.org/news/annual_awards/alene_valkanas/default.asp
    (d) Arts Education Award (awarded to institutions): http://www.artsusa.org/news/annual_awards/arts_education/default.asp
    (e) Emerging Leader Award: http://www.artsusa.org/news/annual_awards/emerging_leader/default.asp
    (f) Michael Newton Award for United Arts Funds Leadership (management and fundraising): http://www.artsusa.org/news/annual_awards/michael_newton/default.asp
    (g) Selina Roberts Ottum Award (contributions to the field of the arts): http://www.artsusa.org/news/annual_awards/selina_roberts_ottum/default.asp
    (h) United States Urban Arts Federation (USUAF):

- i. Ray Hanley Innovation Award: http://www.artsusa.org/networks/usuaf/hanley.asp

191. NEA National Heritage Fellowship (for master folk and traditional artists): http://www.nea.gov/honors/heritage/index.html
192. NEA Jazz Masters Fellowship (jazz artists): http://www.arts.gov/honors/jazz/index.html
193. Fellowships for Creative Writers [or NEA Literature Fellowships: Creative Writing]: http://www.nea.gov/grants/apply/Lit/index.html or http://www.arts.gov/grants/apply/Lit/index.html
194. Carnegie Investment Bank: Carnegie Art Award (for distinguished artists born or living in the Nordic countries), http://www.carnegie.se/sv/ArtAward/About-Carnegie-Art-Award/, http://www.carnegie.se/artaward/, and http://www.carnegie.se/en/about/Operations/Carnegie-Art-Award/
195. Robert McCann Foundation:
    - (a) Funding for artists and designers "from all Scottish colleges and art schools" to:
        - i. extend their training in an area of specialization; OR
        - ii. finance a project "in the craft industries associated with film and television"
    - (b) http://robertmccannfoundation.com/how.html
196. Alexander von Humboldt-Stiftung/Foundation:
    - (a) Hezekiah Wardwell Fellowship (for musicians or musicologists from Spain): http://www.humboldt-foundation.de/web/wardwell-en.html
197. Canada Council for the Arts:
    - (a) Endowments and Prizes:
        - i. http://www.canadacouncil.ca/prizes/
        - ii. Prizes and fellowships for Canadian artists and scholars to recognize their contributions to the arts, humanities, and sciences
        - iii. Categories of prizes and fellowships:
            - A. dance
            - B. inter-arts
            - C. media arts
            - D. music
            - E. theatre
            - F. visual arts
            - G. writing and publishing
    - (b) Grant Programs: http://www.canadacouncil.ca/grants/
198. Institute for Humane Studies at George Mason University:
    - (a) Film & Fiction Scholarships:
        - i. Students pursuing MFAs in a variety of areas are eligible: film directing, production, screenwriting, playwriting, fiction, and literary-nonfiction writing
        - ii. http://www.theihs.org/node/448
199. —
200. **Scholarships and Fellowships for Underrepresented Minorities**

201. Lists of scholarships and fellowships for underrepresented minorities:
    (a) Chris Enstrom, "Cashing in on Diversity Grants and Scholarships," in Graduating Engineer & Computer Careers. Available at: http://www.graduatingengineer.com/higher-education/20061129/Cashing-in-on-Diversity-Grants-and-Scholarships-; last accessed on August 25, 2010.
202. Gates Millennium Scholars (GMS) scholarship (for underrepresented minorities in the US): http://www.gmsp.org/
203. Society of Women Engineers (SWE): SWE Scholarships and other scholarships, http://societyofwomenengineers.swe.org/index.php?option=com_content&task=view&id=222&Itemid=111
204. Coalition to Diversify Computing: http://www.cdc-computing.org/scholarships/
205. IES Abroad (formerly Institute of European Studies / Institute for the International Education of Students):
    (a) Diversity Abroad:
        i. https://www.iesabroad.org/IES/Diversity/diversity.html
        ii. Programs to improve student diversity in study abroad programs
        iii. IES Abroad Diversity Scholarships:
            A. IES Abroad Merit-Based Scholarship for Under-represented Students: https://www.iesabroad.org/IES/Scholarships_and_Aid/Diversity_Scholarships/diversityScholarship.html
            B. IES Abroad Merit-Based David Porter Diversity Scholarship (Up to $5,000!): https://www.iesabroad.org/IES/Scholarships_and_Aid/Merit_Based/davidPorterScholarship.html
            C. HBCU Scholarships: https://www.iesabroad.org/IES/Scholarships_and_Aid/Diversity_Scholarships/hbcuScholarship.html
            D. HACU-IES Abroad Merit/Need-Based Scholarship: https://www.iesabroad.org/IES/Scholarships_and_Aid/Diversity_Scholarships/HACUScholarship.html
206. MassMutual Scholars Program:
    (a) Applicants must be undergraduates of African American/Black, Asian/Pacific Islander or Hispanic decent in the US.
    (b) Reside or plan to attend an institution in one of the following metropolitan areas:
        i. Atlanta, GA
        ii. Chicago, IL
        iii. Central New Jersey
        iv. Denver, CO
        v. Houston, TX
        vi. Miami, FL
        vii. Los Angeles, CA
        viii. San Antonio, TX
        ix. San Francisco, CA
    (c) Be majoring in business, economics, finance, financial planning, management, marketing or sales.
    (d) http://www.hsf.net/massmutual.aspx
    (e) http://www.apiasf.org/scholarship_apiasf_massmutual.html

207. *NASA*'s Minority University Research and Education Program (MUREP):
    (a) http://www.nasa.gov/offices/education/programs/national/murep/home/index.html
    (b) http://www.nasa.gov/offices/education/about/murep_overview.html
    (c) Jenkins Pre-doctoral Fellowship Project, JPFP: http://www.nasa.gov/offices/education/programs/descriptions/Jenkins_Predoctoral_Fellowship_Project.html

208. UNCF:
    (a) UNCF Special Programs Corporation:
        i. Harriett G. Jenkins Pre-doctoral Fellowship Program (JPFP) for underrepresented minorities pursuing graduate degrees in STEM: http://www.uncfsp.org/spknowledge/default.aspx?page=program.view&areaid=1&contentid=177&typeid=jpfp
        ii. NASA Science and Technology Institute (NSTI) Summer Scholars Program (10-week summer research scholarship): http://www.uncfsp.org/spknowledge/default.aspx?page=program.view&areaid=1&contentid=172&typeid=nstiinternshi
        iii. Motivating Undergraduates in Science and Technology (MUST) Program for undergraduates in STEM: http://www.uncfsp.org/spknowledge/default.aspx?page=program.view&areaid=1&contentid=346&typeid=must
        iv. Institute for International **Public Policy** Fellows Program: http://www.uncfsp.org/IIPP
        v. http://www.uncfsp.org/spknowledge/default.aspx?page=home.default
    (b) UNCF scholarship resources: http://www.uncf.org/forstudents/scholarship.asp
    (c) UNCF · Merck Science Initiative: scholarships and fellowships: http://umsi.uncf.org/ScholarshipsInternshipsFellowships/tabid/151/Default.aspx

209. Hispanic College Fund:
    (a) Scholarships: http://www.hispanicfund.org/scholarships/ and http://scholarships.hispanicfund.org/applications/
    (b) NASA MUST Scholarship Program: http://www.hispanicfund.org/nasa-must/
    (c) Hispanic Youth Symposium (scholarships are awarded to winners of the art competition, talent competition, and speech competition): http://www.hispanicyouth.org/about-the-program
    (d) http://www.hispanicfund.org/

210. Hispanic Heritage Foundation (HHF):
    (a) Scholarships and Resources: http://www.hispanicheritage.org/youth_int.php?sec=80
    (b) http://www.hispanicheritage.org/

211. Hispanic Scholarship Fund (HSF):
    (a) Scholarship programs for:
        i. college students
        ii. community college transfer students
        iii. high school students
        iv. Gates Millennium Scholars

v. See http://www.hsf.net/innercontent.aspx?id=34

(b) http://www.hsf.net/

212. League of United Latin American Citizens (LULAC):

(a) LULAC National Educational Service Centers, Inc:

i. http://www.lnesc.org/

ii. LULAC National Scholarship Fund (LNSF):

A. http://www.lulac.org/programs/education/scholarships/

B. http://lnesc.org/index.asp?Type=B_BASIC&SEC={3AEDB506-F425-4E58-B9F6-4

C. Applicants must meet the following criteria to be considered for a scholarship:

- Must be a U.S. citizen or legal resident
- Must have applied to or be enrolled in a college, university, or graduate school, including 2-year colleges, or vocational schools that lead to an associates degree
- A student will not be eligible for a scholarship if he/she is related to a scholarship committee member, the Council President, or an individual contributor to the local funds of the Council

D. National Scholastic Achievement Awards (for high school seniors entering college, university, or vocational school)

E. Honors Awards (for high school seniors entering college, university, or vocational school)

F. General Awards (Need, community involvement, and leadership activities will also be considered)

G. General Electric Foundation/ LULAC Scholarship program: for underrepresented minorities (US freshmen) entering their sophomore year as majors in Business or Engineering with a cumulative college G.P.A. $\leq$ 3.25/4.0; these students must be enrolled in a 4-year undergraduate program.

213. Hispanic Association of Colleges and Universities (HACU):

(a) HACU Student Programs Overview:

i. http://www.hacu.net/hacu/HACU_Student_Programs_EN.asp?SnID=1942709283

ii. HACU Scholarship Programs:

A. http://www.hacu.net/hacu/Scholarships_EN.asp?SnID=1942709283

B. Includes scholarships for students in:

- Accounting
- Behavioral Health
- Business
- Clinical Psychology
- Computer Engineering
- Computer Science
- Dental Technician
- Electrical Engineering
- Engineering
- Food Merchandising
- Information Technology
- International Business

- Management
- Marketing
- Mass Media
- Mental Health
- Merchandising
- Nursing
- Physician Assistant
- (Pre) Optometry
- (Pre) Dental
- (Pre) Medicine
- (Pre) Pharmacy
- Public Health
- Public Relations
- Retail Management
- Sports Marketing
- Technology

iii. "Dándole Alas a Tu Éxito/Giving Flight to Your Success" travel award program (Southwest Airlines' Travel Award Program):
   A. For students with financial need who have to across the United States to participate in their undergraduate or graduate degree programs
   B. http://www.hacu.net/hacu/Lanzate_EN.asp?SnID=1942709283
   C. http://www.hacu.net/hacu/Lanzate1_EN.asp?SnID=1808826658

iv. HACU Study Abroad Scholarship Programs:
   A. http://www.hacu.net/hacu/Study_Abroad_EN.asp?SnID=1808826658
   B. HACU-Global Learning Semesters (GLS) Program: Hispanic Study Abroad Scholars: http://www.studyabroadscholars.org/index.html
   C. HACU-American Institute for Foreign Study (AIFS) Scholarship Program: http://www.aifsabroad.com/scholarships.asp#hacu
   D. HACU-Institute for the International Education of Students (IES) Scholarship Program: https://www.iesabroad.org/IES/home.html
   E. Hispanic Study Abroad Scholars program: http://www.studyabroadscholars.org/index.html

v. Scholarship Resource List: http://www.hacu.net/hacu/Scholarship_Resource_List_EN.asp?SnID=1109551622

214. Congressional Hispanic Caucus Institute (CHCI):
   (a) CHCI Scholarship:
      i. http://www.chci.org/scholarships/
      ii. CHCI's scholarship opportunities are afforded to Latino students in the United States who have a history of performing public service-oriented activities in their communities and who demonstrate a desire to continue their civic engagement in the future. There is no GPA or academic major requirement. Students with excellent leadership potential are encouraged to apply.
      iii. Scholarship awards are intended to provide assistance with tuition, room and board, textbooks, and other educational expenses associated with college enrollment.
      iv. Students continue to receive annual disbursements as long as they maintain good academic standing.

v. CHCI scholarships provide recipients with a one time scholarship of:
   A. $1,000 community college or AA/AS granting institution
   B. $2,500 4-year academic institution
   C. $5,000 graduate-level institution
vi. Eligibility Criteria:
   A. Full-time enrollment in a United States Department of Education accredited community college, four-year university, or graduate/professional program during the period for which scholarship is requested
   B. Demonstrated financial need
   C. Consistent, active participation in public and/or community service activities
   D. Strong writing skills
   E. U.S. citizenship or legal permanent residency

(b) CHCI Fellowships:
   i. http://www.chci.org/fellowships/
   ii. CHCI **Public Policy** Fellowship:
      A. This is a paid Fellowship Program that offers talented Latinos, who have earned a bachelor's degree within two years of the program start date, the opportunity to gain hands-on experience at the national level in public policy.
      B. Fellows have the opportunity to work in congressional offices and federal agencies, depending on their area of interest. Some past focus areas have included international affairs, economic development, health and education policy, housing, or local government.
      C. Program Dates: August to May (10-month internship)
      D. http://www.chci.org/fellowships/page/chci-public-policy-fellowship
   iii. CHCI Graduate Fellowship Program:
      A. The CHCI Graduate Fellowship Program seeks to enhance participants' leadership abilities, strengthen professional skills and ultimately produce more competent and competitive Latino professionals in underserved **public policy** issue areas.
      B. This paid Fellowship Program offers exceptional Latinos who have earned a graduate degree or higher related to a chosen policy issue area within three years of program start date unparalleled exposure to hands-on experience in public policy.
      C. This program focuses specifically on the areas of:
         - Higher Education: CHCI Graduate Higher Education Fellowship, http://www.chci.org/fellowships/page/chci-graduate-higher-education-fellowsh
         - Secondary Education: CHCI Graduate Secondary Education Fellowship, http://www.chci.org/fellowships/page/chci-graduate-secondary-educatio
         - Health: CHCI Graduate Health Fellowship, http://www.chci.org/fellowships/page/chci-graduate-health-fellowship
         - Housing: CHCI Graduate Housing Fellowship, http://www.chci.org/fellowships/page/chci-graduate-housing-fellowship
         - International Affairs (includes last three months abroad in Mexico): CHCI Graduate International Affairs Fellowship, http://www.chci.org/fellowships/page/chci-graduate-international-affairs-fellowship

- Law: CHCI Graduate Law Fellowship, http://www.chci.org/fellowships/page/chci-graduate-law-fellowship
- STEM (Science, Technology, Engineering and Math): CHCI Graduate STEM Fellowship, http://www.chci.org/fellowships/page/chci-graduate-stem-fel

D. Program Dates: August to May (10-month internship)
E. http://www.chci.org/fellowships/page/chci-graduate-fellowship-program

215. American Indian Graduate Center (AIGC):
    (a) AIGC scholarships and fellowships:
        i. for advanced degree students in art, music, environmental studies, journalism, communications, medicine, dentistry, public health, nursing, or other health-related fields
        ii. for members of Wisconsin, New Mexico or Arizona tribes.
        iii. http://www.aigc.com/02scholarships/scholarships.htm
        iv. AIGC Fellowship (Graduate) for Native Americans and their descendants seeking advanced degrees: http://www.aigc.com/02scholarships/aigc/fellowship.htm
        v. Rainer Scholarship (for grad students): http://www.aigc.com/02scholarships/rainer.htm
    (b) List of resources about scholarships and fellowships:
        i. http://www.aigc.com/08otherscholarship/otherscholarships.html
        ii. Scholarships: http://www.aigc.com/08otherscholarship/scholarships.htm
        iii. Fellowships: http://www.aigc.com/08otherscholarship/fellowships.htm
    (c) Gates Millennium Scholar Program (for individuals seeking basic and advanced degrees): http://www.aigc.com/03gms/gms.htm
216. Asian & Pacific Islander American Scholarship Fund (APIASF) scholarship resources: http://www.apiasf.org/scholarships.html
217. American Association of University Women:
    (a) http://www.aauw.org/learn/fellowships_grants/index.cfm
218. Sigma Delta Epsilon-Graduate Women in Science (GWIS): http://www.gwis.org/programs.html
219. Society of Hispanic Professional Engineers (SHPE):
    (a) Advancing Hispanic Excellence in Technology, Engineering, Math and Science (AHETEMS) Foundation: http://www.ahetems.org/
    (b) AHETEMS Scholarship Program: http://www.ahetems.org/scholarships/
    (c) Graduate & Young Professional Fellowship Program (encourage young professionals to engage in **public policy**): http://www.ahetems.org/graduate/graduate-young-professic
    (d) SHPE/GEM Fellowship (for graduate students in STEM at GEM Member Universities): http://www.ahetems.org/graduate/shpe-gem-graduate-award/. See http://www.gemfellowship.org/gem-universities/university-members for a list of GEM member universities.
220. National Society of Black Engineers (NSBE):
    (a) Scholarships: http://www.nsbe.org/Programs/Scholarships.aspx

221. The Society of Mexican American Engineers and Scientists (MAES):
    (a) Scholarships & Awards: http://www.maes-natl.org/index.php?meid=328
    (b) MAES Scholarship Program: http://www.maes-natl.org/index.php?module=ContentExpress&func=display&ceid=518&meid=241

222. SACNAS (Society for Advancement of Chicanos and Native Americans in Science):
    (a) Scholarships: http://www.sacnas.org/webadindex.cfm?webadcategory_id=7
    (b) Fellowships: http://www.sacnas.org/webadIndex.cfm?webadcategory_id=5

223. *Center for the Advancement of Hispanics in Science and Engineering Education* (CAHSEE):

    (a) Scholarships: http://www.cahsee.org/6resources/scholarships.asp.htm

224. National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc.:
    (a) National GEM Consortium: GEM Fellowship, http://www.gemfellowship.org/gem-fellowship/application-requirements

225. National Physical Science Consortium (NPSC):
    (a) NPSC Graduate Fellowship: http://www.npsc.org/

226. Finch College Alumnae Association:
    (a) The Finch College Alumnae Foundation Education Grant:
        i. http://www.finchcollege.org/newscholarships.html
        ii. http://www.finchcollege.org/newFinchGrantQandA.html
        iii. "THE FINCH GRANT, an annual program where four community college women entering a four year college are awarded a grant of $1500 which can be used toward any needs to completing college. The selection is determined by a panel of college professors."

227. :
228. :
229. :
230. :
231. :
232. §**??** has more information concerning scholarships and fellowships in the following areas:
    (a) electronic design automation (EDA), and related areas of design automation:
        i. bio design automation (BDA)
        ii. Lab-on-chip design (LoC) automation
        iii. MEMS/NEMS design automation
    (b) digital VLSI design
    (c) analog and mixed-signal (AMS) VLSI design
    (d) computer architecture
    (e) parallel computing
    (f) concurrent programming
    (g) data mining
    (h) theoretical computer science

233. Ph.D. dissertation awards:

(a) —

(b) **Ph.D. Dissertation Awards for Computer Science**

(c) ACM Doctoral Dissertation Award: http://awards.acm.org/doctoral_dissertation/

(d) ACM Outstanding Ph.D. Dissertation Award in Electronic Design Automation: http://www.sigda.org/opda.html

(e) EDAA Outstanding Dissertation Award (European Design and Automation Association, EDAA): http://www.edaa.com/dissertation_award.html and http://www.esat.kuleuven.be/micas/EDAA-Award/index.php

(f) EuroSys Roger Needham PhD Award (in the systems area):
   i. Areas in systems include:
      A. operating systems
      B. distributed systems
      C. real-time systems
      D. systems aspects of databases
      E. language runtimes
      F. **embedded systems**
      G. computer networks
   ii. http://www.eurosys.org/phdprize/index.php

(g) ACM SIGPLAN Outstanding Doctoral Dissertation Award: http://www.sigplan.org/award-dissertation.htm

(h) ACM SIGKDD Doctoral Disseration Award (in data mining and knowledge discovery): http://www.sigkdd.org/awards_dissertation.php

(i) ACM SIGMOD Jim Gray Doctoral Dissertation Award (in the database field): http://www.sigmod.org/sigmod-awards/doctoral-dissertation-award

(j) Special Interest Group of the ACM on Management Information Systems (SIGMIS):
   i. ACM SIGMIS Doctoral Dissertation Award Competition (at the International Conference on Information Systems, ICIS): http://ai.arizona.edu/icis2009/program/dissertation.html and http://icis2010.aisnet.org/dissertation_award.htm

(k) Association for Symbolic Logic:
   i. "The Sacks Prize is awarded for the most outstanding doctoral dissertation in mathematical logic".
   ii. http://www.aslonline.org/Sacks_nominations.html and http://www.aslonline.org/info-prizes.html

(l) European Association for Computer Science Logic (EACSL):
   i. Ackermann Award (for outstanding dissertations in Logic in Computer Science): http://www.eacsl.org/ and http://www.eacsl.org/award.html

(m) European Coordinating Committee for Artificial Intelligence (ECCAI):
   i. 201X Artificial Intelligence Dissertation Award: http://www.eccai.org/diss-award/current.shtml

(n) European Conference on Wireless Sensor Networks (EWSN 201X, http://www.nes.uni-due.de/ewsn2011) and CONET, the Cooperating Objects Network of Excellence: Ph.D. Thesis Award Competition, http://www.cooperating-objects.eu/

(o) —

(p) **Ph.D. Dissertation Awards for Mathematics**

(q) International Center for Scientific Research (CIRS):
   i. E. W. Beth Dissertation Prize (for outstanding dissertations in the fields of Logic, Language and Information): http://www.cirs.net/prix/awards.php?id=481

(r) The Association for Operations Management, APICS (Advancing Productivity, Innovation, and Competitive Success):
   i. Plossl Doctoral Dissertation Competition: The APICS Educational and Research Foundation, will annually grant one award of $2,500 for a doctoral dissertation dealing with any topic in operations management. Sample topics include operations strategy, operations planning and control systems, supply chain management, quality management, Six Sigma, facility location, forecasting, just-in-time/lean production systems, and project management. Entrants must be candidates for the doctorate in operations management. The dissertation must be approved by the primary thesis advisor and not more than 50% completed at time of submission. See http://www.apics.org/Education/ERFoundation/Competitions/plossl.htm.

(s) SIAM Richard C. DiPrima Prize:
   i. The Richard C. DiPrima Prize is awarded every two years to a junior scientist, based on an outstanding doctoral dissertation in applied mathematics.
   ii. http://www.siam.org/prizes/nominations/nom_diprima.php
   iii. http://www.siam.org/prizes/sponsored/diprima.php

(t) MOS A.W. Tucker Prize:
   i. It is awarded for an outstanding doctoral thesis in any aspect of mathematical optimization.
   ii. http://www.mathprog.org/?nav=tucker

(u) —

(v) **Other Ph.D. Dissertation Awards**

(w) Institute for Operations Research and the Management Sciences (INFORMS):
   i. INFORMS George B. Dantzig Dissertation Award: http://www.informs.org/Recognize-Excellence/INFORMS-Prizes-Awards/George-B.-Dantzig-Dissertation-
   ii. Best Dissertation Award (Technology Management Section, for Ph.D. theses in technology management): http://www.informs.org/Recognize-Excellence/INFORMS-Community-Prizes-and-Awards2/Technology-Management-Section/Best-Dissertation-Award
   iii. TSL Dissertation Prize (Transportation Science and Logistics Section, for doctoral dissertations in the transportation science and logistics area): http://www.informs.org/Recognize-Excellence/INFORMS-Community-Prizes-and-Awards2/Transportation-Science-and-Logistics-Section/TSL-Dissertation-Prize
   iv. Best Dissertation Award (Telecommunications Section, for Ph.D. theses in telecommunications): http://www.informs.org/Recognize-Excellence/INFORMS-Community-P
Telecommunications-Section/Best-Dissertation-Award

v. Frank M. Bass Dissertation Paper Award (Society for Marketing Science, for the best marketing paper derived from a Ph.D. thesis published in an INFORMS-sponsored journal): http://www.informs.org/Recognize-Excellence/INFORMS-Communi Society-for-Marketing-Science/Frank-M.-Bass-Dissertation-Paper-Award

vi. SOLA - Air Products Bi-Annual Dissertation Award (Section on Location Analysis, for Ph.D. theses on location related research): http://www.informs.org/Recognize-Excellence/INFORMS-Community-Prizes-and-Awards2/Section-on-Loca SOLA-Air-Products-Bi-Annual-Dissertation-Award

(x) EURO Doctoral Dissertation Award (EDDA) (in operations research): http://www.euro-online.org/display.php?page=edda1

234. Other awards:

- —
- Awards for Computer Science
- ACM SIGMOD Undergraduate Award: http://www.sigmod.org/sigmod-awards/sigmod-awards#undergraduate
- European Association of Theoretical Computer Science (EATCS): Presburger Award (for young researchers in theoretical computer science), http://www.eatcs.org/index.php/presburger.
- Computer Research Association:
  (a) Committee on the Status of Women in Computing Research (CRA-W):
    i. Borg Early Career Award (BECA): http://www.cra-w.org/borg
- European Conference on Wireless Sensor Networks (EWSN 201X, http://www.nes.uni-due.de/ewsn2011) and CONET, the Cooperating Objects Network of Excellence: Ph.D. Thesis Award Competition, http://www.cooperating-objects.eu/. "Cooperating Objects combine the strong functional aspects of embedded systems, pervasive computing and wireless sensor networks. Cooperating objects entities federate themselves into dynamic and loose networks in order to reach a common goal. This common goal will typically be related to sensing or control."
- —
- Awards for Biomedical Engineering
- Biomedical Engineering Society (BMES):
  (a) Rita Schaffer Young Investigator Award (for junior researchers in biomedical engineering): http://www.bmes.org/aws/BMES/pt/sp/awards_investigator
  (b) Graduate and Undergraduate Student Awards: http://www.bmes.org/aws/BMES/pt/sp/awards_student
- —
- Awards for Mechanical Engineering
- American Society of Mechanical Engineers (ASME):
  (a) Henry Hess Award (authors of research papers who are below 31 years old): http://www.asme.org/Governance/Honors/SocietyAwards/Henry_Hess_Award.cfm

(b) Pi Tau Sigma Gold Medal (outstanding junior engineers): http://www.asme.org/Governance/Honors/SocietyAwards/Pi_Tau_Sigma_Gold_Medal.cfm
(c) Marshall B. Peterson Award (researchers in tribology who are below 30 years old): http://www.asme.org/Governance/Honors/SocietyAwards/Marshall_B_Peterson_Award.cfm
(d) Y.C. Fung Young Investigator Award (for young researchers in bioengineering): http://www.asme.org/Governance/Honors/SocietyAwards/YC_Fung_Young_Investigator.cfm

- —
- **Awards for Civil Engineering**
- American Society of Civil Engineers (ASCE):
  (a) Edmund Friedman Young Engineer Award for Professional Achievement (for junior engineers under the age of 36): http://www.asce.org/AwardsContent.aspx?id=16776
  (b) Committee on Younger Members (CYM) Awards (for junior engineers): http://www.asce.org/Content.aspx?id=11311
  (c) Collingwood Prize (for civil engineering researchers under the age of 35): http://www.asce.org/AwardsContent.aspx?id=15352
- —
- **Awards for Chemical Engineering**
- American Institute of Chemical Engineers (AIChE) awards: http://www.aiche.org/Students/Awards/index.aspx
- —
- **Awards for Systems Engineering**
- International Council on Systems Engineering (INCOSE) Stevens Doctoral Award (for Promising Research in Systems Engineering and Integration; A.B.D.s / Ph.D. candidates): http://www.incose.org/about/foundation/doctoralaward.aspx
- —
- **Awards for Mathematics, Operations Research, & Management Sciences**
- Institute for Operations Research and the Management Sciences (INFORMS):
  (a) INFORMS Undergraduate Operations Research Prize: http://www.informs.org/Recognize-Excellence/INFORMS-Prizes-Awards/INFORMS-Undergraduate-Opera
  (b) Optimization Prize for Young Researchers: http://www.informs.org/Recognize-Excellen INFORMS-Community-Prizes-and-Awards2/Optimization-Society/Optimization-Pr
  (c) Underrepresented Minorities and Women Honoraria: http://www.informs.org/Recognize-Excellence/INFORMS-Community-Prizes-and-Awards2/Simulation-Soci Underrepresented-Minorities-and-Women-Honoraria
  (d) Best Dissertation Proposal Competition (College on Organization Science, for Ph.D. proposals in organizational science): http://www.informs.org/Recognize-Excellen INFORMS-Community-Prizes-and-Awards2/College-on-Organization-Science/Best-Dissertation-Proposal-Competition

(e) ISMS Doctoral Dissertation Proposal Competition (Society for Marketing Science, for Ph.D. proposals in marketing): http://www.informs.org/Recognize-Excellence/INFORMS-Community-Prizes-and-Awards2/Society-for-Marketing-Science/ISMS-Doctoral-Dissertation-Proposal-Competition

- Alice T. Schafer Mathematics Prize For Excellence in Mathematics by an Undergraduate Woman: http://www.awm-math.org/schaferprize.html
- European Prize in Combinatorics:
  (a) The prize is established to recognize excellent contributions in Combinatorics by young European researchers (eligibility of EU) not older than 35.
  (b) http://www.math.tu-berlin.de/EuroComb05/prize.html
- The AMS-MAA-SIAM Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student: http://www.maa.org/awards/morgan.html; http://www.ams.org/profession/prizes-awards/ams-prizes/morgan-prize; and http://www.siam.org/prizes/sponsored/morgan.php
- —
- Lists of awards:
  (a) Association for Women in Science: http://www.awis.org/displaycommon.cfm?an=1&subarticlenbr=69
  (b) International Center for Scientific Research (CIRS): http://www.cirs.net/indexenglish.htm

10 Funding Nonprofit Organizations

Funding nonprofit organizations (including colleges and universities):

1. Alfred P. Sloan Foundation:
   (a) Major Program Areas: http://www.sloan.org/program/1
   (b) Apply for Grants: http://www.sloan.org/apply
2. The Commonwealth Fund:
   (a) Grants & Programs:
      i. http://www.commonwealthfund.org/Grants-and-Programs.aspx
      ii. "The Fund supports independent research on health and social issues and makes grants to improve health care practice and policy. We are dedicated to helping people become more informed about their health care and improving care for vulnerable populations such as children, the elderly, low-income families, minorities, and the uninsured."
3. The Heinz Endowments (Howard Heinz Endowment & Vira I. Heinz Endowment):
   (a) http://www.heinz.org/grants.aspx
   (b) grant-making programs (for non-profit organizations):
      i. Arts & Culture
      ii. Children, Youth & Families
      iii. Education
      iv. Environment
      v. Innovation Economy

4. Ford Foundation:
   (a) Grants:
      i. http://www.fordfoundation.org/grants/
      ii. Individuals Seeking Fellowships:
         A. http://www.fordfoundation.org/grants/individuals-seeking-fellowships
         B. Ford Foundation Fellowship Programs: http://sites.nationalacademies.org/PGA/FordFellowships/index.htm
         C. Ford Foundation International Fellowships Program: http://www.fordifp.net/
      iii. Organizations Seeking Grants: http://www.fordfoundation.org/grants/organizations-seeking-grants
      iv. Other Philanthropic Resources: http://www.fordfoundation.org/grants/other-philanthropic-resources
      v. Grant Search Results (list of grants): http://www.fordfoundation.org/grants/search

5. The Rockefeller Foundation:
   (a) Grants & Grantees:
      i. http://www.rockefellerfoundation.org/grants
      ii. What We Fund: http://www.rockefellerfoundation.org/grants/what-we-fund
      iii. Resources for Grantseekers: Links to other Philanthropic Sources, http://www.rockefellerfoundation.org/grants/resources-grantseekers

6. Carnegie Corporation of New York:
   (a) Grantseekers:
      i. http://carnegie.org/grants/grantseekers/
      ii. What we fund: http://carnegie.org/grants/grantseekers/what-we-fund/
      iii. What we don't fund: http://carnegie.org/grants/grantseekers/what-we-dont-fund/
   (b) Grants database: http://carnegie.org/grants/grants-database/ and http://carnegie.org/grants/
   (c) (Past) individual foundation grants: http://carnegie.org/publications/carnegie-reporter/single/view/article/item/221/

7. The Kresge Foundation:
   (a) fields of interest:
      i. health,
      ii. the environment,
      iii. community development,
      iv. arts and culture,
      v. education, and
      vi. human services
   (b) Values Criteria (for grantmaking): http://www.kresge.org/index.php/who/our_values_criteria/
   (c) funding methods:
      i. http://www.kresge.org/index.php/how/index/
      ii. http://www.kresge.org/index.php/our_funding_methods/index/
   (d) Challenge Grant:

i. http://www.kresge.org/index.php/our_funding_methods/challenge_grant_program/
ii. "The Kresge Foundation awards facilities capital as a challenge grant to help nonprofit organizations build their base of private financial support as they conduct capital campaigns to build or renovate their facilities."
iii. "Facilities capital challenge grants are awarded to organizations that cater specifically to the needs of poor, disadvantaged and disenfranchised in six program areas: Health Program, the Environment Program, Arts and Culture Program, Education Program, Human Services Program, and Community Development / Detroit Program."
iv. "Most challenge grant awards are made to U.S.-based organizations. On rare occasions, we award challenge grants to international organizations undertaking exceptional projects that align with the strategic objectives of a given program and advance Kresge's values."

(e) Detroit Program:
i. Kresge Arts Support: http://www.kresge.org/index.php/what/detroit_program/kresge_arts_support/
ii. Kresge Arts in Detroit: http://www.kresge.org/index.php/what/detroit_program/kresge_arts_in_detroit/

(f) Our Grants:
i. http://www.kresge.org/index.php/our_grants/index/
ii. grants database: http://maps.foundationcenter.org/grantmakers/index.php?gmkey=KRES002
iii. Arts and Community Building:
A. http://www.kresge.org/index.php/what/arts_and_culture/arts_and_community_building#CommunityArts
B. "Cultural institutions and artists animate our communities, bring disparate people together to share common experiences, and help us imagine a better future. As the demographics of our communities become more diverse, artists and cultural institutions help us bridge differences and build cross-cultural understanding. As our economy struggles, creative enterprises and creative sector leaders offer hope for community renewal and new job development."
C. two pilot initiatives: College/Arts initiative, and the Community Arts initiative
D. "The pilot cities [for the Community Arts initiative] include Baltimore, Maryland; Birmingham, Alabama; Detroit, Michigan; St. Louis, Missouri; and Tucson, Arizona."
E. "Grants for Arts and Community Building are by invitation only."

8. New York Women's Foundation:
(a) Grant Information and Application:
i. http://www.nywf.org/grant.html
ii. focus areas:
A. Anti-Violence and Safety
B. Economic Security
C. Health, Sexual Rights and Reproductive Justice
iii. "Grants usually range from $50,000 to a maximum of $70,000 [that last for a year, and can be renewed up to 5 years]."

9. The Foundation Center:
   (a) Grantseekers: http://foundationcenter.org/getstarted/
   (b) Find funders: http://foundationcenter.org/findfunders/
   (c) GrantSpace^{SM}:
      i. http://grantspace.org/
      ii. "GrantSpace^{SM} will help you gain the knowledge and skills you need to get grants, manage your nonprofit, and improve your community."
      iii. "Established in 1956 and today supported by close to 550 foundations, the Foundation Center is a national nonprofit service organization recognized as the nations leading authority on organized philanthropy, connecting nonprofits and the grantmakers supporting them to tools they can use and information they can trust. Its audiences include grantseekers, grantmakers, researchers, policymakers, the media, and the general public. The Center maintains the most comprehensive database on U.S. grantmakers and their grants; issues a wide variety of print, electronic, and online information resources; conducts and publishes research on trends in foundation growth, giving, and practice; and offers an array of free and affordable educational programs."
      iv. Resources for Non-U.S. Grantseekers: http://grantspace.org/Tools/Knowledge-Base/Resources-for-Non-U.S.-Grantseekers
      v. Resources for Individual Grantseekers:
         A. http://grantspace.org/Tools/Knowledge-Base/Individual-Grantseekers
         B. http://gtionline.foundationcenter.org/
         C. General: http://grantspace.org/Tools/Knowledge-Base/Individual-Grantseeke
         General
         D. Artists: http://grantspace.org/Tools/Knowledge-Base/Individual-Grantseeke
         Artists
         E. Students: http://grantspace.org/Tools/Knowledge-Base/Individual-Grantseek
         Students
         F. Fiscal Sponsorship: http://grantspace.org/Tools/Knowledge-Base/Individual-Grantseekers/Fiscal-Sponsorship
         G. For-Profit Enterprises: http://grantspace.org/Tools/Knowledge-Base/Individual-Grantseekers/For-Profit-Enterprises

10. The Lemelson Foundation:
   (a) http://web.mit.edu/invent/w-foundation.html
   (b) Programs & Grants: http://www.lemelson.org/programs-grants
   (c) Grantmaking: http://www.lemelson.org/grantmaking

11. Partnership for Higher Education in Africa (PHEA):
   (a) http://www.foundation-partnership.org/ and http://www.foundation-partnership.org/index.php?id=1
   (b) Grants Database: http://www.foundation-partnership.org/index.php?id=2
   (c) Partnership Publications: http://www.foundation-partnership.org/index.php?id=3

12. Smithsonian Institution:
   (a) Smithsonian Institution Traveling Exhibition Service (SITES):

i. Smithsonian Community Grant program (supported by MetLife Foundation):
   A. http://www.sites.si.edu/funding/grant2.htm
   B. "This program seeks to deepen connections between SITES' host venues and their communities by encouraging exhibitors to engage their local audiences in new and exciting ways while creating broader access to our exhibitions."
   C. "Under this new program, eligible SITES exhibitors may apply for up to $5,000 for expenses related to public, educational programming produced in conjunction with a SITES exhibit. Exhibitors may choose to enhance current program offerings or to create a new program especially suited to the topic of the exhibition."

11 Technology-Related Public Policy

Resources for engagement in creating technology-related public policy:

1. Yale Journal of Law & Technology (YJOLT):
   (a) http://www.yjolt.org/
   (b) http://wingenroth.org/
2. ACM Public Policy Office:
   (a) It represents ACM and its US Public Policy Council (USACM) on information technology policy issues that impact the computing field.
   (b) It seeks to educate policymakers and the public about policies that will that foster innovations in computing and related disciplines in ways that benefit society.
   (c) It also informs ACM's members and the public about policy developments through its weblog, Washington Update newsletter and articles in ACM publications.
   (d) ACM US Public Policy Council (USACM): http://usacm.acm.org/
   (e) ACM Committee on Computers and Public Policy (CCPP): http://www.acm.org/public-policy/acm-committee-on-computers-and-public-policy
   (f) http://www.acm.org/public-policy
3. IEEE:
   (a) IEEE-USA: http://www.ieeeusa.org/policy/default.asp
   (b) Smart Grids: http://smartgrid.ieee.org/public-policy
4. Computing Community Consortium (CCC): http://www.cra.org/ccc/
5. Computing Research Association (CRA):
   (a) http://www.cra.org/
   (b) CRA Government Affairs: http://www.cra.org/govaffairs/index.php
6. EngineeringPolicy.org: http://www.engineeringpolicy.org/
7. Congressional Bi-Partisan Robotics Caucus: http://www.roboticscaucus.org/
8. Advisory Committee for the Congressional Research and Development [R&D] Caucus: http://www.researchcaucus.org/
9. *National Academies Press* (NAP), from the (US) *National Academies*: http://www.nap.edu/
10. *Coalition to Diversify Computing*: http://www.cdc-computing.org/

11. American Institute of Aeronautics and Astronautics (AIAA):
    (a) http://www.aiaa.org/content.cfm?pageid=7
12. :
13. :
14. :
15. :
16. :
17. :
18. :
19. :

12 Feminist Outreach

Feminist outreach:

1. Myra Sadker Foundation:
   (a) 100+ Ideas to Promote Gender Equity in Schools and Beyond: http://www.sadker.org/100ideas.html
   (b) Gender Equity Activities: http://www.sadker.org/WhatYouCanDo.html
   (c) Gender Equity Activities for Concerned Citizens: http://www.sadker.org/GenderEquity-citiz html
   (d) Gender Equity Activities for Families: http://www.sadker.org/GenderEquity-family.html
   (e) Gender Equity Activities for Teachers:
      i. Early Childhood: http://www.sadker.org/GenderEquity-teacher1.html
      ii. Primary Grades: http://www.sadker.org/GenderEquity-teacher2.html
      iii. Upper Elementary: http://www.sadker.org/GenderEquity-teacher3.html
      iv. Middle and High School: http://www.sadker.org/GenderEquity-teacher4.html
   (f) Resources for feminism and links to web pages of feminist organizations: http://www.sadker.org/ReadsLinks.html
2. Feminist student organizations at colleges and universities:
   (a) For example, at the University of Southern California, the organizations associated with feminist causes are:
      i. *USC Center for Women & Men*: http://www.usc.edu/student-affairs/cwm/links.html
      ii. *USC Women's Student Assembly*: http://www-scf.usc.edu/~wsausc/Welcome.html
3. International Women's Day: http://www.internationalwomensday.com/
4. Gender Across Borders:
   (a) Feminism Resources: http://www.genderacrossborders.com/feminist-resources/
5. *V-Day*:
   (a) http://www.vday.org/

   (b) Organization that helps women plan and organize events to bring awareness about sexual assault, and what we can do to reduce sexual assault.

6. *Take Back The Night*:
   (a) http://www.takebackthenight.org/
   (b) Organization that helps women plan and organize events to bring awareness about sexual assault, and what we can do to reduce sexual assault. It also encourages sexual assault survivors to speak out about their sexual assaults, so that they would shame their perpetrators and let other women (and men) know that they is nothing to be ashamed of as sexual assault survivors. This is because the faults lie 100% with the perpetrators, and not with the survivors.
7. *United Nations Development Fund for Women* (UNIFEM):
   (a) http://www.unifem.org/
   (b) Organization that addresses many challenges faced by girls and women.
8. *National Organization for Women*:
   (a) http://www.now.org/
   (b) Feminist organization in the US.
9. *A Woman's Nation*:
   (a) http://www.shriverreport.com/awn/
   (b) http://awomansnation.com or http://www.shriverreport.com/
10. *Peace Over Violence* is a non-profit, feminist, multicultural, volunteer organization dedicated to a building healthy relationships, families and communities free from sexual, domestic and interpersonal violence: http://peaceoverviolence.org/
11. SoulSpeakOut: http://www.soulspeakout.org/resources/
12. *Haven Hills*: http://havenhills.org/

13 Outreach: Professional Organizations

Professional organizations:

1. —
2. **Professional Organizations for the Performance, Literary, and Visual Arts**
3. Americans for the Arts:
   (a) http://www.americansforthearts.org/get_involved/membership/default.asp
   (b) http://www.artsusa.org/get_involved/membership/default.asp
   (c) Provides membership for organizations and individuals
   (d) Individual membership are available for:
      i. Students
      ii. Entrepreneurs (e.g., people in art management)
      iii. Innovators
      iv. Colleagues (artists)
   (e) Americans for the Arts **Emerging Leader Program**:

    i. http://www.artsusa.org/networks/emerging_leaders/resources/default.asp
    ii. Has various resources for professional development, including mentoring

  (f) Advocacy (**public policy**): http://www.artsusa.org/get_involved/advocate.asp

4. —
5. **Professional Organizations for the Musical Artists**
6. The Recording Academy: http://www.grammy365.com/join/membership-types

14 Other Outreach

Other outreach:

1. The Joy McCann Foundation:
   (a) The Joy McCann Professorships in Law: http://www.mccannfoundation.org/law.htm
2. National Academy of Sciences:
   (a) *Science & Entertainment Exchange* program:
      i. http://www.scienceandentertainmentexchange.org/
      ii. Provide science and engineering knowledge to help professionals in the entertainment industry create engaging storylines involving science and technology.
3. U.S. Department of State:
   (a) Bureau of Educational and Cultural Affairs:
      i. Programs: http://exchanges.state.gov/jexchanges/programs.html
      ii. Fulbright Classroom Teacher Exchange Program:
         A. http://exchanges.state.gov/globalexchanges/fulbright-teacher-exchange-p html
         B. "The Fulbright Classroom Teacher Exchange provides opportunities for primary and secondary teachers to exchange positions with colleagues in other countries. The participants contribute to mutual understanding by bringing international knowledge and perspectives to the U.S. and foreign classrooms, schools and communities. Full-time U.S. teachers can take part in either a year-long or semester-long direct exchange with a counterpart in another country."
      iii. FORTUNE/U.S. State Department Global Women's Mentoring Partnership:
         A. http://exchanges.state.gov/citizens/professionals/fortunepartnership.html
         B. "This public-private partnership places talented, emerging women leaders from all over the world in mentoring programs with FORTUNE's Most Powerful Women Leaders."
      iv. Edward R. Murrow Program for Journalists:
         A. http://exchanges.state.gov/ivlp/murrow.html

B. "The Edward R. Murrow Program for Journalists invites rising international journalists to travel to the United States and examine journalistic principles and practices."

v. International Visitor Leadership Program:
   A. http://exchanges.state.gov/ivlp/ivlp.html
   B. "These visits reflect the International Visitors' professional interests and support the foreign policy goals of the United States."
   C. "International Visitors are current or emerging leaders in government, politics, the media, education, the arts, business and other key fields."
   D. "International Visitors travel to the U.S. for carefully designed programs that reflect their professional interests and U.S. foreign policy goals. They travel in a variety of thematic programs, either individually or in groups, for up to three weeks. While in the U.S., International Visitors typically visit Washington, DC and three additional towns or cities that highlight the tremendous diversity of the U.S. They attend professional appointments with their American counterparts, learn about the U.S. system of government at the national, state and local levels, visit American schools, and experience American culture and social life."
   E. "There is no application for this program. International Visitors are selected and nominated annually by American Foreign Service Officers at U.S. Embassies around the world."

vi. Au Pair:
   A. http://exchanges.state.gov/jexchanges/programs/aupair.html
   B. "Through the Au Pair program, foreign nationals between 18 and 26 years of age participate in the home life of a host family. Au pairs provide limited childcare services for up to 12 months. An extension of 6, 9, or 12 months may be granted in certain cases."

vii. Summer Work Travel:
   A. http://exchanges.state.gov/jexchanges/programs/swt.html
   B. "In the summer work travel program, post-secondary students may enter the United States to work and travel during their summer vacation. Participants can be admitted to the program more than once. The maximum length of the program is four months."

viii. Internship:
   A. http://exchanges.state.gov/jexchanges/programs/intern.html
   B. "Internship programs are designed to allow foreign professionals to come to the United States to gain exposure to U.S. culture and to receive training in U.S. business practices in their chosen occupational field. The maximum duration of an internship in any occupational field is 12 months. Upon completion of their exchange programs, participants are expected to return to their home countries."

ix. Professional Exchanges Division:
   A. http://exchanges.state.gov/citizens/profs.html
   B. "The Professional Exchanges division provides grants to U.S. nonprofit organizations to carry out exchange programs that support the professional development of foreign participants. The purpose of each exchange program is to

engage with foreign leaders in critical professions, to demonstrate respect for foreign cultures, and to promote mutual understanding between the people of the United States and other countries."

C. "Professional exchanges typically last several years and include internships, study tours or workshops in the United States and in the host country. Participants come from a variety of professions including education administrators, public servants, journalists, labor union officials, entrepreneurs, environmental leaders, jurists, lawyers, and civic leaders."

4. Teach For All: http://teachforallnetwork.org/
5. ——————————————————————————————————
6. **Resources for Artists and Musicians**
7. League of American Orchestras and the Association of Performing Arts Presenters:
   (a) *ArtistsfromAbroad.org*:
      i. http://www.artistsfromabroad.org/
      ii. "*ArtistsfromAbroad.org* features complete and up-to-date guidance on the visa process and tax treatment for foreign guest artists."
8. Young Concert Artists, Inc.
   (a) Composer Program (for American composers between 20 and 26 years of age): http://www.yca.org/auditions/
9. The John F. Kennedy Center for the Performing Arts:
   (a) Mary Lou Williams Women in Jazz Emerging Artist Workshop:
      i. http://www.kennedy-center.org/programs/jazz/womeninjazz/competition.html
      ii. "The workshop provides female jazz artists ages 18 to 35 with an opportunity to explore and develop their artistry under the guidance of leading jazz artists and instructors. Each year, the workshop will focus on a specific instrument."
      iii. "The 2011 Mary Lou Williams Women in Jazz Emerging Artist Workshop is open to advanced female jazz pianists who plan to pursue jazz performance as a career. Eligibility is exclusive to pianists who will be 18-35 years old on May 18, 2011 and have never recorded or been contracted to record as a leader or co-leader on a major label at the time of application. All applicants must be proficient in English."
10. Grantmakers in the Arts (GIA):
   (a) "The mission of Grantmakers in the Arts (GIA) is to provide leadership and service to advance the use of philanthropic resources on behalf of arts and culture."
   (b) Arts Funding Topics: http://www.giarts.org/arts-funding-topics
11. The Dana Foundation:
   (a) Arts Education program:
      i. Arts Education Grants:
         A. http://www.dana.org/grants/BrowseArtsGrants.aspx

B. "In 2001, The Dana Foundation created the Arts Education program with a sole focus of providing grants to support professional development for teaching artists and in-school arts specialists. The first several years of grants were to programs in New York City, Washington, DC, Los Angeles and to organizations with a 50 mile radius of the three."
C. "The Rural Initiative launched in 2006 with 6 grants awarded to organizations providing professional development in rural areas of the United States."

12. writing/poetry contests:
    (a) International 3-Day Novel Contest: http://www.3daynovel.com/about/?contest

15 Christian Colleges and Universities

Christian colleges and universities:

1. List of Christian colleges and universities:
    (a) Council for Christian Colleges and Universities (CCCU):
        i. http://en.wikipedia.org/wiki/Council_for_Christian_Colleges_and_Universities
        ii. http://www.cccu.org/
    (b) Christian College Consortium:
        i. http://en.wikipedia.org/wiki/Christian_College_Consortium
        ii. http://www.ccconsortium.org/
2. California Baptist University, Riverside
3. Messiah College (Grantham, PA):
    (a) Department of Engineering:
        i. http://www.messiah.edu/departments/engineering/
        ii. B.S. programs in:
            A. Biomedical Engineering
            B. Computer Engineering
            C. Electrical Engineering
    (b) Department of Information and Mathematical Sciences:
        i. http://www.messiah.edu/departments/mathsci/index.html
        ii. Offers a B.A. Computer Science program

16 Research Heuristics

The heuristic FIND-SEMINAL-PAPERS helps me find the seminal papers of an academic field, while the heuristic KEEPING-ABREAST-WITH-RESEARCHERS helps me keep up with research trends (include determining emerging research trends and nascent research topics).

The references that I used for these heuristics are given as follows.
Quora [Online], "How do I find the seminal papers of an academic field?". Available online at: http://www.quora.com/How-do-I-find-the-seminal-papers-of-an-academic-field; last accessed on September 27, 2010.

Quora [Online], "As a non-student, how do you keep up with interesting work in academia?". Available online at: http://www.quora.com/As-a-non-student-how-do-you-keep-up-with-interest last accessed on September 27, 2010.

Concerning FIND-SEMINAL-PAPERS, the sources of literature review include:

1. journals
2. conference proceedings
3. Ph.D. theses
4. books
5. book chapters
6. technical reports
7. reading list of a reading group (or a seminar class in good graduate programs)
8. publication lists of researchers (preferably leading experts working in the field φ)
9. key publications of researchers who win achievement awards in the field φ:
   (a) An example of this is the first conference paper on *Chaff* in *DAC 2001*.
10. repositories and digital libraries for good publications (e.g., *IEEE Xplore*, *ACM Digital Library*, *ScienceDirect*, *ProQuest Digital Dissertations*, *JSTOR* (short for Journal Storage), and *PubMed*), and domain-specific search engines (e.g., *Web of Science*, *Compendex*, *Scopus*, *Scirus*, *EMBASE*, and *Engineering Village*)
11. generic scholarly search engines (e.g., Google Scholar)
12. academic social networking sites (e.g., Academia.edu)
13. reference lists of patents – *Beware of patent infringement*

Note that in some fields (e.g., social science), researchers publish foundational work in books, rather than in research/academic journals. As for the experts mentioned in line 6, network and collaborate with these leading experts. The verification step in line 7 requires me to network with researchers in φ. While carrying out this verification process, ask these researchers for suggestions. For example, I can ask, "What are the seminal publications/papers in φ?" I note that carrying out this literature review is doing my homework before I seek help. If I approach others without doing my homework, it would be embarrassing if I don't understand what they are talking about; recall the brief conversation with Prof. Ofer Strichman (Technion) at *DAC 2009* about software verification and compiler validation. I am also aware that a high number of citations does not imply that a research paper is necessarily good. A significant, or considerable, proportion of the citations may be self-citations. Citations may refer to more recent publications, since not many people would read old publications.

Researchers who I can validate my list of seminal papers include:

1. the list of researchers who I believe are the leading experts in φ
2. authors of my references
3. advanced Ph.D. students and postdocs:
   (a) Good Ph.D. students and postdocs would have done a lot of literature research, and should know their research topic at least as well as their advisors.
4. editors of prestigious journals in φ

5. chairs of conferences and workshops (especially new/young workshops that are organized for nascent or fairly new research fields/topics)
6. keynote speakers at prestigious conferences
7. members of panel discussions at prestigious conferences
8. authors of famous textbooks in φ

FIND-SEMINAL-PAPERS(φ)

// Input φ = research area that I am interested in
// Output : seminal papers/publications in φ
1 **while** I am still interested in φ
2 Perform a literature review on the research field φ.
3 **while** performing my literature review on φ
4 Determine which research publications are cited more frequently.
5 Remember the authors who (co-)author the frequently cited research publications.
6 Find out who the leading experts in φ are, and look at their publications.
7 Verify my list of leading experts in φ with researchers in φ.

// Terminating Condition: When I have read more than enough papers/publications
// (e.g., 50-200 journal/conference papers).
8
9 Take advantage of folksonomy, and use the tags of *arXiv* and *Mendeley* (and perhaps, *CiteULike*) to locate new/recent submissions in φ.
10 Use *Google Scholar* to help me keep track of the number of citations for a given research publication.

A general rule for using KEEPING-ABREAST-WITH-RESEARCHERS is that the selected conference or journal papers shall be well-written. If the paper is difficult to read (as in poorly written), it is hard to follow the rest of their work. Also, just because a paper is technically complicated, it does not mean that it is a good paper. Concerning line 4 of KEEPING-ABREAST-WITH-RESEARCHERS, I can take advantage of resources such as the web pages of researchers and research groups/labs, *DBLP*, *IEEE Xplore*, and *ACM Digital Library*. To find out about recently published books (see line 7), look at the collection of books in bookstores that sell academic books (course textbooks and scholarly books). In particular, check out the student bookstores of good colleges and universities, as well as the pamphlets of academic publishers, such as *John Wiley & Sons* (or *Wiley*), *Morgan Kaufmann Publishers*, *Springer Science+Business Media* (or *Springer*), *Elsevier*, and *IOS Press*. In addition, look at the collections of university presses, such as *MIT Press*, *Cambridge University Press*, and *Oxford University Press*. Elaborating on line 11, make a shortlist of 5-10 conference papers from the advanced program of conferences (which includes a list of accepted papers), and email the authors for copies of their papers. After each major conference, ask friends who have attended that conference to discuss their top 3-5 presentations. Subsequently, read the corresponding conference papers for these presentations.

KEEPING-ABREAST-WITH-RESEARCHERS(β)

1 // *Input:* β = *research area that I am interested in*
2 // *Output: conference papers, journal papers,* & *patents,*
3 **while** I am interested in β
4 Keep track of the publication record of researchers.
5 Take advantage of folksonomy, and use the tags of *arXiv* and *Mendeley*.
(and perhaps, *CiteULike*) to locate new/recent submissions in β.
6 For each publication, determine its key references and look them up.
// *That is, form the directed graph of research publications in* β.
// *This will lead me to other interesting papers and new researchers to keep track of.*
7 Find recent books that interest me, and look up their primary references/citations on
the best techniques/methodologies (or recent techniques/methodologies).
8 Keep track of the specialists in β and the relevant topics on *Quora* and *Facebook*.
9 Ask open-ended questions on *Quora* and *Facebook*, which specialists may answer.
10 Information about nascent or fairly new research fields/topics may emerge on *Facebook*.
// *Information about new/recent tools and computer languages*
// *may also emerge on Facebook and blogs (and perhaps Wikipedia).*
11 Follow the major conferences in β casually.
12 Attend academic talks whenever possible, especially at good research universities.
// *High-tech companies with research labs have their own academic talks,*
// *which are closed to public.*
13 Spend at least 1 day per month digging deep into the archive, & recursively follow the citations.
14 Be familiar with the rough work of superstars in β.
15 Follow the work of good research labs in β.
16 Pay attention to keynote speeches and panel discussions at major conferences.
17 Look at the roadmaps for β (if any), which present challenges to be tackled
under long-term research (8-15 years).
18 Check out workshops for nascent or fairly new research fields/topics.
19 Look at handbooks, which provide a wealth of information on an academic field or research topic.
20 Look at the *Future Work* sections of Ph.D. theses in β.
// *Especially if they win some sort of dissertation award (e.g., that from ACM).*
21 Check out "generic" journal publications that have good survey papers.
// *E.g., "Proceedings of the IEEE" or "Journal of the ACM".*
22 Look at the web pages of government agencies and professional organizations,
which may include roadmaps.
23 Look at the publication lists (and job advertisements) of start-ups (if any).
24 Ask researchers in β what are they reading.
25 Look for highly-rated books in β, and go through the sorted list (based on year of publication).
26 Keep track of good blogs written by good researchers (i.e., academic blogs)
and industry analysts via RSS feeds.

17 Research Resources

Resources for research, and educational and learning material:

1. International Technology Roadmap for Semiconductors (ITRS): http://public.itrs.net/
2. CATRENE (Cluster for Application and Technology Research in Europe on NanoElectronics): http://www.catrene.org/index.php
3. Social networking sites:
   (a) For academics, see http://www.academia.edu/
   (b) ResearchGATE Corporation: http://www.researchgate.net/
   (c) MyNetResearch:
      i. Features: http://www.mynetresearch.com/Features.aspx
      ii. Resources: http://www.mynetresearch.com/ResearcherLinks.aspx
      iii. Can facilitate project management, and provides public and private file sharing
      iv. http://www.mynetresearch.com/
   (d) *weSRCH.com*:
      i. "For professionals who engage in the fields of High Tech, Green Tech, and Medicine"
      ii. It has an online forum, and is a resource for news in the high tech, green tech, and bio tech industries.
      iii. http://www.wesrch.com/
4. Educational resources and "open-source" textbooks:
   - OpenCourseWare Consortium:
     (a) http://www.ocwconsortium.org/
     (b) OCW Finder: http://www.ocwfinder.org/
     (c) MIT OpenCourseWare: http://ocw.mit.edu/index.htm
   - Connexions: http://cnx.org/
   - Nature Publishing Group (a division of Macmillan Publishers Limited):
     (a) *Scitable* is a free science library and personal learning tool brought to you by Nature Publishing Group, the world's leading publisher of science. Available online at: http://www.nature.com/scitable; last accessed on January 1, 2010.:
        i. *eBooks*. Nature Education e-books are intuitive introductions to a range of topics relevant to science students, young scientists, and science enthusiasts of all ages. Available online at: http://www.nature.com/scitable/topics; last accessed on January 1, 2010.
   - *Quora*, which is a collection of questions and answers: http://www.quora.com/
   - *SelfSolved* is a personal and social information repository for people who solve problems: http://selfsolved.com/
   - Flat World Knowledge: http://www.flatworldknowledge.com/
   - Liquid Publications (LiquidPub): http://project.liquidpub.org/
   - OER Commons:
     (a) A project of the Institute for the Study of Knowledge Management in Education, ISKME
     (b) http://www.oercommons.org/
   - NIXTY: http://nixty.com/
   - Learning Is For Everyone: http://www.learningis4everyone.org/

- BCcampus OER Portal: http://freelearning.ca/about/
- iBerry:
  (a) http://iberry.com/
  (b) http://iberry.com/cms/ and http://iberry.com/cms/OCW.htm
- InTech:
  (a) http://www.intechweb.org/
  (b) http://www.intechopen.com/
- Open Educational Resources (OER): http://wiki.creativecommons.org/OER
- Open Learning Initiative: http://oli.web.cmu.edu/openlearning/
- Peer 2 Peer University (P2PU): http://www.p2pu.org/
- Curtis J. Bonk, Book Resources [for] "The World Is Open: How Web Technology Is Revolutionizing Education," Jossey-Bass (a Wiley imprint), San Francisco, CA. Available at: http://worldisopen.com/resources.php; last accessed on September 4, 2010.
- Wikiversity (from the Wikimedia Foundation): http://en.wikiversity.org/wiki/Wikiversity:Main_Page
- Einztein Knowledge Network: http://www.einztein.com/
- Saylor Foundation: http://www.saylor.org/
- Knewton: http://www.knewton.com/
- wePapers: http://www.wepapers.com/
- CourseSmart: http://www.coursesmart.com/
- WikiEducator: http://wikieducator.org/Main_Page
- Community College Consortium for Open Educational Resources: http://oerconsortium.org/
- Online encyclopedia: http://openresearch.org/wiki/Main_Page
- Google:
  (a) Google ebookstore (Google eBooks): http://books.google.com/ebooks
  (b) Google Books Ngram Viewer:
    i. http://ngrams.googlelabs.com/
    ii. Datasets: http://ngrams.googlelabs.com/datasets
- **The Assayer** (has textbooks in many topics): http://theassayer.org/
- **Culturomics** Resources: http://www.culturomics.org/Resources/links
- The Dana Foundation:
  (a) http://www.dana.org/news/publications/
  (b) Literature review on brain research that is updated annually
- Cramster:
  (a) http://www.cramster.com/
  (b) Offers help in electrical engineering and computer science, among other subjects (e.g., writing, mathematics, and physics)
- University of Southern California:
  (a) Material for classes (mostly in engineering): http://www-classes.usc.edu/
  (b) USC Andrew and Erna Viterbi School of Engineering:
    i. http://www-classes.usc.edu/engr/
    ii. Ming Hsieh Department of Electrical Engineering: http://www-classes.usc.edu/engr/ee-s/

- University of Washington:
  (a) Department of Mathematics:
    i. List of open source projects in symbolic and numerical computing, and **online computer science and mathematics books** (by Minh Van Nguyen): http://sage.math.washington.edu/home/mvngu/misc.html
- Princeton University:
  (a) UChannel (University Channel): Contains "videos of academic lectures and events", http://uc.princeton.edu/main/; http://uc.princeton.edu/main/index.php/about-us-mainmenu-2; or http://uc.princeton.edu/main/index.php/home-mainmenu-1
  (b) Office of Information Technology:
    i. Event Streaming WebMedia: Source of academic lectures, http://hulk03.princeton.edu:8080/WebMedia/lectures/
  (c) Educational Technologies Center: Almagest, http://etcweb.princeton.edu/almagest3/
- Virginia Tech (Virginia Polytechnic Institute and State University):
  (a) Department of Computer Science:
    i. Graduate classes: http://www.cs.vt.edu/graduate/courses
    ii. Undergraduate classes: http://www.cs.vt.edu/undergraduate/courses
    iii. List of all classes: http://ei.cs.vt.edu/courses.html
- University of Adelaide:
  (a) eBooks@Adelaide:
    i. Classic Works of Literature, Philosophy, Science, History, and Exploration and Travel: http://ebooks.adelaide.edu.au/
- Colorado School of Mines:
  (a) Department of Physics:
    i. Samizdat Press, http://samizdat.mines.edu/, contains books in:
      – Linear Algebra and Multidimensional Geometry
      – Differential Geometry
      – Tensor Analysis
      – Classical Electrodynamics and the Theory of Relativity
      – Continuum Mechanics
      – Genetic Algorithms
      – Geomechanics
      – Greek Seismology
      – Geophysical Inverse Theory
      – Geophysics
      – finite element analysis
      – Inverse Problem Theory
- IEEE:
  (a) IEEE eLearning Library: http://ieee-elearning.org/
  (b) IEEE Career Resources: http://ieee.org/education_careers/careers/index.html
  (c) IEEE Online Professional Development: http://ieee.org/education_careers/education/prodev/index.html
  (d) IEEE Computer Society:

i. e-learning campus: http://www.computer.org/portal/web/e-learning/home

- ACM:
  (a) ACM Tech Pack: http://techpack.acm.org/
  (b) ACM Learning Center (has online books): http://learning.acm.org/
- IBM:
  (a) Program Analysis Group; IBM T.J. Watson Research Center:
    i. Eran Yahav, *misc*, IBM. Available online at: http://www.research.ibm.com/people/e/eyahav/misc.html; last accessed on September 28, 2010. [Also has resources about learning German and how to play the guitar.]
- U.S. National Academies:
  (a) National Academies Press: http://www.nap.edu/
  (b) Proceedings of the National Academy of Sciences: http://www.pnas.org/
  (c) Publications: http://www.nationalacademies.org/publications/
- The National Science Foundation:
  (a) *Science and Engineering Statistics: Publications, data, and analyses about the nation's science and engineering resources*, Division of Science Resources Statistics (SRS). Available online at: http://www.nsf.gov/statistics/; last accessed on September 25, 2010.
  (b) *Science and Engineering Indicators: 201X*, Division of Science Resources Statistics, National Science Foundation, Arlington, VA, January 2010. Available online at: http://www.nsf.gov/statistics/indicators/; last accessed on September 25, 2010. [The 2010 issue is available at: http://www.nsf.gov/statistics/seind10/.]
- Ewing Marion Kauffman Foundation:
  (a) Links: http://sciencecommons.org/resources/links/
- Open Culture:
  (a) http://www.openculture.com/
  (b) "free cultural & educational media on the web"
- R&D Magazine (from Advantage Business Media):
  (a) http://www.rdmag.com/
  (b) R&D 100 Awards 201X: http://www.rdmag.com/Awards/RD-100-Awards/R-D-100-Awards/
- The Academy of American Poets:
  (a) http://www.poets.org/index.php
  (b) "The Road Not Taken," by Robert Frost. Available online at: http://www.poets.org/viewmedia.php/prmMID/15717; last accessed on September 28, 2010.
- William Stallings:
  (a) Xentrik:
    i. Tutorial for creating and maintaining web pages: http://www.xentrik.net/
  (b) Resources for CS students:
    i. *Computer Science Student Resource Site*, http://www.computersciencestudent.com/

ii. *Computer Science Student Resource Site: How-To*, http://www.computersciencestuden com/SS/SS-howto.html
iii. *Computer Science Student Resource Site: Computer Science Careers*, http: //www.computersciencestudent.com/SS/SS-career.html

5. Videos of lectures, research talks/presentations, and seminars:
   (a) *iTunes U*: http://www.apple.com/education/itunes-u/
   (b) *YouTube*:
      i. http://www.youtube.com/
      ii. YouTube EDU: http://www.youtube.com/education?b=400
   (c) http://videolectures.net/
   (d) Academic Earth: http://www.academicearth.org/
   (e) MyNetResearch Videos: http://videos.mynetresearch.com/Default.aspx
   (f) Computer Science:
      i. University of Illinois at Urbana-Champaign (UIUC):
         A. College of Engineering; Department of Computer Science: http://cs.illinois. edu/lectures
   (g) Mathematics:
      i. Institute for Mathematics and its Applications (IMA) at the University of Minnesota, Twin Cities: http://www.ima.umn.edu/videos/
6. Xuropa:
   (a) the electronic design online community; the `Facebook` for people working in EDA, IP design/verification/services, (rest of the) semiconductor industry (including design, CAD, verification, test, and device engineers), software industry, and systems people (including those in embedded systems, automobile industry, and medical systems)
   (b) see http://xuropa.com/

18 Resources for Market Research as well as Social, Economic, and Political Issues

Resources for market research as well as social, economic, and political issues:

1. Gary Smith EDA (GSEDA): http://www.garysmitheda.com/
2. VLSI Research Inc: https://www.vlsiresearch.com/
3. Future Horizons: http://www.futurehorizons.com/
4. Gartner [or Gartner Dataquest]: http://www.gartner.com/technology/home.jsp
5. iSuppli Corporation: http://www.isuppli.com/Pages/Home.aspx
6. Linley Group:
   (a) *Processor Watch*, "a free electronic newsletter on high-performance microprocessors": http://www.mdronline.com/processor_watch/
   (b) http://www.linleygroup.com/
7. Semico Research Corp: http://www.semico.com/
8. Other organizations/companies that provide forecasts for the semiconductor market:
   (a) Semiconductor Intelligence: http://www.semiconductorintelligence.com/

(b) Semiconductor Industry Capacity Statistics (SICAS): http://www.sicas.info/
(c) Semiconductor Equipment and Materials International (SEMI®): http://www.semi.org/en/index.htm
(d) WSTS (World Semiconductor Trade Statistics): http://www.wsts.org/
(e) Semiconductor Industry Association (SIA): http://www.sia-online.org/
(f) International Data Corporation (IDC): http://www.idc.com/
(g) IC Insights:
    i. *The McClean Report: A Complete Analysis and Forecast of the Integrated Circuit Industry*: http://www.icinsights.com/prodsrvs/mcclean/mcclean.html
    ii. *IC Market Drivers: A Study of Emerging and Major End-Use Applications Fueling Demand for Integrated Circuits* helps identify opportunities for growth and evaluates the potential for new applications that are expected to fuel the market for integrated circuits through 2013. See http://www.icinsights.com/prodsrvs/marketdrivers/marketdrivers.html.
    iii. *O·S·D Report: A Market Analysis and Forecast for Optoelectronics, Sensors, and Discretes* provides information about the end-use application, regional market analysis, leading supplier rankings, device history, and technology trends for:
        - optoelectronics:
            – CCD and CMOS Image Sensors
            – Laser Transmitters and Pick-Ups (for fiber-optic networks)
            – Solid-State Lamps and LEDs
            – Infrared Devices
            – Couplers, Isolators
            – Optical Switches
            – Digital Character Displays
        - sensors/actuators (including MEMS-based):
            – Pressure Sensors
            – Acceleration and Yaw Sensors
            – Magnetic-Field Sensors
            – Temperature Sensors
            – Fingerprint ID Chips
            – Actuators
        - discretes:
            – Power Transistors and Modules (IGBTs, power IGBTs, and power FETs)
            – Small-Signal Transistors
            – Switching Transistors
            – Diodes, Rectifiers, and Thyristors
            – RF/Microwave Transistors and Modules
    iv. http://www.icinsights.com/prodsrvs/osdreport/osdreport.html
    v. *MEMS 2010: A Realistic Look Beyond the Hype* (Special Study). See http://www.icinsights.com/prodsrvs/specialstudies/mems/mems.html.
    vi. *Global Wafer Capacity Analysis and Forecast* (Special Study). See http://www.icinsights.com/prodsrvs/specialstudies/globalcapacity/globalcapacity.html.
    vii. *Strategic Reviews Online* offers quick access to thorough examinations of companies involved in the design and manufacture of integrated circuits. Whether a sup-

plier owns a fab or is fabless, has sales of several million or several billion dollars, *Strategic Reviews Online* provides detailed reviews of the operations and activities of more than 200 of the world's established and emerging IC companies (totaling about 770 printed pages worth of valuable information). Access *Strategic Reviews Online: Extensive Profiles of the World's IC Manufacturers and Fabless Suppliers* @ http://www.icinsights.com/prodsrvs/reviews/reviews.html.

viii. http://www.icinsights.com/

(h) ABI Research: http://www.abiresearch.com/home.jsp

(i) HTE Research, Inc.: http://www.hteresearch.com/; also see *InsideChips* @ http://www.insidechips.com/

(j) In-Stat, LLC: http://www.instat.com/

(k) Chipworks: http://www.ice-corp.com/

9. Yole Développement: http://www.yole.fr/
10. Lux Research (solar, nanomaterials, alternative power, water, biosciences): http://www.luxresearchinc.com/
11. Pike Research (global clean technology markets: smart energy, clean transportation, clean industry, and building efficiency): http://www.pikeresearch.com/
12. Deloitte Consulting:
    (a) see market survey of industries @ http://www.deloitte.com/view/en_US/us/industries/index.htm
    (b) http://www.deloitte.com/view/en_US/us/Insights/centers/index.htm
    (c) see Deloitte Review @ http://www.deloitte.com/view/en_US/us/Insights/Browse-by-Content-Type/deloitte-review/index.htm
    (d) see Deloitte Research @ http://www.deloitte.com/view/en_US/us/Insights/Browse-by-Content-Type/research/index.htm
    (e) see Case Studies @ http://www.deloitte.com/view/en_US/us/Insights/Browse-by-Conte
    Case-Studies/index.htm
    (f) see Deloitte Technology Services Consulting @ http://www.deloitte.com/view/en_US/us/Services/consulting/technology-consulting/index.htm
    (g) see Deloitte Debates @ http://www.deloitte.com/view/en_US/us/Insights/Browse-by-Content-Type/deloitte-debates/index.htm
13. Morgan Stanley:
    (a) Technology Research: http://www.morganstanley.com/institutional/techresearch/.
    (b) Journal of Applied Corporate Finance: http://www.morganstanley.com/views/jacf/index.html.
    (c) Perspectives: http://www.morganstanley.com/views/perspectives/index.html.
    (d) Global Strategy Roundup: http://www.morganstanley.com/views/gsr/index.html.
    (e) Global Economic Forum: http://www.morganstanley.com/views/gef/index.html.
14. McKinsey & Company: See McKinsey Quarterly @ http://www.mckinseyquarterly.com/home.aspx?srid=6 and McKinsey Global Institute (MGI) @ http://www.mckinsey.com/mgi/

15. Accenture Research & Insights: http://accenture.ie/global/research_and_insights/research_and_insights_int; also, see http://accenture.ie/Global/Services/By_Industry/Electronics_and_High_Tech/Services/ServicesSemiconductorInd.htm for Accenture's Semiconductor Business
16. Ernst & Young: http://www.ey.com/SG/en/Industries
17. Boston Consulting Group (BCG):
    (a) http://www.bcg.com/expertise_impact/publications/default.aspx
    (b) Industries that BCG provides services for and analysis of: http://www.bcg.com/expertise_impact/industries/default.aspx
    (c) BCG Strategy Institute: http://www.bcg.com/about_bcg/strategyinstitute/default.aspx and http://www.bcg.com/about_bcg/strategyinstitute/research/default.aspx.
18. PricewaterhouseCoopers:
    (a) Industry sectors: http://www.pwc.com/gx/en/industry-sectors/index.jhtml
    (b) Research & insights: http://www.pwc.com/gx/en/research-insights/index.jhtml
19. Pew Research Center, http://pewresearch.org/:
    (a) Pew Global Attitudes Project: http://pewglobal.org/
    (b) Pew Internet and American Life Project: http://www.pewinternet.org/
    (c) Pew Social and Demographic Trends Project: http://pewsocialtrends.org/
    (d) Pew Forum on Religion and Public Life: http://pewforum.org/
    (e) Pew Research Center for the People and the Press: http://people-press.org/
    (f) Project for Excellence in Journalism: http://pewsocialtrends.org/
    (g) Pew Hispanic Center: http://pewhispanic.org/
20. Brookings Institution: http://www.brookings.edu/
21. Knowledge@Wharton from University of Pennsylvania's Wharton School [of business]: http://knowledge.wharton.upenn.edu/
22. Goldman Sachs: See Global Markets Institute @ http://www2.goldmansachs.com/ideas/global-markets-institute/index.html
23. Capgemini:
    (a) Publishes a "World Retail Banking Report 20XY"; see http://www.capgemini.com/insights-and-resources/by-publication/world_retail_banking_report_2009/
    (b) Insights & Resources: Publications; see http://www.capgemini.com/insights-and-resources/by-publication/
24. Carnegie Corporation of New York:
    (a) Publications (including magazines, reports, and books): http://carnegie.org/publications/
25. *Demos*: Publications, http://www.demos.org/publication_list.cfm
26. Manhattan Institute for Policy Research: http://www.manhattan-institute.org/tools/bytopic.php
27. Ford Foundation: Library, http://www.fordfoundation.org/library
28. The Foundation Center: http://foundationcenter.org/gainknowledge/

29. Working Group on Extreme Inequality: Resources, http://extremeinequality.org/?page_id=4
30. The Rockefeller Foundation: http://www.rockefellerfoundation.org/news/publications
31. Emergent Research:
    (a) http://www.emergentresearch.com/
    (b) Has research reports about entrepreneurship, and the types of entrepreneurship.

19 Resources for Research Publications

Resources for research publications:

1. *Google Scholar*: http://scholar.google.com/
2. *CiteSeer*^{x}:
    (a) http://citeseerx.ist.psu.edu/
    (b) Scientific Literature Digital Library and Search Engine
3. *arXiv*:
    (a) Open access to 624,659 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics
    (b) http://arxiv.org/
4. Microsoft Academic Search: http://academic.research.microsoft.com/
5. Scitopia: http://www.scitopia.org/scitopia/
6. Scirus: http://www.scirus.com/
7. Scopus: http://www.scopus.com/home.url
8. SciVerse Scopus:
9. *eScholarship*, California Digital Library and The Berkeley Electronic Press:
    (a) http://www.escholarship.org/
    (b) eScholarship provides a suite of open access, scholarly publishing services and research tools that enable departments, research units, publishing programs, and individual scholars associated with the University of California to have direct control over the creation and dissemination of the full range of their scholarship.
    (c) With eScholarship, you can publish the following original scholarly works on a dynamic research platform available to scholars worldwide:
        i. Journals
        ii. Books
        iii. Working Papers
        iv. Conference Proceedings
        v. Seminar/Paper Series
10. MyNetResearch's Global Directory of Doctoral Dissertations: http://www.mynetresearch.com/Wiki/Default.aspx
11. Social Science Research Network (SSRN): http://ssrn.com/
12. Universitat Politècnica de Catalunya:
    (a) Department of Computer Languages and Systems (Departament de Llenguatges i Sistemes Informàtics, LSI):

i. LSI Tech Reports archive: http://www.lsi.upc.edu/dept/techreps/techreps.html

Selected research publications:

1. *Ubiquity*:
   (a) http://ubiquity.acm.org/
   (b) "A peer-reviewed, online publication of ACM dedicated to the future of computing and the people who are creating it."

20 Resources on Technical Writing

Resources for academic/technical writing:

- Individuals:
  1. Kenneth M. Hanson (Los Alamos National Laboratory): http://kmh-lanl.hansonhub.com/techwriting.html or http://public.lanl.gov/kmh/techwriting.html
  2. William Stallings, "Writing Guide". Available at: http://www.williamstallings.com/Extras/Writing_Guide.html; last accessed on August 25, 2010.
  3. Lorraine Lica, "The Distinction Between WHICH and THAT With Diagrams: Especially for Scientists". Available at: http://home.earthlink.net/~llica/wichthat.htm; last accessed on September 3, 2010.
  4. Michael Nielsen, *Six Rules for Rewriting*, posted on his blog on August 19, 2008. Available online at: http://michaelnielsen.org/blog/six-rules-for-rewriting/; last accessed on December 26, 2010.
- ACM:
  1. ACM SIG Proceedings:
     (a) Gerry Murray, "Conference Proceedings LaTeX 2_ε Submission FAQ," Association for Computing Machinery, March 10, 2010. Available at: http://www.acm.org/sigs/publications/sigfaq; last accessed on September 14, 2010.
- IEEE:
  1. *A Plagiarism FAQ*, IEEE Intellectual Property Rights, Piscataway, NJ. Available online at: http://portal.ieee.org/web/publications/rights/plagiarism_FAQ.html; last accessed on September 25, 2010.
  2. *IEEE Intellectual Property Rights*, IEEE Intellectual Property Rights, Piscataway, NJ. Available online at: http://portal.ieee.org/web/publications/rights/index.html; last accessed on September 25, 2010.
  3. IEEE Solid-State Circuits Society:
     (a) Jan Van der Spiegel and Kenneth C. Smith, "Tools: ISSCC Paper Submissions - Increasing the Likelihood of Success (Tips on Increasing Your Chance of ISSCC Acceptance)." Available online at: http://www.ieee.org/portal/site/sscs/menuitem.f07ee9e3b2a01d06bb9305765bac26c8/index.jsp?&pName=sscs_level1_article&TheCat=2010&path=sscs/07Summer&file=Tools.xml; last accessed on September 18, 2010 [14]. ["How to Write a Paper for ISSCC" is available as a flash presentation, prepared for students at A-SSCC in November,

2006, at http://sscs.org/Chapters/07ChptLnch/07FEBCafe.htm. Alternative reference for this set of presentation slides: Jan Van der Spiegel and Kenneth C. Smith, "Writing a good ISSCC paper: Tips on how to increase the chances of paper acceptance," presentation at the IEEE Asian Solid-State Circuits Conference 2006, November, 2006. Available online at: http://isscc.org/doc/2008/WritingISSCCpaperJVdS_Nov06b.ppt; last accessed on December 28, 2010.].

i. Before I commence writing the paper, ask myself the following questions:
   - What results do I want to communicate?
   - How does my work improve on previously published work?
   - Who are the key players in this area?
   - What are the latest references?

ii. Know the latest key references related to your work

iii. Do not use old references, except to emphasize the time scale of the problem.

iv. The use of good references tells the reviewers that you are aware of the latest developments in the field.

v. Refer to all references in the text of the paper, and comment briefly on each.

vi. Do not refer to only your own work.

vii. Start writing the paper with the Conclusions section. This forces you to think about what you want to say.

viii. Be quantitative in the Conclusions: Summarize the important measured results, give numerical data; and relate them to earlier work.

ix. Once the conclusions are written, backfill the paper.

x. Be explicit and concrete: Quantify the results.

xi. Put your results in context: Compare them to results of others (refer explicitly to the references).

xii. Introduction:
   - This should make it clear to the expert reviewer that you know your area and what others have done
   - Discuss the state-of-the-art in terms of what others have done recently. Make use of references.
   - What is the problem you want to solve?
   - Capture the different approaches to solving the problem and show which of these approaches you have picked and why.
   - Continue with explaining your approach

xiii. Plan [the main body of the paper] in advance (like a system architecture):
   - List 2-to-3 innovative aspects.
   - Explain the importance of these aspects in terms of new design, performance achievements, how it advances the state-of-the-art.

xiv. Body of the paper:
   - This should focus on the key ideas and build up the paper incrementally.
   - Use a figure or diagram to show your approach.
   - Preferably, show circuit schematics and explain how the circuit works and what is new about it.
   - Show measurement results:
     * If needed, summarize results in a table format.

    - If appropriate, provide a Figure-of-Merit to prove that your work advances the state-of-the-art.

xv. Compare your results with those of others:
  - Be straightforward in the comparison.
  - Do not ignore bad results; discuss and explain any shortcomings, rather than ignoring them.
  - Compare your results with a paper that uses a similar test technique, and which deals with a similar system.

xvi. Conclusion:
  - Highlight the results.
  - The final or pre-final paragraph should list all important measured results, give the reviewers a complete picture of your system and convince them of the technical accuracy of your results.
  - Mention how your results advance the state-of-the-art.

xvii. Title of the paper:
  - It should give a good idea of the paper's contents and highlights. Do NOT make the title too broad or general, since it may appear to be a marketing paper.
  - Eg, when your paper talks about Cache and how the Cache is built, do NOT use a title like "High-speed processors," but use a title like "A fast Cache for a High-Speed Processor"
  - Or, use a title like "An 800mW 10Gb/s Ethernet Transceiver in 0.13μm CMOS," and NOT: "A novel, high-speed transceiver"

xviii. Body of the paper:
  - Don't repeat too much of the abstract.
  - Don't present much theory; Refer to other sources of such material in a reference.
  - Don't give too many equations; This is not a Ph.D. thesis, and hence only relevant equations should be stated, if any. If an equation is used, you must explain the equation. Don't make assumptions. Everyone has a different way of interpreting such information.
  - Don't write a tutorial-type paper. ISSCC papers must be very concise and innovative.

xix. Technical content – innovation is key:
  - Highlight the INNOVATION in your paper, early on. Innovation can include one or more of the following:
    - Scalability
    - circuit or architecture innovation
    - implementation of a new system approach
    - use of a new technology
    - best-performance reported
  - Address the innovation aspect clearly:
    - What is new
    - Accuracy of the proposed approach, circuit, or system
    - Solutions to the problem
    - Feasibility of implementation

    - Comparison with previously proposed techniques
  - Show at least one important circuit diagram.
  - When showing a circuit or diagram:
    - Explain what is new about it (give an explanation beyond that of a data sheet)
    - Explain its operation. Do not expect the reviewer to dissect it. Help the reviewer to understand its operation. But, be concise and brief.
    - What are the advantages, what are the shortcomings?
  - Replace words like "Fastest," "Smallest," "Lowest power consumption," etc, by quantitative and accurate comparisons with earlier work.
  - Make sure you mention each reference. Include also pending publications at conferences or in journals that appear before ISSCC (see also pre-publication policy)

xx. Stating and describing experimental results in the paper:
  - Include a die photo, and give the chip size and technology used.
  - Include measurements of the fabricated chip, I-V curves, power, etc. Be precise and quantitative.
  - Compare measured results against stated requirements, and to prior art.
  - Include a summary table of the design that highlights the specification and performance metrics.

xxi. Do not submit:
  - A paper that gives only simulations and has no silicon implementation and test results.
  - A paper with only modeling and/or equations: submit these to ISCAS, ICCAD or DAC.
  - A paper that is outside the scope of ISSCC topics.
  - Work that has been published somewhere else.

xxii. Common reasons for paper rejection:
  - A lack of clear evidence of what is novel in the work, and the extent to which it advances the state-of-the-art.
  - Successful submissions contain specific new results with sufficient detail and data to be understood, with schematics and measured results for key circuits, when appropriate.
  - Wrong conference, or pre-publication.

xxiii. Pre-publication:
  - If a substantial part of a paper has been published before the upcoming ISSCC, the paper will not be accepted. This is the case when:
    - Disclosure of the innovative circuitry, architectures, algorithms, etc, occurs in articles, data sheets, trade journals, or other conferences.
    - Any detailed disclosure of innovative technical ideas on the World-Wide Web before the paper presentation at the Conference will be considered pre-publication.

xxiv. Pre-publication policy:
  - However, a paper may be acceptable in cases where:
    - The chip has been sampled, entered production, and/or appeared in a publication that addressed only the marketing or applications aspects of the

product.
    - Disclosure consisting only of abbreviated data sheets that provide only specifications, a feature list, and a coarse block diagram.
    - The work has been presented at a workshop or niche conference with limited attendance and no published proceedings or press coverage.
  - After your paper has been accepted, DO NOT publish any details or summaries on the web, press releases or any other articles before the conference!

xxv. Pre-publication material:
  - If any material related to your ISSCC submission will have been published prior to the Conference, copies of these prior publications should be submitted.
  - Such material includes data sheets, press releases, papers or abstracts submitted or accepted at another conference or in a journal appearing before the Conference, and any other forms of publication such as Web presentations.

xxvi. In summary, it's all about:
  - innovation
  - advancing state-of-the-art
  - technical quality of the results
  - results clearly explained

(b) Editors of the *IEEE Journal of Solid-State Circuits*, "JSSC Submission: Information for JSSC Authors". Available online at: http://ewh.ieee.org/soc/sscs/index.php?option=com_content&task=view&id=72&Itemid=1; last accessed on September 18, 2010.

(c) Bram Nauta, "How to write a good Journal of Solid State Circuits paper," presentation slides for the IEEE Asian Solid-State Circuits Conference, Fukuoka, Japan, November 2008. Available online at: http://sscs.ieee.org/images/files/education/how%2520to%2520write%2520jssc%2520paper-v3.pdf; last accessed on December 28, 2010.

i. Conference papers can get accepted or rejected if they are incomplete or lack key references.

ii. Special issues on IEEE Solid-State Circuits Society conferences:
  - December – ISSCC-analog, RF (issue)
  - January – ISSCC-dig+rest (issue)
  - April – VLSI (issue)
  - May – RFIC (section)
  - July – ESSCIRC (issue)
  - August – CICC (issue)
  - September – BCTM (section)
  - October – CSIC (section)
  - November – A-SSC (section)

iii. The title of the paper:
  - Must describe the paper
  - Not too vague:
    - "A novel receiver" – Do not use "novel" anyway
    - "5-GHz RF Frontends for Ultra-Low-Voltage and Ultra-Low-Power Operations" – How much is is Ultra?

- But exactly what is really new – "Noise canceling technique for wideband receivers"
- Or exactly what is achieved – "A 1.5GHz 1.3dB NF, 10mW down converter in 65nm CMOS for GPS applications"
- Or both!

iv. Introduction:
- Describe the problem you solve: open the subject; zoom in step by step; describe your assumptions; & each step is one paragraph
- Describe the state-of-the-art: use plenty of references
- Tell your basic idea:
  * This motivates the reader to continue reading.
  * Cite your prepublications and tell the difference
- Give outline

v. The body:
- Explain your key idea
- Build up step by step:
  * one thinking step at a time
  * each step is one paragraph
- Proof that it makes sense:
  * Use mathematics
  * Give exactly your boundary conditions
  * Give experimental results in a comprehensive way
- Be self-critical and realistic: Does it really make sense?
- E.g., for a linearity improvement technique:
  * If power dissipation is larger
  * And noise is also larger
  * And you know that $P \sim SNR$: Does this make sense?
- Is it just the technology or your smartness? E.g., speed $\sim f_T$ or $f_{\max}$
- Are practical boundary conditions met? VCO at high frequency but $P_{\text{out}} = -30\text{dBm}$.

vi. Experimental results:
- Describe exactly what has been measured and how:
  * describe setup
  * "Bio biased"? (manual tweaking and tuning)
  * probe or PCB?
  * What equipment?
  * How many samples?
  * PVT?
  * Batch to batch spread?
- Experiment must be repeatable and of practical use (e.g., for industry)
- compare with theory/simulations
- Does it prove your idea and theory?
- Always indicate if a result is measured, simulated, or calculated
- "Figure X shows the noise figure versus frequency" Is this measured? Simulated? Calculated? Estimated?

vii. IC realization:

- Give chip photograph:
  - dimensions
  - What is what?
- Give technology + options: e.g., state the process technology used to manufacture the chip

viii. Discuss results:
- compare to state-of-the-art in a fair way:
  - show all relevant data and papers
  - A table can help, although measurements are hard to compare
- Use common figure-of-merit (FoM) definitions: e.g., determine the common FoM for ADCs, VCOs, and filters
- Be careful to define your own FoM:
  - do not misuse FoM for showing off
  - Power $\sim$ SNR. BW makes sense
  - Power/bondpad is NOT a good FoM!!
- Help the reader to interpret the results
- Absolute accuracy needed? Show many samples, and proof batch to batch robustness
- Matching needed? Show many samples
- Calibrated circuits? Describe what input signal is used/required. When does it go wrong? How realistic is it?

ix. Conclusions:
- Start writing with this
- First, make a bullet list for yourself:
  - A handful of bullets
  - So you know where to write towards
  - This gives your paper focus
- The Conclusion should be readable without reading the whole paper
- Convince the reader: What did we learn?

x. References:
- Include latest state of the art: for benchmark
- But, also refer to the original papers:
  - Go back in time!
  - Most references are younger than 5 years
  - While most ideas are much older
- Textbooks are useful too

xi. General Writing Tips:
- A well-written paper gives the impression of a good idea
- If a paper is too complex:
  - Reviewers don't understand it
  - Reviewers don't believe it
  - Reviewers will not like it
- If a paper is too simplistic:
  - Reviewers think its nothing special
  - Even if the results are good
- Make your problem relevant

- Start with the "big picture"
- Take the reader by the hand: step by step explanation
- Highlight innovation
- Do not give too much theoretical details
- Do not try to make a tutorial
- Do not use "very" but give the numbers
- Avoid using the word "novel"; everything that you don't cite should be novel
- Use short sentences
- Use simple words
- One point per paragraph:
  * First of last sentence is most important
  * The rest is explanation
- If you are stuck:
  * Tell a friend what you did
  * Use the words and slides like on your conference paper
  * Polish the text later
- Let a fellow student read and comment
- Ask native speaker to correct language
- Polish, polish, polish:
  * reviewers hate mistakes
  * "It iz raely anojing to raed tekst width misstakes"

xii. Figures:
- Make the figures look like a cartoon:
  * Reader can understand idea by looking at figures and caption only
- Spend a lot of time making good figures:
  * Papers with bad figures almost always get rejected
- Must be readable in single column
- Avoid placing figures in double columns

xiii. Do not:
- Publish the same material elsewhere. Reviewers and readers always see this. This is unethical.
- Change your paper after acceptance and before publication:
  * E.g., remove reference to competitor
  * Reviewers always see this
- Use someone else's ideas: "Someone else" is reading too
- Hide "unpleasant" measurements
- Fabricate or falsify results:
  * Do not tune bias for each measuring point
  * Do not make a few chips and measure different parameters on different chips
  * Or even completely falsify results

xiv. In summary:
- Needs an innovative idea:
  * Working silicon is not enough
  * Must improve state-of-the-art

- Needs new material after prepublication
- Reviewers are demanding
- Your writing technique can help improve the paper's chances of getting accepted for publication

- University of California, Berkeley:
  1. Department of City and Regional Planning; College of Environmental Design:
     (a) Alvaro Huerta, *Resources: Writing & Research Links / Attachments*, Department of City and Regional Planning, College of Environmental Design, University of California, Berkeley, 2010. Available online at: http://sites.google.com/site/alvarohuertasite/links-academic-more; last accessed on January 5, 2010.

- Stanford University:
  1. Stanford University InfoLab:
     (a) Prof. Jennifer Widom: http://infolab.stanford.edu/~widom/paper-writing.html

- Carnegie Mellon University:
  1. Philip Koopman, "How to Write an Abstract," Department of Electrical and Computer Engineering, Carnegie Mellon University, October 1997. Available at: http://www.ece.cmu.edu/~koopman/essays/abstract.html; last accessed on August 26, 2010. Also available at: http://www.computersciencestudent.com/Extras/Abstract.html.

- University of Washington:
  1. Department of Mathematics:
     (a) Minh Van Nguyen, *Academia*, Department of Mathematics, University of Washington, 2010. Available online at: http://sage.math.washington.edu/home/mvngu/academia.html; last accessed on October 25, 2010.

- University of Pennsylvania:
  1. Steve Zdancewic, "Writing Tips," Department of Computer and Information Science, School of Engineering and Applied Science, University of Pennsylvania, July 29, 2003. Available at: http://www.cis.upenn.edu/~stevez/writing-tips.html; last accessed on September 5, 2010.
  2. University of California, Los Angeles:

  1. Terence Tao, *On writing*, Department of Mathematics, University of California, Los Angeles. Available at: http://terrytao.wordpress.com/advice-on-writing-papers/; last accessed on September 1, 2010.

- Purdue University:
  1. Purdue Online Writing Lab (OWL): http://owl.english.purdue.edu/owl/

- Royal Institute of Technology (KTH):
  1. Department of Microelectronics and Information Technology; Laboratory of Electronics and Computer Systems:

(a) Elena Dubrova, "The Art of Doctoral Research," (FIL3001, PhD course, 7.5 pt), Sept. 2008 - May 2009. Available at: http://web.it.kth.se/~dubrova/coursePhD.html; last accessed on September 14, 2010.

- University of California, Davis:
  1. Office of Student Judicial Affairs:
     (a) Publications: http://sja.ucdavis.edu/publications.html
- Pennsylvania State University:
  1. Penn State College of Engineering: http://www.writing.engr.psu.edu/
- University of Toronto:
  1. University College (UC) Writing Centre: http://www.utoronto.ca/ucwriting/handouts.html
- Linköping University:
  1. Department for Computer and Information Science:
     (a) Christoph Kessler, "Stylistic advice to my exjobb and PhD students for writing a thesis," Department for Computer and Information Science, Linköping University. Available at: http://www.ida.liu.se/~chrke/exjobb/writing.html; last accessed on September 1, 2010.
     (b) Christoph Kessler, "Exjobb project plan guidelines," Department for Computer and Information Science, Linköping University. Available at: http://www.ida.liu.se/~chrke/exjobb/exj_plan.shtml; last accessed on September 1, 2010. [This provides information on writing research/thesis proposals.]
- University of Crete:
  1. Department of Computer Science:
     (a) Panagiota Fatourou:
        i. http://www.ics.forth.gr/~faturu/
        ii. American Mathematical Society, "A Manual for Authors of Mathematical Papers." Available online at: http://www.ams.org/journals/bull/1943-49-03/S0002-9904-1943-07884-6/S0002-9904-1943-07884-6.pdf; last accessed on December 22, 2010.
- University of Cambridge:
  1. University Offices – Unified Administrative Services / The Old Schools:
     (a) University Offices, "Information for students," University of Cambridge, November 30, 2010. Available online at: http://www.admin.cam.ac.uk/univ/plagiarism/students/; last accessed on January 8, 2010.
- University College London:
  1. Department of Medical Physics & Bioengineering:
     (a) Adam Gibson, *Teaching links: Tips on how to write scientific articles*, Department of Medical Physics & Bioengineering, University College London, October 8, 2008. Available online at: http://www.medphys.ucl.ac.uk/~agibson/work/history.html#writing; last accessed on October 21, 2010. [Also available at: http://www.ucl.ac.uk/medphys/staff/people/agibson/www/teaching/#writing]

- Swarthmore College:
  1. Department of History:
     (a) Timothy Burke, "Beyond the Five-Paragraph Essay," in his blog *Easily Distracted: Culture, Politics, Academia and Other Shiny Objects*, Department of History, Swarthmore College. Available at: http://weblogs.swarthmore.edu/burke/permanent-feature beyond-the-five-paragraph-essay/; last accessed on September 14, 2010.
     (b) Timothy Burke, "How to Read in College – Staying Afloat: Some Scattered Suggestions on Reading in College," in his blog *Easily Distracted: Culture, Politics, Academia and Other Shiny Objects*, Department of History, Swarthmore College. Available at: http://weblogs.swarthmore.edu/burke/permanent-features-advice-or how-to-read-in-college/; last accessed on September 14, 2010.
- Indiana University:
  1. Writing Tutorial Services:
     (a) http://www.indiana.edu/~wts/
     (b) WTS Pamphlets: http://www.indiana.edu/~wts/pamphlets.shtml
- University of Alberta:
  1. Faculty of Arts:
     (a) Centre for Writers:
        i. Centre for Writers Resources: http://www.c4w.arts.ualberta.ca/Resources/Resource.aspx
        ii. Other Writing Centres: http://www.c4w.arts.ualberta.ca/OtherWritingCentres/OtherWritingCentres.aspx
- Université du Québec à Montréal (UQAM, University of Quebec):
  1. Pavillon Saint-Urbain, LICEF Research Center:
     (a) Daniel Lemire, "Write Good Papers," in *Daniel Lemire's blog*, LICEF Research Center, Pavillon Saint-Urbain, Université du Québec à Montréal. Available at: http://www.daniel-lemire.com/blog/rules-to-write-a-good-research-paper/; last accessed on September 14, 2010.
- State University of New York at Buffalo:
  1. William J. Rapaport, "How to Write (How to Prepare Technical Reports)," Department of Computer Science and Engineering, State University of New York at Buffalo, Buffalo, NY. Available at: http://www.cse.buffalo.edu/~rapaport/howtowrite.html; last accessed on August 25, 2010.
- Tufts University:
  1. Norman Ramsey, *Norman Ramsey's Resources for Writers*, Department of Computer Science, Tufts University. Available at: http://www.cs.tufts.edu/~nr/students/writing.html; last accessed on September 2, 2010.
- University of Maryland, Baltimore County:
  1. Department of Computer Science and Electrical Engineering:
     (a) Alan T. Sherman (Alan Theodore Sherman), "Some Advice on Writing a Technical Report," Department of Computer Science and Electrical Engineering, University of Maryland, Baltimore County, April 27, 1996. Available at: http://www.csee.umbc.edu/~sherman/Courses/documents/TR_how_to.html; last accessed on August 28, 2010.

- University of Maryland, College Park:
  1. Department of Computer Science:
     (a) Neil Spring, "style-check.rb," Department of Computer Science, University of Maryland, College Park, December 1, 2007. Available at: http://www.cs.umd.edu/~nspring/software/style-check-readme.html; last accessed on September 14, 2010.
     (b) Neil Spring, "Advising Notes," Department of Computer Science, University of Maryland, College Park. Available at: http://www.cs.umd.edu/~nspring/advising.html; last accessed on September 14, 2010.

- Missouri University of Science and Technology (formerly University of Missouri-Rolla):
  1. Writing Across the Curriculum Program:
     (a) Includes the Moeller Writing Center, and the Center for Writing Technologies
     (b) http://writingcenter.mst.edu/
     (c) *Writing Center Documentation Style Guides* and *Writing Center Helpful Handouts*:
        i. http://writingcenter.mst.edu/writinghandouts.html
        ii. It includes the following documentation style guides:
           – American Society of Civil Engineers (ASCE) Documentation Style
           – American Society of Mechanical Engineers (ASME) Publication Information
           – American Psychological Association (APA) Documentation Style
           – Chicago Manual of Style Documentation I - author/date
           – Chicago Manual of Style Documentation II - notes/bibliography
           – Institute of Electrical and Electronics Engineers (IEEE) Documentation Style
           – Modern Language Association (MLA) Documentation Style

- Colorado State University:
  1. Department of Electrical & Computer Engineering; College of Engineering:
     (a) Edwin K. P. Chong, "Edwin Chong's links of interest," Department of Electrical & Computer Engineering, College of Engineering, Colorado State University, October 18, 2010. Available online at: http://www.engr.colostate.edu/~echong/links.shtml; last accessed on November 3, 2010.

- Wright State University:
  1. University College; University Writing Center:
     (a) Writing Center Style Guide: http://www.wright.edu/uc/success/services/writingctr/styleguidefaq.html
     (b) Academic Writing: http://www.wright.edu/uc/success/services/writingctr/academicwriting.html
     (c) Plagiarism: http://www.wright.edu/uc/success/services/writingctr/plagiarism.html
     (d) Thesis Statements: http://www.wright.edu/academics/writingctr/resources/thesisstatements.html
     (e) Writer Resources: http://www.wright.edu/academics/writingctr/resources/
     (f) University Writing Center, University College, Wright State University
  2. Writing Across the Curriculum (WAC) program: http://www.wright.edu/academics/wac/

3. Department of English Language and Literature, College of Liberal Arts:
   (a) Department of English Language and Literature, *WSU Writing Web: Citation Resources*, Department of English Language and Literature, College of Liberal Arts, Wright State University. Available at: http://www.wright.edu/cola/Dept/eng/wsuwweb/pageindxs/citation.htm; last accessed on September 14, 2010.

- Capital Community College:
  1. Guide to Grammar and Writing: http://grammar.ccc.commnet.edu/grammar/
  2. Online Resources for Writers: http://webster.commnet.edu/writing/writing.htm
- TAFE NSW (Technical and Further Education, New South Wales):
  1. The Information Centre, *Study Skills: Writing Skills*, The Information Centre, The Learning Centre, North Coast Institute, TAFE NSW (Technical and Further Education, New South Wales): http://www.ncistudent.net/StudySkills/WritingSkills/Introduction.htm
- IBM:
  1. Program Analysis Group; IBM T.J. Watson Research Center:
     (a) Eran Yahav, *Resources: Writing Resources*, IBM. Available online at: http://www.research.ibm.com/people/e/eyahav/resources.html; last accessed on September 28, 2010. [Also, see http://www.research.ibm.com/people/e/eyahav/misc.html under *misc: Resources*]
- The Chronicle of Higher Education:
  1. Michael C. Munger, "10 Tips on How to Write Less Badly," in *Advice: Do Your Job Better*, The Chronicle of Higher Education, September 6, 2010. Available at: http://chronicle.com/article/10-Tips-on-How-to-Write-Less/124268/; last accessed on September 13, 2010.
- *Guide to Online Schools*, or *GuideToOnlineSchools.com*:
  1. *The Ultimate Style Guide Resources for MLA, APA, Chicago, and CSE*. Available at: http://www.guidetoonlineschools.com/tips-and-tools/mla-apa-chicago-cse; last accessed on August 25, 2010.
  2. *The Complete Plagiarism Resource*. Available at: http://www.guidetoonlineschools.com/tips-and-tools/plagiarism; last accessed on August 25, 2010.
  3. *The Top 50 Academic Writing Resources Online*. Available at: http://www.guidetoonlineschools.com/tips-and-tools/best-writing-resources; last accessed on August 25, 2010.

Resources for improving my English language skills:

1. RubyWorks (resource on English grammar): http://rubyworks.github.com/english/grammar/gramdex.html
2. U.S. Department of State:
   (a) Bureau of Educational and Cultural Affairs:
      i. Materials for Teaching and Learning English: http://exchanges.state.gov/englishteaching/resources-et.html

Resources for detecting plagiarism:

1. PlagiarismDetect.com: http://www.plagiarismdetect.com/
2. Plagiarism Checker (by Darren Hom): http://www.plagiarismchecker.com/
3. ArticleChecker.com: http://www.articlechecker.com/
4. CheckForPlagiarism.net (by Plagiarism-Checkers, Inc.): http://www.checkforplagiarism.net/
5. Turnitin (by iParadigms, LLC): http://www.turnitin.com

21 Resources for Postdoc Positions

Resources for postdoc positions:

1. The Chronicle of Higher Education:
   (a) Zoe Smith and Ariana Sutton-Grier, "Making the Most of Your Postdoc," The Chronicle of Higher Education: Advice: Do Your Job Better, July 15, 2010. Available at: http://chronicle.com/article/Making-the-Most-of-Your/66265/; last accessed on September 6, 2010.
2. Inside Higher Ed:
   (a) http://www.insidehighered.com/
   (b) Has information concerning the application for faculty positions, and advice for career paths in higher education institutions.
   (c) Kerry Ann Rockquemore, "Winning Tenure Without Losing Your Soul: Stop Talking, Start Walking," Inside Higher Ed: Career Advice, Inside Higher Ed, January 25, 2010. Available at: http://www.insidehighered.com/advice/winning/winning2; last accessed on September 7, 2010.
3. Nature Publishing Group (a division of Macmillan Publishers Limited):
   (a) Kendall Powell, "Careers and Recruitment: A foot in the door," in *Nature*, Vol. 463, No. 7281, pp. 696-697, February 4, 2010. Available online at: http://dx.doi.org/10.1038/nj7281-696a; last accessed on December 31, 2010.
      i. I should commence looking for a postdoctoral research position early in my penultimate year.
      ii. When looking for a postdoctoral research position, I shall take note of the name of research labs which journal/conference papers that I find are interesting. That is, each time I read an interesting journal/conference paper, take note of the name of the research labs and its affiliation (name of department, and organization/university).
      iii. Compile a list of 20-30 research labs that I find are interesting. Pare down this list to about 5-6 labs, which I will apply to. Use the same heuristics for applying to graduate school. These 5-6 research labs shall include:
         A. A reach lab, which I want to be part of but may have difficulty securing a postdoctoral research position in
         B. 3-4 match/target labs, which postdocs and Ph.D. students are comparable to me in terms of research excellence, and which I shall have a good chance of securing a postdoctoral research position in

C. 1-2 reliable/safety labs, which I should be able to secure a postdoctoral research position in

iv. Network with students at those labs in conferences, workshops, symposiums, and other events (such as "summer schools"). Network with the principal/primary investigators (PIs) too!

v. Make notes/summaries of poster presentations and talks from researchers in these labs.

vi. Make notes/summaries of their conference and journal papers. Try to get access to Ph.D. theses from their labs, and read them too. Pay special attention to the "Future Work" sections of the Ph.D. theses and conference papers.

vii. To secure a good postdoctoral research position, I must carry out "diligent background research aimed to answer the question, '**What do I want to get out of my postdoc?**'."

viii. The question, "What do I want to get out of my postdoc?," is analogous to the question for prospective Ph.D. students, "What do I want to get out of my Ph.D. program?"

ix. "Although they are short-term assignments, postdoc positions should be viewed as stepping stones to a longer-term independent career – whether in academia, industry or another science-related post."

x. "For that reason, it is hard to overstate the importance of the postdoc application. It is the fledgling scientist's bid to get noticed – to gain a phone or in-person interview with labs. Background research, a carefully crafted curriculum vitae (CV) and cover letter, and personalization of each application will open doors. Form letters and typos will get applicants nowhere."

xi. "I wanted to apply to proven, top-notch labs where I was going to have the success and track record of the people coming out of these labs" – Toby Franks

xii. **WARNING: Note that some postdoc positions require applications 12-18 months in advance.**

xiii. Treat the process of applying for postdoctoral research positions like applying for R&D jobs in the EDA/semiconductor industry. Apply to several positions simultaneously, so that I can interview in person with potential employers and lab colleagues prior to making my decision (about which offer of a postdoctoral research position to accept).

xiv. "An application typically consists of a cover letter introducing the applicant and his or her reasons for joining this particular lab; a CV outlining education, publication record, honors and accomplishments; and three referees who will provide supportive letters of recommendation on request. Some students also include a research summary of their graduate work; others incorporate this into their cover letter."

xv. "A little preparation goes a long way at this stage. Consider taking a workshop on writing cover letters and CVs, have senior colleagues review them, and proofread them carefully."

xvi. The cover letter and CV shall be free of mistakes.

xvii. Things that PIs look for when hiring postdocs:

A. First-author conference and journal publications, which prove that I "can complete a project from start to finish" as a junior scientist.

B. Given the size of my home institution and resources available to my Ph.D.

research lab, what have I accomplished? PIs want to see if Ph.D. students can accomplish a significant amount of things, despite the constraints in resources.

C. List experiences that illustrate non-research responsibilities, including sitting on grad school or department committees, or hosting seminar speakers.

xviii. "Applicants should highlight what they hope to accomplish in general in a postdoc position. Specific details of projects should be left for the interview."

xix. Quoted: Agneta Nordenskjöld, a genetics researcher at the Karolinska Institute in Stockholm, advises spelling out your contributions to a graduate research project. "Write it in a way that says, 'I did this' or 'My part of the project was', especially if you did something outstanding," she says.

xx. "Those applying after taking a break from science must work harder to convince a lab head. Kristofor Langlais had been teaching high-school science at a ski academy in Vermont when he applied for postdoc positions in the Washington DC area."

xxi. "After extensive research into each lab's publications, websites and even annual reports, he wrote his cover letters from the angle of someone already in the lab. He mentioned specific results he found interesting and the next natural steps the lab might take. "I tried to make it sound like I could walk in that day and be self-sufficient immediately." He spent 20 hours or more on each application and his strategy paid off – he had four phone interviews, and ended up in a molecular-genetics fellowship at the US National Institute of Child Health and Human Development in Bethesda, Maryland."

xxii. Quoted: Likewise, when Xiaoli Du was finishing up her doctorate at Peking Union Medical College in Beijing, she knew she would need to send applications to 30-40 labs if she wanted to obtain a postdoc in the United States. But she avoided the form-letter strategy. " 'Dear Professor' does not show respect or that you are really interested in their lab," she says. Instead, she personalized each application and stated how her training and experience would distinguish her from other applicants. Her hard work led to a postdoc at the US National Cancer Institute in Bethesda, Maryland. Du suggests attending international meetings to make first contact with potential advisers.

xxiii. Quoted: Few things, though, confer more of an advantage than secured funding. "If a postdoc has their own fellowship, they can write their application to me in crayon and I'll take them," says Phil Baran, an organic chemist at the Scripps Research Institute in La Jolla, California. Unfunded applicants should assure the lab head that they have checked on specific fellowship possibilities and outline a plan to apply for them.

xxiv. Quoted: There are some definite 'wrong ways' to apply. Goldstein, whose e-mail inbox is so overloaded that his system sends an automated response to direct queries to assistants and lab managers, says there is no room for red flags in the competitive arena. Avoid telling personal-life woes, bad-mouthing previous labs or advisers or expressing a desire to work at night so that you can surf during the day. Explain gaps in a CV or publication record.

xxv. Quoted: "Anything that signals the person is a prima donna, no matter how great they are, I don't go for," says Ken Yamada, laboratory chief at the National Institute of Dental and Craniofacial Research in Bethesda, Maryland. "Research requires

teamwork."

xxvi. Quoted: Lab heads want a clear indication that applicants have carefully thought through their career goals and chosen this lab as the appropriate stepping stone. "Does a genuine passion, drive, and hunger for research come through in their letters or on the phone?" asks Yamada. "Would they be doing the same thing if they were suddenly independently wealthy?"

xxvii. Postdoc application to-do list:

A. Send your application by e-mail or overnight delivery. Consider a paper packet if you have unpublished manuscripts you want to include.
B. Make it easy for lab heads to contact you by e-mail or phone.
C. Follow-up by e-mail in 1-2 weeks to make sure they received your application. Don't phone.
D. Choose referees who really know you, such as collaborators, unofficial advisers or others beyond the standard committee members.
E. Meet with your referees to explain your career goals to them.
F. Encourage referees to send their letters promptly (Salk Institute cell biologist Martin Hetzer says that the speed with which a letter lands in his inbox is usually much more telling than the letter's content).
G. Prepare for the possibility of phone interviews, which may be scheduled or spontaneous. Make sure the conversation is two-way and ask your own questions, too. Have a list of bullet points handy in case you get nervous.

(b) Rania Sanford, "How to navigate the road ahead," in *Nature*, Vol. 467, No. 7315, pp. 624, September 30, 2010. Available online at: http://dx.doi.org/10.1038/nj7315-624a; last accessed on December 31, 2010.

i. Check out how much mentoring is being provided to postdoctoral researchers (postdocs) by principal investigators (PIs).
ii. Check if the postdoc position allow me time to learn and seek guidance.
iii. Choose a research lab to do my postdoc, so that I can have a "meaningful experience," obtain "strong [research] results," and would be able to get "a desirable job" based on my postdoc research. Avoid research labs that don't allow me to satisfy these preferences.
iv. "Good mentoring is an acquired skill."
v. Find out if the PI:

A. Is aware of "the stages in developing a mentoring relationship"
B. Coaches students and postdocs, rather than supervises them
C. "Build[s] trust with protégés and postdocs' expectations"
D. Replicates the style of mentoring to all her/his mentees. Mentoring should be individualized/customized, since each person is a unique individual and differences exist between cultures, genders, and generations.

vi. Find out if the institution/university penalizes postdocs who have their own funding or fellowships (including competitive awards). The institution/university may provide medical insurance and other benefits to postdocs who are funded by research grants; hence, they are treated as staff members. If postdocs have their own funding or fellowships, they may not be eligible for medical insurance and other benefits that are provided by the university.
vii. Find out if support is given to non-US residents with regards to applying for non-

immigrant J-1 visas or equivalent, relocation to the university's community, and assimilation into the university's community.

(c) Katharine Sanderson, "Training: The career doctor," in *Nature*, Vol. 467, No. 7315, pp. 623, September 30, 2010. Available online at: http://dx.doi.org/10.1038/nj7315-623a; last accessed on December 31, 2010.

(d) Karen Kaplan, "Careers and Recruitment: Industrial endeavours," in *Nature*, Vol. 461, No. 7263, pp. 554–555 September 24, 2009. Available online at: http://dx.doi.org/10.1038/nj7263-554a; last accessed on December 31, 2010. [Has information on industrial postdoctoral research positions in the biotech industry.]

(e) *naturejobs.com*:

i. Career toolkit:

A. Podcasts (*Naturejobs* podcasts):

- Available online at: http://www.nature.com/naturejobs/career-toolkit/podcasts/index.html; last accessed on December 31, 2010.

4. National Postdoctoral Association:
   (a) Resources on Becoming a Postdoc: http://www.nationalpostdoc.org/graduate-students
   (b) Faculty & Administrators: http://www.nationalpostdoc.org/faculty-administrators
   (c) Diversity Programs & Resources: http://www.nationalpostdoc.org/diversity-issues
   (d) International Postdocs: http://www.nationalpostdoc.org/international-issues
   (e) The NPA Postdoctoral Core Competencies Toolkit (NPA Core Competencies): http://www.nationalpostdoc.org/competencies

5. Research Foundation – Flanders (FWO), or "Fonds voor Wetenschappelijk Onderzoek – Vlaanderen" (FWO):
   (a) See http://www.fwo.be/en/index.aspx
   (b) This is sponsored by the National Fund for Scientific Research (Belgium)
   (c) Research Foundation - Flanders (FWO): five-yearly prizes:
      i. Two Dr. A. De Leeuw-Damry-Bourlart prizes (100,000 Euro): For exact and applied sciences.
      ii. Two Dr. Joseph Maisin prizes: For fundamental biomedical sciences and clinical biomedical sciences.
      iii. The Ernest John Solvay prize: For humanities and social sciences.
   (d) The Research Foundation Flanders (FWO) pays a researchers income for the following categories:
      i. Ph.D. student
      ii. Postdoctoral researcher
      iii. Clinical fellowship

6. *PhDjobs.com*: http://www.phdjobs.com/
7. *innovation report*:
   (a) Jobs (in industry and academia): http://www.innovations-report.com/jobs/jobs.php
8. Princeton University:
   (a) Department of Computer Science, School of Engineering and Applied Science (SEAS):

i. Jeff Erickson and Boaz Barak, *TCS opportunities: Postdocs and other positions in theoretical computer science*, Center for Computational Intractability, Department of Computer Science, School of Engineering and Applied Science (SEAS), Princeton University. Available at: http://intractability.princeton.edu/jobs/; last accessed on September 15, 2010.

9. Simons Foundation: Simons Postdoctoral Fellows Program, https://simonsfoundation.org/funding-guidelines/simons-postdoctoral-fellows-program
10. IBM Postdoctoral Fellowships:
    (a) IBM Herman Goldstine Postdoctoral Fellowship in Mathematical and Computer Sciences; see http://domino.research.ibm.com/comm/research_projects.nsf/pages/goldstine.index.html
    (b) Josef Raviv Memorial Postdoctoral Fellowship; see http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.josef.raviv.general.info.html, http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.raviv.winner.html, and http://domino.research.ibm.com/comm/research.nsf/pages/d.compsci.raviv.winner2008.html
11. Computing Innovation Fellows (CIFellows); post my profile on http://cifellows.org/profiles/; also see http://www.cifellows.org/
12. Society for Industrial and Applied Mathematics:
    (a) Job Search Resources for Students: http://www.siam.org/careers/resources.php
    (b) SIAM Job Board: http://jobs.siam.org/
    (c) Careers in the Math Sciences:
        i. http://www.siam.org/careers/sinews.php
        ii. Has advice about:
            A. planning for my career (life after grad school)
            B. research careers in research institutes (and/or corporate research labs)
            C. seeking a junior academic position in the US
            D. obtaining/procuring reference letters
13. The European Mathematical Society:
    (a) Open Positions: http://www.euro-math-soc.eu/jobs.html
14. Mathematical Optimization Society (MOS; formerly known as Mathematical Programming Society, MPS):
    (a) Job Postings: http://www.mathprog.org/?nav=links
15. NSF Mathematical Sciences Institutes: http://mathinstitutes.org/

22 Resources Concerning the Application for Junior Faculty Positions

Resources concerning the application for junior faculty positions:

1. Computing Research Association (CRA):

(a) http://www.cra.org/for-students/
(b) CRA's Job Announcements: http://www.cra.org/ads/
(c) Computing Postdoc Job Opportunities: http://cifellows.org/opportunities
(d) Computing Postdoc Profiles: http://cifellows.org/profiles
(e) Mailing lists of the Computer Research Association's Committee on the Status of Women in Computing Research (CRA-W):
    i. Subscribe to these and receive announcements concerning openings for junior faculty positions.
    ii. http://www.cra-w.org/mailinglists
    iii. http://www.cra-w.org/PhdjobhuntHers

2. American Association of University Professors:
    (a) Career Center: http://careercenter.aaup.org/search.cfm
    (b) Issues in Higher Education: http://www.aaup.org/AAUP/issues/

3. The Chronicle of Higher Education:
    (a) Global Jobs: http://chronicle.com/section/Global-Jobs/434/
    (b) Great Colleges to Work For:
        i. http://chronicle.com/section/Great-Colleges-to-Work-For/156/
        ii. http://chronicle.com/section/The-Academic-Workplace/156
        iii. http://chronicle.com/article/Great-Colleges-to-Work-For/65724/
    (c) CV Doctor: http://chronicle.com/article/The-CV-Doctor-Is-Back/49086/

4. Nature Publishing Group (a division of Macmillan Publishers Limited):
    (a) *naturejobs.com*:
        i. Jobs and careers: http://www.nature.com/naturejobs/index.html
        ii. Career toolkit:
            A. http://www.nature.com/naturejobs/career-toolkit/index.html
            B. Salaries:
                - http://www.nature.com/naturejobs/career-toolkit/salaries/index.html
                - Nature Publishing Group, "Naturejobs international salary survey, 2010," in *naturejobs.com*: Career toolkit: Salaries: Salary survey, 2010. Available online at: http://www.nature.com/naturejobs/salary/survey/2010/index.html; last accessed on December 31, 2010.:
                    – There are significant differences in the incomes of researchers between academia and industry in the U.S. and in Europe.
                    – Academics in Northern and Central Europe tend to make more than those in Southern Europe.
                    – Academics in the U.S. still dominate in terms of wages and benefits.
                    – There are less differences between the salaries of men and women in Southern Europe than the rest of Europe and the U.S..
            C. Podcasts:
                - Nature Publishing Group, "Lecturer jobs," *naturejobs.com*: Career toolkit: Podcasts. Available online at: http://media.nature.com/download/nature/podcast/naturejobs/naturejobs-2010-06-25.mp3; last accessed on December 31, 2010.

- Being a tenured/tenure-track professor involves spending about 20% of my time on teaching, 10% of my time on administrative activities, and the rest of my time (70%) on research.
- Being a tenured/tenure-track or teaching professor involves: curricular design; and dealing with students from a broad spectrum of cultures and abilities (including students with disabilities and behavioral problems) – undergraduates tend to start college in their late teens, and many of them are not sufficiently matured.
- The time spend on research would involve: managing a research lab; hiring students (undergraduates and grad students), postdocs, and technicians; and applying for funding.
- Two stages of getting tenure: 1) find a research topic/problem to work on, plan my research projects, broaden my social network of researchers so that I can collaborate with them or allow some members of the review committee for funding applications to get to know me, and be a co-instructor for graduate classes (& possibly, lead the discussions/tutorials) and teach undergraduate classes; 2) write and submit research grant applications, & start teaching classes as the primary instructor.
- Try to finish writing research papers based on my postdoctoral research projects prior to becoming a professor, so that I can start writing research grants based on my publications.
- Take note that my start-up fund as a junior professor may be low (say tens of thousands of dollars/Euro). This may prevent me from doing much research, unless only a small capital is needed to get my research started.
- When writing my grant proposal, specify and explain what would make my proposed technique stand out from the others.
- Give talks, including those in department seminars.

(b) Quirin Schiermeier, "Graphic Detail: The real value of a scientist's wage," in *Nature*, Vol. 450, No. 7170, pp. 597, November 29, 2007. Available online at: http://dx.doi.org/10.1038/450597a; last accessed on December 31, 2010. ["Graphic Detail: The real value of a scientist's wage – Researchers' spending power is not what it seems."]

i. Salaries of academics in Switzerland are the highest, but Switzerland has the highest cost of living.
ii. Salaries in Northern and Central Europe are better than those in Southern Europe.
iii. Also, salaries in the US and Japan are comparable to those in Northern and Central Europe.
iv. Salaries in Israel are comparable to those in Southern Europe. E.g., they are comparable to those in France and Italy.

5. Times Higher Education (THE):
   (a) Advanced Job Search: http://www.timeshighereducation.co.uk/jobs_home.asp?navCode=84
   (b) Career: http://www.timeshighereducation.co.uk/section.asp?navcode=96
6. *Mathematical Association of America* (MAA):
   (a) Information for new Ph.D.s seeking academic careers

   (b) http://www.maa.org/careers/
   (c) MAA Math Classifieds: http://www.mathclassifieds.org/home/index.cfm?site_id=1925

7. American Mathematical Society:
   (a) Information on applying for positions in academia: http://www.ams.org/programs/students/programs/students/gradinfo/gradinfo
   (b) http://www.ams.org/profession/career-info/new-phds/new-phds
8. Association for Women in Science (AWIS) career library: http://www.awis.affiniscape.com/displaycommon.cfm?an=1&subarticlenbr=249
9. American Psychological Association's resources for grad students and postdocs: http://www.apa.org/education/grad/index.aspx
10. *HigherEdJobs.com*: http://www.higheredjobs.com/
11. IEEE Real World Engineering Projects (RWEP):
    (a) resources to help plan and run projects in EECS and related fields that will benefit humanity
    (b) http://www.realworldengineering.org/
12. iBerry (collection of job lists): http://iberry.com/cms/jobs.htm
13. Common CV Network (for research and academic positions in Canada): http://www.cvcommun.net/index_e.html
14. University of Pennsylvania:
    (a) Stephanie Weirich, *Computer Science Faculty Job Search Resources*, Department of Computer and Information Science, School of Engineering and Applied Science, University of Pennsylvania. Available at: http://www.seas.upenn.edu/~sweirich/resources.htm; last accessed on September 5, 2010.
15. Blue Lab Coats, *Academic Job Applications*. Available at: http://bluelabcoats.wordpress.com/application-pkgs/; last accessed on September 10, 2010.
16. Inside Higher Ed: http://www.insidehighered.com/career/seekers
17. Advice on giving the job talk:
    (a) John Farrell, "What to Say in a Good Research Talk," Department of Computer Science, James Cook University, May 1994. Available at: http://www.computersciencestudent.com/SS/HowTo/ResearchTalkJohnFarrell.html; last accessed on August 25, 2010.
18. —
19. **Residential Education**:
    (a) Telluride Association:
        i. Information about how to become a Faculty Fellow at the Cornell Branch and the Michigan Branch of Telluride Association, which are "residential colleges": http://www.tellurideassociation.org/programs/college_faculty.html
20. —
21. **Awards, grants, and fellowships to look out for**:

(a) NSF Career Grant / NSF Career Award
(b) Heinz Family Philanthropies, The Heinz Awards: http://www.heinzawards.net/awards
(c) Sloan Research Fellowships; Alfred P. Sloan Foundation:
   i. Applicants must "hold a Ph.D. (or equivalent) in chemistry, physics, mathematics, computer science, economics, neuroscience or computational and evolutionary molecular biology, or in a related interdisciplinary field"
   ii. Applicants must be tenure-track junior faculty in a North American college or university
   iii. http://www.sloan.org/fellowships
(d) Santa Fe Institute's Miller Distinguished Scholarship (for excellent interdisciplinary researchers): http://www.santafe.edu/research/miller-scholars/
(e) Lemelson-MIT Prize (for mid-career innovators): http://web.mit.edu/invent/a-prize.html
(f) Research Corporation for Science Advancement:
   i. Cottrell College Science Awards (for science researchers at predominantly undergraduate US colleges and universities): http://www.rescorp.org/cottrell-college-scie
   ii. Cottrell Scholar Awards (for science researchers at US colleges and universities): http://www.rescorp.org/cottrell-scholar-awards/
(g) *Semiconductor Industry Association* University Researcher Awards: http://www.sia-online.org/cs/papers_publications/press_release_detail?pressrelease.id=1722
(h) Packard Fellowships for Science and Engineering (for professors at selected US universities): http://www.packard.org/genericDetails.aspx?RootCatID=3&CategoryID=152
(i) *American Society for Engineering Education* awards: http://www.asee.org/activities/awards/division.cfm
(j) Hellman Fellowship in Science and Technology Policy (for early-career professionals with training in science or engineering who are interested in transitioning to a career in public policy and administration): http://www.amacad.org/hellman.aspx
(k) Simons Foundation's *Collaboration Grants for Mathematicians*: https://simonsfoundation.org/funding-guidelines/current-funding-opportunities/collaboration-grants-for
(l) The National Science Foundation:
   i. Alan T. Waterman Award (for junior faculty in the US): http://www.nsf.gov/od/waterman/waterman.jsp
(m) Computing Research Association (CRA): A. Nico Habermann Award, http://www.cra.org/awards/habermann-current/
(n) Microsoft New Faculty Fellowship Award: http://research.microsoft.com/en-us/collaboration/awards/msrff_all.aspx#2005
(o) Global Semiconductor Alliance (GSA): Dr. Morris Chang Exemplary Leadership Award

22. —

23. **Underrepresented minority outreach**:
   (a) The Mathematical Association of America:

i. Pre-College Programs: http://www.maa.org/funding/pre_college.html
ii. Programs for Undergraduate Students: http://www.maa.org/funding/undergraduate.html
iii. Special Interest Group of the MAA on Research in Undergraduate Mathematics Education (SIGMAA RUME): http://sigmaa.maa.org/rume/. Also, see http://sigmaa.maa.org/rume/highlights.html.

24. —

25. **Resources for preparing the teaching statement, and developing a teaching philosophy and methodo**

(a) Missouri University of Science and Technology (formerly University of Missouri-Rolla):

i. Department of Electrical and Computer Engineering:
A. Cp Eng 382 - Teaching Engineering (Summer 20XY):
- http://ece.mst.edu/documents/CpE_382.doc
- Learn about:
  - teaching objectives and techniques
  - knowledge taxonomies
  - cognitive development
- Learn how to:
  - use course objectives to design a course
  - communicate using traditional and cutting-edge media, which includes making effective presentations via various communication modes, including traditional lecture, transparencies, and PowerPoint slides
  - select textbook(s) and recommended books
  - assess student learning
  - grade/evaluate assignments, presentations, and projects in a way that addresses the psychological aspects of learning
  - recognize and adapt to different student learning styles,
  - facilitate cooperative/active learning
  - improve student discipline
- Develop course content and student evaluation techniques to meet the elements of ABET criteria
- Critique evaluation methods including homework, exams, quizzes, reports/papers, and portfolios
- Learn to speak and/or write competently on educational hot topics, including collaborative learning, distance education, self-paced learning, web tools/educational software, and learning communities
- Develop course objectives
- Describe the parts of a syllabus, and prepare a syllabus
- Describe methods to prevent cheating
- Describe the elements of effective student advising at both the undergraduate and graduate levels
- List what makes one a good listener
- Prepare an academic application and identify the issues involved in the academic hire

- Describe appropriate responses to student situations such as death, depression, cheating, pregnancy, hugs
- Name sources of additional teaching training

(b) Sergio Toral Marin, María del Rocío Martínez-Torres, Federico Barrero, "Reforming ICT Graduate Programs to Meet Professional Needs," *Computer*, vol. 43, no. 10, IEEE Computer Society Press, pp. 22-29, June 2010, DOI:10.1109/MC.2010.186.:

i. To access this article, use its DOI Bookmark: http://doi.ieeecomputersociety.org/10.1109/MC.2010.186 or http://dx.doi.org/10.1109/MC.2010.186.

ii. It discusses how ICT Masters degree programs in Europe can meet the needs and demands of the ICT industry and society. That is, it discusses how well European universities empower Masters students for jobs and careers in the ICT industry.

iii. Note that the definition and usage of ICT is non-standard among researchers of computer science and engineering higher education in the United States. Here, I am referring to researchers (mostly professors and Ph.D. students) who do research about::

A. the quality of computer science and engineering education;

B. how well do these education programs empower computer science and engineering students to pursue the careers that they desire; and

C. issues concerning the diversity of the student body and faculty in computer science and engineering.

iv. ICT is reasonably well-defined and used in Europe, and poorly defined and used elsewhere (especially in Asia).

v. In American, programs related to the computing professions are: computer science; computer engineering; electrical engineering; and information systems. There may be more esoteric "majors" (as as "gaming and animation"), but these majors don't usually have recommended frameworks and standards for their curriculum.

(c) ACM and IEEE Computer Society are professional organizations for the IT industry (and related industries, such as the semiconductor and electronic industries) that are leaders in helping educators plan and design their curriculum in computer science and engineering.:

i. A gist of what computer science and computer engineering degree programs should empower students to have are listed in the short article on, "Skills You'll Learn if You Study Computing". Available online at: http://computingcareers.acm.org/?page_id=15; last accessed on November 22, 2010.

ii. Recommended computer science and computer engineering curricular can be found online at: http://www.acm.org/education/curricula-recommendations or http://www.computer.org/portal/web/education/Curricula; last accessed on November 22, 2010:

A. As a Ph.D. student in computer science (or computer engineering), you should have most of the skills and knowledge specified in the recommended curricular for students in computer science (or computer engineering).

B. You mostly probably need these skills and knowledge to pass your Ph.D. preliminary exam in a decent US CS Ph.D. program.

iii. ACM Special Interest Group on Computer Science Education (SIGCSE): http://www.sigcse.org/

iv. Association for Computing Machinery's Special Interest Group for Information Technology Education (SIGITE): http://www.sigite.org/
v. "Future of Computing Education Summit": http://www.acm.org/education/future-of-computing-education-summit

(d) ABET, Inc. (formerly the Accreditation Board for Engineering and Technology):
i. ABET, *Download Accreditation Criteria and Forms*, 2010:
A. http://www.abet.org/forms.shtml
B. Look at the sections on "student outcomes," and "program criteria (including curriculum)."
C. ABET Engineering Accreditation Commission, "Criteria for Accrediting Engineering Programs: Effective for Evaluations During the 2011-2012 Accreditation Cycle," ABET, Baltimore, MD, October 30, 2010. Available online at: http://www.abet.org/Linked%2520Documents-UPDATE/Program%2520Docs/abet-eac-criteria-2011-2012.pdf; last accessed on November 22, 2010.
D. ABET Engineering Accreditation Commission, "Criteria for Accrediting Computing Programs: Effective for Evaluations During the 2011-2012 Accreditation Cycle," ABET, Baltimore, MD, October 30, 2010. Available online at: http://www.abet.org/Linked%2520Documents-UPDATE/Program%2520Docs/abet-cac-criteria-2011-2012.pdf; last accessed on November 22, 2010.

(e) American Institute of Mathematics:
i. Resources for the Math Community:
A. http://www.aimath.org/mathcommunity/
B. David W. Farmer, "The AIM REU: individual projects with a common theme," in the *Proceedings of the Conference on Promoting Undergraduate Research in Mathematics*, American Mathematical Society, 2006. Available online at: http://www.aimath.org/mathcommunity/farmerREU.pdf; last accessed on January 9, 2010. ["AIM Research Experience for Undergraduates (REU)"]
C. Sally Koutsoliotas and David W. Farmer, "Preparing students to give talks," American Institute of Mathematics. Available online at: http://www.aimath.org/mathcommunity/studenttalks.pdf; last accessed on January 9, 2010. ["Preparing students to give talks"]

23 Grad School Information

Things for me to look into when considering graduate and professional programs:

1. Is the graduate or professional program accredited?
2. Would attending the graduate/professional program help me obtain my career goals?
3. Would attending the graduate/professional program help me obtain my career goals?
4. See http://gradschool.princeton.edu/facts/time_to_degree/naturalsciences/ for statistics of graduates from various programs at Princeton University.

5. Some statistics that you may wanna look into include, average number of Ph.D. students per Ph.D. advisor (tells you about advisor-to-advisee ratios), number of Ph.D. graduates for the Ph.D. program per year (tells you about the size of the department), graduate outcomes (what did alumni do after their Ph.D. programs), drop-out rate, failure rate for Ph.D. preliminary and qualifying examinations, and reasons for dropping out of the Ph.D. program.
6. Some research labs do list the names of alumni members (Ph.D. and Masters students, undergraduates, and postdocs). They may also include their first vocation after their Ph.D. program, and what are they currently doing. You can use this to help you gauge the strengths/weaknesses of the lab/advisor.
7. Accommodation options. Is it hard to find housing in the surrounding area? Is housing in the surrounding area cheap? What are some of the statistics of the local population? LA Times has some statistics of local populations in LA. You can determine the average income, highest level of education, political views, and so on... Try to determine if there is an equivalent of that for the local area.
8.

Grad school info:

- general information and advice about grad school:
  1. IEEE:
     (a) Susan Karlin, "How to Choose A Grad School: Figure out what you want and who can give it to you," *IEEE Spectrum*, September 2005. Available at: http://spectrum.ieee.org/at-work/education/how-to-choose-a-grad-school; last accessed on August 28, 2010.
     (b) IEEE Potentials, Volume 21, Issue 3, Aug/Sep 2002.
     (c) IEEE Potentials, Volume 24, Issue 3, Aug/Sep 2005.
  2. ACM:
     (a) ACM, *ACM Crossroads Student Resources*, ACM, New York, NY, Aug 17, 2005. Available at: http://oldwww.acm.org/crossroads/resources/; last accessed on August 29, 2010.
     (b) ACM, *Graduate Educational Resources from ACM Crossroads*, ACM, New York, NY, Aug 7, 2005. Available at: http://oldwww.acm.org/crossroads/resources/graduate.html; last accessed on August 29, 2010.
     (c) *ACM Crossroads* articles on grad school application and life in grad school: [1, 3–6, 11, 16].
  3. European Commission:
     (a) Marie Curie Actions: http://ec.europa.eu/research/mariecurieactions/index.htm... **SCHOLARSHIPS!!!**
     (b) *EURAXESS* Research Job Vacancies: http://ec.europa.eu/euraxess/index.cfm/jobs/jvSearch or http://ec.europa.eu/euraxess/index_en.cfm?l1=13&l2=3&initSearch=1#... **SCHOLARSHIPS!!!**
     (c) European Commission, "Third European Report on Science & Technology Indicators 2003," Directorate-General for Research, European Commission. Available at: http://cordis.europa.eu/indicators/contacts.htm; last accessed on September 1, 2010. Report on European universities and research initiatives.

(d) Publications by the Directorate-General for Research, European Commission, about research initiatives and output in Europe: http://cordis.europa.eu/indicators/publications.htm

4. American Psychological Association:
   (a) American Psychological Association, *gradPSYCH* [magazine], American Psychological Association, Washington, DC. Available at: http://www.apa.org/gradpsych/; last accessed on September 1, 2010. [Read issues from May 2003 till January 2005; **This is an excellence source of information about doing well in graduate school and internships, and seeking research careers in academia and the industry.**]
5. Computing Research Association (CRA):
   (a) Information for Undergraduate and Graduate Students: http://www.cra.org/for-students/
   (b) Computer Research Association's Committee on the Status of Women in Computing Research (CRA-W), "Graduate Student Information Guide". Available at: http://www.cra-w.org/sites/default/files/grad-guide.pdf; CRA-W ⇒ Resources ⇒ Publications ⇒ link and description to the guide, "Graduate Student Information Guide"; last accessed on September 3, 2010.
6. American Mathematical Society:
   (a) *Applying to Graduate School*. Available at: http://www.ams.org/profession/career-info/grad-school/grad-school; last accessed on September 2, 2010.
7. The Mathematical Association of America:
   (a) *MAA Students*. Available at: http://www.maa.org/students/; last accessed on September 2, 2010.
8. American Institute of Mathematics:
   (a) Resources for the Math Community:
      i. http://www.aimath.org/mathcommunity/
      ii. David W. Farmer, "The AIM REU: individual projects with a common theme," in the *Proceedings of the Conference on Promoting Undergraduate Research in Mathematics*, American Mathematical Society, 2006. Available online at: http://www.aimath.org/mathcommunity/farmerREU.pdf; last accessed on January 9, 2010. ["AIM Research Experience for Undergraduates (REU)"]
      iii. Sally Koutsoliotas and David W. Farmer, "Preparing students to give talks," American Institute of Mathematics. Available online at: http://www.aimath.org/mathcommunity/studenttalks.pdf; last accessed on January 9, 2010. ["Preparing students to give talks"]
9. University of California, Berkeley:
   (a) Matthew Moskewicz, Parallel Computing Laboratory (Par Lab), Department of Electrical Engineering and Computer Sciences:
      i. Developed the *Chaff* SAT solver with Conor Madigan as undergrads that is 10-100X faster than then existing SAT solvers.
      ii. He is named a co-winner of the 2009 CAV Award, along with his co-developers of *Chaff* and the developers of the *GRASP* SAT solver, for his fundamental contribution to the field of Computer Aided Verification.

iii. http://www.princeton.edu/engineering/eqnews/spring01/feature5.html
iv. http://parlab.eecs.berkeley.edu/people/matthew-moskewicz

(b) Mark Borgschulte, "Economics Grad School Application Advice," Department of Economics, University of California, Berkeley. Available online at: http://sites.google.com/site/markborgschulte/economicsgradschoolapplicationadvice last accessed on January 9, 2010.

(c) Mark Borgschulte, "Info for Berkeley Admits," Department of Economics, University of California, Berkeley. Available online at: http://sites.google.com/site/markborgschulte/infoforberkeleyadmits; last accessed on January 9, 2010.

(d) Mark Borgschulte, "Reading List," Department of Economics, University of California, Berkeley. Available online at: http://sites.google.com/site/markborgschulte/readinglist; last accessed on January 9, 2010.

(e) *Secret Blogging Seminar* is a blog written by recent Ph.D. graduates from Berkeley's Department of Mathematics. Noah Snyder, "Thoughts on graduate school," May 13, 2009. Available at: http://sbseminar.wordpress.com/2009/05/13/thoughts-on-graduate-school/; last accessed on September 1, 2010.

(f) *UC Berkeley Career Center*, "Graduate School - Letters of Recommendation," UC Berkeley. Available at: https://career.berkeley.edu/grad/gradletter.stm; last accessed on September 5, 2010.

10. Carnegie Mellon University, Computer Science Department:

(a) Carnegie Mellon University, *Ph.D. in Computer Science*, Computer Science Department, Carnegie Mellon University. Available at: http://www.csd.cs.cmu.edu/education/phd/index.html; last accessed on August 28, 2010.

(b) Mark Leone, *Advice on Research and Writing*, Computer Science Department, Carnegie Mellon University. Available at: http://www-2.cs.cmu.edu/afs/cs.cmu.edu/user/mleone/web/how-to.html; last accessed on August 28, 2010. Also, see http://www.cs.cmu.edu/~mleone/how-to.html for another copy. [Mark Leone has graduated with a MS CS from CMU.]

(c) Jason I. Hong, *Grad School Advice*, Human Computer Interaction Institute, School of Computer Science, Carnegie Mellon University, Sept 20, 2006. Available online at: http://www.cs.cmu.edu/~jasonh/advice.html; last accessed on December 17, 2010.

(d) women@SCS School of Computer Science:

i. Career Advice: http://women.cs.cmu.edu/Resources/JobsResearch/careeradvice.php

11. University of California, San Diego:

(a) UCSD VLSI CAD Laboratory, *Useful tips on how to succeed in graduate school and your subsequent research career*, Department of Computer Science and Engineering & Department of Electrical and Computer Engineering, University of California, San Diego. Available at: http://vlsicad.ucsd.edu/Research/Advice/index.html; last accessed on August 28, 2010. **EXCELLENT!!!**

(b) Mihir Bellare, "The Ph.D Experience," Department of Computer Science & Engineering, University of California at San Diego. Available at: http://cseweb.ucsd.edu/~mihir/phd.html; last accessed on September 13, 2010. [See *Edu-*

cational material about graduate school, research, and technical writing at: http://cseweb.ucsd.edu/users/mihir/education.html.]

(c) Fan Chung Graham, "A few words on research for graduate students (especially for those potential combinatorialists)," in *Teaching*, Department of Mathematics, University of California, San Diego. Available online at: http://math.ucsd.edu/~fan/teach/gradpol.html; last accessed on January 9, 2010.

12. University of Michigan, Ann Arbor:
    (a) Igor Markov, Department of Electrical Engineering and Computer Science: http://www.eecs.umich.edu/~imarkov/i_students.html. In particular, see his "Advice for graduate students".
13. University of California, Los Angeles:
    (a) Philip E. Agre, "Advice for Undergraduates Considering Graduate School," UCLA Department of Information Studies, University of California, Los Angeles, October 1996 (Modified: May 2001). Available at: http://polaris.gseis.ucla.edu/pagre/grad-school.html; last accessed on August 28, 2010. See http://polaris.gseis.ucla.edu/pagre/grad-school.pdf for a PDF copy of this article. **CLASSIC!!!**. See http://polaris.gseis.ucla.edu/pagre/index.html for more articles.
    (b) Terence Tao, *Career advice*, Department of Mathematics, University of California, Los Angeles. Available at: http://terrytao.wordpress.com/career-advice/; last accessed on September 1, 2010. Additional information can be found at: http://www.math.ucla.edu/~tao/.
    (c) Yu Hu:
        i. Yu Hu, "Links: Programming Tools and Tips; and Documentation and Presentation," Electrical Engineering Department, University of California, Los Angeles, Aug 27, 2007. Available online at: http://www.ee.ucla.edu/~hu/links.htm; last accessed on September 18, 2010. [This web page has resources for computer programming, and creating presentation slides and documentations.]
        ii. Courses @ UCLA, April 22, 2006: http://www.ee.ucla.edu/~hu/course.htm
        iii. Research: http://www.ee.ucla.edu/~hu/project.htm
14. Stanford University:
    (a) John Ousterhout, "My Favorite Sayings," Department of Computer Science, Stanford University, September 09, 2009. Available at: http://www.stanford.edu/~ouster/cgi-bin/sayings.php; last accessed on September 4, 2010. [Also, see *Odds & Ends*: http://www.stanford.edu/~ouster/cgi-bin/misc.php]
    (b) Jeffrey Michael Heer, Department of Computer Science:
        i. The only Ph.D. student to have ever won the Microsoft Graduate Fellowship and the IBM Ph.D. Fellowship concurrently. After he won these fellowships as a Ph.D. student at Berkeley, IBM changed the rules for its Ph.D. fellowship so that nobody else can do this anymore. This prevents other companies from competing with IBM for hiring these fellows as research interns.
        ii. http://hci.stanford.edu/jheer/cv/

(c) Ravi Vakil, "For potential students," Department of Mathematics, Stanford University. Available at: http://math.stanford.edu/~vakil/potentialstudents.html; last accessed on September 1, 2010. ["Great articles and books" in mathematics: http://math.stanford.edu/~vakil/greatwriting.html. Information about getting/writing letters of recommendation: http://math.stanford.edu/~vakil/recommendations.html.]

(d) Philip Guo, *Academic Home Page*, Department of Computer Science, Stanford University. Available at: http://www.stanford.edu/~pgbovine/academic.htm; last accessed on September 1, 2010. [See resources at the bottom of the page. Also, see http://www.stanford.edu/~pgbovine/writings.htm for his non-academic/research articles.]

(e) Stanford University, *Tomorrow's Professor*[SM] *Mailing List Links*, Center for Teaching and Learning, Stanford University. Available at: http://www.stanford.edu/dept/CTL/Tomprof/links.html; last accessed on September 1, 2010.

(f) Eran Magen, *How I Got Into the Stanford Psychology Ph.D. Program*, Department of Psychology, Stanford University. Available at: http://www.howigotintostanford.com/; last accessed on September 1, 2010.

(g) Stanford University, *Tutoring and Academic Support*, [Office of the] Vice Provost for Undergraduate Education, Stanford University. Available at: http://ual.stanford.edu./ARS/index.html; last accessed on September 1, 2010.

(h) Stanford University, "Guidelines for Advising Relationships between Faculty Advisors and Graduate Students," Office of the Vice Provost for Graduate Education (VPGE), Stanford University, 2009. Available online at: http://vpge.stanford.edu/docs/Advisor_Guidelines.pdf; last accessed on December 22, 2010.

15. University of Washington:

(a) University of Washington, *10-Year Review Self-Study*, Department of Computer Science & Engineering, University of Washington, January 2000. Available at: http://www.cs.washington.edu/homes/lazowska/selfstudy/; last accessed on September 2, 2010. See other information on Prof. Ed Lazowska's web page: http://www.cs.washington.edu/homes/lazowska/.

(b) Yuriy Brun, *Yuriy Brun's Advice*, Department of Computer Science & Engineering, University of Washington. Available at: http://www.cs.washington.edu/homes/brun/advice/; last accessed on August 28, 2010. See http://www.cs.washington.edu/homes/brun/advice/PhDAdvice.pdf for: Yuriy Brun, "Getting a Ph.D. at the University of Southern California," May 20, 2010.

(c) Michael Ernst, *Advice for researchers and students*, Department of Computer Science & Engineering, University of Washington. Available at: http://www.cs.washington.edu/homes/mernst/advice/; last accessed on August 28, 2010.

(d) Karin Strauss, *For graduate students* [see the links on the left side of her home page]. Available at: http://www.cs.washington.edu/homes/kstrauss/; last accessed on September 3, 2010.

(e) Wanda Pratt, *Advice*, Information School & Division of Biomedical & Health Informatics / Department of Medical Education and Biomedical Informatics / School of Medicine, University of Washington. Available at: http://faculty.washington.edu/wpratt/advice.htm; last accessed on September 3, 2010.

(f) William A. Stein, *Home Page*, Department of Mathematics, University of Washington. Available at: http://wstein.org/; last accessed on September 5, 2010. **[Has GREAT resources for junior faculty application and research grant proposals. He has provided tar balls (or zip files) and PDF files of these material.]**

(g) University of Washington Graduate School, *Re-envisioning the Ph.D. project*, University of Washington Graduate School, University of Washington. Available at: http://www.grad.washington.edu/envision/index.html; last accessed on August 28, 2010. [This research is about issues concerning Ph.D. programs, such as: how to improve the quality of Ph.D. programs and student outcomes, and the lifestyle (including social life) of Ph.D. students; and funding issues.]

16. Duke University:
    (a) Xiaowei Yang, *Advice Collection*, Department of Computer Science, Duke University. Available at: http://www.cs.duke.edu/~xwy/advices.html; last accessed on August 28, 2010.
17. Columbia University:
    (a) Department of Economics:
        i. Donald R. Davis, "Ph.D. Thesis Research: Where do I Start?", Department of Economics, Columbia University, February 2001. Available online at: http://www.columbia.edu/~drd28/Thesis%20Research.pdf; last accessed on January 9, 2010.
18. Princeton University:
    (a) Boaz Barak, Department of Computer Science:
        i. He won the ACM Doctoral Dissertation Award.
        ii. http://awards.acm.org/doctoral_dissertation/
        iii. http://www.cs.princeton.edu/~boaz/
19. The University of Texas at Austin:
    (a) Department of Computer Science:
        i. Mike Dahlin, "Advice to systems researchers," Department of Computer Science, The University of Texas at Austin. Available online at: http://www.cs.utexas.edu/users/dahlin/advice.html; last accessed on January 9, 2010.
20. University of Pennsylvania:
    (a) Stephanie Weirich, *Advice for Graduate Studies*, Department of Computer and Information Science, School of Engineering and Applied Science, University of Pennsylvania. Available at: http://www.seas.upenn.edu/~sweirich/phdadvice.htm; last accessed on September 5, 2010.
21. Northwestern University:
    (a) Department of Electrical Engineering and Computer Science; Robert R. McCormick School of Engineering and Applied Science:
        i. Lance Fortnow and William Gasarch, "Graduate Student Guide," in their blog *Computational Complexity*, Department of Electrical Engineering and Computer Science, Robert R. McCormick School of Engineering and Applied Science, Northwestern University, February 21, 2007. Available at: http://

blog.computationalcomplexity.org/2007/02/graduate-student-guide.html; last accessed on September 14, 2010. [William Gasarch is from the Department of Computer Science at the University of Maryland, College Park. THIS IS EXCELLENT!!!]

22. Purdue University:
    (a) Douglas E. Comer, *A few essays about Computer Science*, Department of Computer Science, Purdue University:
        i. http://www.cs.purdue.edu/homes/dec/
        ii. Look for the section, "A few essays about Computer Science". The essay, "How to generate a CS research topic," is funny: http://www.cs.purdue.edu/homes/dec/essay.topic.generator.html.
        iii. Douglas E. Comer, "Notes On The PhD Degree," Department of Computer Science, Purdue University. Available at: http://www.cs.purdue.edu/homes/dec/essay.phd.html; last accessed on September 12, 2010.
    (b) Jan Vitek, *Home Page: Miscellaneous*, Department of Computer Science, Purdue University. Available online at: http://www.cs.purdue.edu/homes/jv/; last accessed on September 28, 2010.
23. Cornell University:
    (a) CU-ADVANCE Center (research and resource center concerning diversity and gender equity): http://advance.cornell.edu/
    (b) Department of Computer Science, Faculty of Computing and Information Science (CIS):
        i. Charles F. Van Loan: http://www.cs.cornell.edu/cv/default.htm
24. Rice University:
    (a) Richard G. Baraniuk, "Seven Steps to Success in Graduate School (and Beyond)," Department of Electrical and Computer Engineering, George R. Brown School of Engineering, Rice University. Available online at: http://www.ece.rice.edu/~richb/success.html; last accessed on January 9, 2010.
25. Yale University:
    (a) Stephen C. Stearns, "Some Modest Advice for Graduate Students," Department of Ecology and Evolutionary Biology, Yale University. Available at: http://www.yale.edu/eeb/stearns/advice.htm; last accessed on August 28, 2010.
    (b) Stephen C. Stearns, "Designs for Learning," Department of Ecology and Evolutionary Biology, Yale University. Available at: http://www.yale.edu/eeb/stearns/designs.htm; last accessed on August 28, 2010.
26. Harvard University:
    (a) H. T. Kung, "Useful Things to Know About Ph. D. Thesis Research," Harvard School of Engineering and Applied Sciences, Harvard University. (Prepared for "What is Research" Immigration Course, Computer Science Department, Carnegie Mellon University, 14 October 1987)
    (b) Susan Athey, "Advice for Applying to Grad School in Economics," Department of Economics, Harvard University. Available online at: http://kuznets.fas.harvard.edu/~athey/gradadv.html; last accessed on January 9, 2010. Prof. Athey has also provided an article, "Negotiating Senior Job Offers," on her web page; this would concern senior faculty job offers.

(c) The Collaborative on Academic Careers in Higher Education, Harvard University Graduate School of Education: http://isites.harvard.edu/icb/icb.do?keyword=coache&tabgroupid=icb.tabgroup104863

27. University of Wisconsin-Madison:
    (a) Department of Electrical and Computer Engineering; College of Engineering:
        i. Azadeh Davoodi: http://homepages.cae.wisc.edu/~adavoodi/Links.htm
    (b) Dorothea Salo, *A Tale of Graduate School Burnout*. Available at: http://members.terracom.net/~dorothea/gradsch/index.html; last accessed on August 28, 2010.
    (c) Dorothea Salo, *Straight Talk about Graduate School*. Available at: http://members.terracom.net/~dorothea/gradsch/straighttalk.html; last accessed on August 28, 2010.
    (d) Dorothea Salo, *What to do before applying to graduate school*. Available at: http://members.terracom.net/~dorothea/gradsch/success.html; last accessed on August 28, 2010.
28. Pennsylvania State University:
    (a) Tao Xie and Yuan Xie, *Advice Collection*, Department of Computer Science at North Carolina State University, and Department of Computer Science and Engineering at Pennsylvania State University. Available at: http://www.cse.psu.edu/~yuanxie/advice.htm; last accessed on August 25, 2010. Also, see http://people.engr.ncsu.edu/txie/advice/index.html and http://people.engr.ncsu.edu/txie/advice.htm.
    (b) Office of Engineering Diversity; Penn State College of Engineering:
        i. Office of Engineering Diversity, "Tips for Graduate Students," Penn State College of Engineering, Pennsylvania State University, 2009. Available online at: http://www.engr.psu.edu/mep/tips.html; last accessed on December 9, 2010.:
        – Getting the most out of the relationship with your research advisor or boss:
            * **Meet regularly** - you should insist on meeting once a week or at least every other week because it gives you motivation to make regular progress and it keeps your advisor aware of your work.
            * **Prepare for your meetings** - come to each meeting with: List of topics to discuss; Plan for what you hope to get out of the meeting; Summary of you have done since your last meeting; List of any upcoming deadlines; & Notes from your previous meeting
            * **Email him/her a brief summary of EVERY meeting** - this helps avoid misunderstandings and provides a great record of your research progress. Include (where applicable): Time and plan for next meeting; New summary of what you think you are doing; To do list for yourself; To do list for your advisor; List of related work to read; List of major topics discussed; List of what you agreed on; & List of advice that you may not follow
            * **Show your advisor the results of your work as soon as possible** - this will help your advisor understand your research and identify potential

points of conflict early in the process. Summaries of related work. Anything you write about your research. Experimental results.
    - **Communicate clearly** - if you disagree with your advisor, state your objections or concerns clearly and calmly. If you feel something about your relationship is not working well, discuss it with him or her. Whenever possible, suggest steps they could take to address your concerns.
    - **Take the initiative** - you do not need to clear every activity with your advisor. He/she has a lot of work to do too. You must be responsible for your own research ideas and progress.
- Getting the most out of what you read:
    - **Be organized**. Keep an electronic bibliography with notes & pointers to the paper files. Keep and file all the papers you have read or skimmed.
    - **Be efficient** - only read what you need to. Start by reading only the conclusion, scanning figures & tables, and looking at their references. Read the other sections only if the paper seems relevant or you think it may help you get a different perspective. Skip the sections that you already understand (often the background and motivation sections).
    - **Take notes on every paper you find worth reading** - What problem are they trying to solve? What is their approach? How is it different from other approaches?
    - **Summarize what you have read on each topic** – after you have read several papers covering some topic, note the: key problems; various formulations of the problem they are addressing; relationship among the various approaches; and alternative approaches
    - **Read Ph.D. theses** – even though they are long they can be very helpful in quickly learning about what has been done is some field. Especially focus on: Background sections; Method sections; and Your advisor's thesis (this will give you an idea for what he/she expects from you).
- Making continual progress on your research:
    - **Keep a journal of your ideas** - write down everything you are thinking about even if you think it is stupid. It will help you keep track of your progress and keep you from going in circles. Do not plan to share it with anyone, so you can write freely.
    - **Set some reasonable goals with deadlines**: Identify key tasks that need to be completed; Set a reasonable date for completing them (on the order of weeks or months); Share this with your advisor or enlist your advisors help in creating the goals and deadlines; and Set some deadlines that you must keep (e.g., volunteer to give a student seminar on your research, work toward a conference paper submission deadline, etc.)
    - **Keep a to do list** - Checking off things on a to do list can feel very rewarding when you are working on a long-term project. List the small tasks that can be done in about an hour. Pick at least one that has to be completed each day.
    - **Continually update your: Problem statement**, Goals, Approach (or a list of possible approaches); One-minute version of your research (aka

the elevator ride summary); and Five-minute version of your research

* **Discuss your research with anyone who will listen** - use your fellow students, friends, family, etc. to practice discussing your research on various levels. They may have useful insights or you may find that verbalizing your ideas clarifies them for yourself.
* **Write about your work**. Early stage: Write short idea papers and share them with your advisor and colleagues. Intermediate stage: Find workshops and conferences for submitting preliminary results. This can also help you set deadlines. Advanced stage: Target relevant journals.
* **Avoid distractions** - it is easy to ignore your research in favor of more structured tasks such as taking classes, teaching classes, organizing student activities, creating web pages like this, etc. Minimize these kinds of activities or commitments.
* **Confront your fears and weaknesses**: If you are afraid of public speaking, volunteer to give lots of talks. If you are afraid your ideas are stupid, discuss them with someone. If you are afraid of writing, write something about your research every day. One-minute version of your research (aka the elevator ride summary). Five-minute version of your research. List of advice that you may not follow.
* **Balance reading, thinking, writing and hacking** - often research needs to be an iterative process across all of those tasks.
* **Finding a thesis topic or formulating a research plan**. Pick something you find interesting - if you work on something solely because your advisor wants you to, it will be difficult to stay motivated ... Pick something your advisor finds interesting - if your advisor doesn't find it interesting he/she is unlikely to devote much time to your research. He/she will be even more motivated to help you if your project is on their critical path (although this has down sides too!)... Pick something the research community will find interesting - if you want to make yourself marketable... Make sure it addresses a real problem. Remember that your topic will evolve as you work on it. Pick something that is narrow enough that it can be done in a reasonable time frame. Have realistic expectations (i.e. Don't expect the Nobel Prize). Don't worry that you will be stuck in this area for the rest of your career. It is very likely that you will be doing very different research after you graduate.

– Characteristics to look for in a good advisor, mentor, boss, or committee member:
  * It is unreasonable to expect one person to have all of the qualities you desire. You should choose thesis committee members who are strong in the areas where your advisor is weak.
  * **Willing to meet with you regularly (about 1 hour every week or every other week). You can trust him/her to**: Give you credit for the work you do; Defend your work when you are not around; Tell you when your work is or is not good enough; Help you graduate in a reasonable time frame; and Look out for you professionally and personally

    - **Is interested in your topic. Has good personal and communication skills**: You can talk freely and easily about research ideas; Tells you when you are doing something stupid; Patient, Never feels threatened by your capabilities; Helps motivate you and keep you unstuck
  - **Has good technical skills**. Can provide constructive criticism of papers you write or talks you give. Knows if what you are doing is good enough for a good thesis. Can help you figure out what you are not doing well; Can help you improve your skills; Can suggest related articles to read or people to talk to; Can tell you or help you discover if what you are doing has already been done; Can help you set and obtain reasonable goals. Will be around until you finish. Is well respected in his/her field. Has good connections for the type of job you would want when you graduate; Willing and able to provide financial and computing support.
  - **Avoiding the research blues**:
    - When you meet your goals, reward yourself.
    - Don't compare yourself to senior researchers who have many more years of work and publications.
    - Don't be afraid to leave part of your research problem for future work.
    - Exercise.
    - Use the student counseling services
    - Occasionally, do something fun without feeling guilty!

29. Technion - Israel Institute of Technology:
    (a) Department of Computer Science:
        i.
30. University of California, Santa Cruz:
    (a) Department of Computer Science; Jack Baskin School of Engineering:
        i. CMPS/CMPE 200 - Research and Teaching in Computer Science and Engineering (and Applied Math and Statistics and Technology and Information Management) (Fall 2010) by Prof. Cormac Flanagan and Prof. Jose Renau (& Prof. Alexandre Brandwajn???). Available online at: http://www.soe.ucsc.edu/classes/cmps200/Fall10/; last accessed on December 17, 2010. [Also, see *CMPS 200 - Research and Teaching in Computer Science and Engineering*: http://www.cs.ucsc.edu/courses/course?cmps200]
31. The University of North Carolina at Chapel Hill:
    (a) Ronald T. Azuma, "So long, and thanks for the Ph.D.!" a.k.a. "Everything I wanted to know about C.S. graduate school at the beginning but didn't learn until later." The 4th guide in the Hitchhiker's guide trilogy (and if that doesn't make sense, you obviously have not read Douglas Adams, v. 1.08, Department of Computer Science, The University of North Carolina at Chapel Hill, January 2003. Available at: http://www.cs.unc.edu/~azuma/hitch4.html; last accessed on September 3, 2010. [Also, see *Guides to surviving Computer Science graduate school* at: http://www.cs.unc.edu/~azuma/azuma_guides.html.]
32. Johns Hopkins University:
    (a) Adam Ruben, Department of Biological Chemistry, School of Medicine, Johns Hopkins University. Adam Ruben, "Surviving Your Stupid, Stupid Decision to Go to Grad School," Broadway Books, New York, NY, 2010.

33. University of British Columbia:
    (a) UBC Faculty of Graduate Studies, *The Graduate Game Plan*, UBC Faculty of Graduate Studies, University of British Columbia. Available at: http://www.grad.ubc.ca/current-students/gps-graduate-pathways-success/graduate-game-p last accessed on August 28, 2010.
    (b) UBC Faculty of Graduate Studies, *Resources for Achieving Success*, UBC Faculty of Graduate Studies, University of British Columbia. Available at: http://www.grad.ubc.ca/current-students/gps-graduate-pathways-success/resources-achie last accessed on August 28, 2010.
    (c) UBC Faculty of Graduate Studies, *Research on the Lived Experience of Graduate Students*, UBC Faculty of Graduate Studies, University of British Columbia. Available at: http://www.grad.ubc.ca/current-students/gps-graduate-pathways-su research-lived-experience-graduate-students; last accessed on August 28, 2010.
    (d) UBC Faculty of Graduate Studies, *Resources for Graduate Student Career Development*, UBC Faculty of Graduate Studies, University of British Columbia. Available at: http://www.grad.ubc.ca/current-students/gps-graduate-pathways-succes resources-graduate-student-career-development; last accessed on August 28, 2010.
    (e) UBC Faculty of Graduate Studies, *Graduate Guides*, UBC Faculty of Graduate Studies, University of British Columbia. Available at: http://www.grad.ubc.ca/current-students/gps-graduate-pathways-success/graduate-guides; last accessed on August 28, 2010.
    (f) UBC Faculty of Graduate Studies, *Present and Publish Your Research*, UBC Faculty of Graduate Studies, University of British Columbia. Available at: http://www.grad.ubc.ca/current-students/gps-graduate-pathways-success/present-publish-your-research; last accessed on August 28, 2010.
34. Oxford University:
    (a) Computing Laboratory (Computer Science department):
        i. Computing Laboratory, "D.Phil. in Computer Science," Oxford University. Available online at: http://www.comlab.ox.ac.uk/admissions/dphil/transfer.html; last accessed on October 29, 2010.
        ii. Marta Kwiatkowska, "How to apply for a Doctorate in the Computing Laboratory," Computing Laboratory, MT 2009. Available online at: http://www.comlab.ox.ac.uk/admissions/dphil/howtoapply2009.pdf; last accessed on December 17, 2010.
            – A B.S. or B.A. gives you general education; a Masters is your license to practice; and a Ph.D. is a license to teach, do research, and examine people for their Ph.D. defense.
            – A Ph.D. "is a research degree," and an "apprentice in research". It is "awarded for a significant and substantial piece of research," and "examined by experts and defended in a viva."
            – Research is about finding out about something, and discovering how to do that. It involves taking responsibility for organizing my time and taking charge of the investigation.
            – Doing a Ph.D. is exciting as I "carry out investigations into [the] unknown,"

and it is "enriching to learn and master new techniques" while doing so.

35. University of California, Irvine; Donald Bren School of Information and Computer Sciences:
    (a) *UCI on iTunes U*, "Improving your Grad School Application," University of California, Irvine: Donald Bren School of Information and Computer Sciences: Bren School Honors Seminar on November 12, 2008. Available at: http://deimos3.apple.com/WebObjects/Core.woa/Browse/uci.edu.1983660442.01983660444.1975757832?i=2046363870; last accessed on August 28, 2010. Also, see http://www.oit.uci.edu/itunesu/ for *UCI on iTunes U*, and http://www.ics.uci.edu/about/videos/index.php for *Bren School iTunes U* content. [I can access this from the main iTunes site as follows: Look at the "Find Educational Provider" tab on the left panel (it's in the middle), and select "Universities and-Colleges" $\Longrightarrow$ Select "UC Irvine" $\Longrightarrow$ Under the Courses panel, select "Donald Bren School of Information and Computer Sciences" $\Longrightarrow$ Under the "Community Outreach" panel, select "Improving your grad school application" $\Longrightarrow$ watch this video. The video clip is about a panel discussion of professors about how to get into a top-tier graduate program in CS. It talks about things that admission officers look for, how to get strong letters of recommendation.]
36. University of California, Davis:
    (a) Galois Group, Department of Mathematics:
        i. University of California, Davis, *Useful things to know when starting graduate school... ...as contributed by experienced grad students!*, Department of Mathematics, University of California, Davis. Available at: http://galois.math.ucdavis.edu/UsefulGradInfo/HelpfulAdvice/WishIdKnown; last accessed on September 1, 2010.
        ii. University of California, Davis, *LaTeX Tutorial*, Department of Mathematics, University of California, Davis. Available at: http://galois.math.ucdavis.edu/UsefulGradInfo/GettingStarted/LaTeXTutorial; last accessed on September 1, 2010. [Has LaTeX template for research proposal that is required for the Ph.D. qualifying exam.]
        iii. University of California, Davis, *Writing Your Doctoral Thesis*, Department of Mathematics, University of California, Davis. Available at: http://galois.math.ucdavis.edu/UsefulGradInfo/HelpfulAdvice/WritingYourThesis; last accessed on September 1, 2010. [Has LaTeX template for Ph.D. dissertations.]
        iv. "If you are a UC Davis Math Grad Student, then you are a member of the Galois Group."
37. University of Chicago:
    (a) Pedro F. Felzenszwalb, Department of Computer Science:
        i. http://people.cs.uchicago.edu/~pff/
        ii. His paper, "Digipaper: A Versatile Color Document Image Representation," has been cited 24 times in about 11 years since publication (as of September 1, 2010). He was an undergraduate then, and probably did this work as a junior or early in his senior year.
        iii. His paper, "Efficient Matching of Pictorial Structures," is probably based on his work done as a senior. As of September 1, 2010, this paper as been cited

222 times in about 10 years. From http://cs.uchicago.edu/, it states the following in its news section on September 1, 2010. "Pedro Felzenszwalb receives Longuet-Higgins prize. The 2010 Longuet-Higgins award has been given to Pedro Felzenszwalb and Daniel Huttenlocher, for their paper "Efficient Matching of Pictorial Structures", Conference on Computer Vision and Pattern Recognition 2000. This award goes to a paper from 10 years ago that has made a fundamental impact on computer vision. Congratulations, Pedro!"

38. University of Virginia:
    (a) David Evans, *Advice*, Department of Computer Science, University of Virginia. Available at: http://www.cs.virginia.edu/~evans/advice/; last accessed on September 2, 2010. Also, see "advice for prospective research students": http://www.cs.virginia.edu/~evans/advice/prospective.html.
39. University of Maryland, Baltimore County:
    (a) Marie desJardins, Department of Computer Science and Electrical Engineering:
        i. http://www.cs.umbc.edu/~mariedj/
        ii. Has information on "How to Succeed in Graduate School," "how to organize a workshop," and "Presenting your research: Papers, talks and chats".
        iii. E.g., Marie desJardins, "How to Succeed in Graduate School," Department of Computer Science and Electrical Engineering, University of Maryland, Baltimore County: http://www.cs.umbc.edu/~mariedj/papers/advice-summary.html
40. University of Maryland, College Park:
    (a) Dianne Prost O'Leary, *Graduate Study in the Computer and Mathematical Sciences: A Survival Guide*, Department of Computer Science, University of Maryland, College Park. Available at: http://www.cs.umd.edu/~oleary/gradstudy/gradstudy.html; last accessed on August 28, 2010. It is also available at: http://www.cs.umd.edu/~oleary/gradstudy/. See http://www.cs.umd.edu/~oleary/ for more articles about "the accessibility of computer science," "8 rules for career success," and the disparity in gender ratios in STEM fields.
41. University of Utah:
    (a) Matt Might, *The illustrated guide to a Ph.D.*, School of Computing, University of Utah. Available at: http://matt.might.net/articles/phd-school-in-pictures/; last accessed on September 13, 2010. [See *blog.might.net* for more articles about graduate school: http://matt.might.net/articles/; e.g., read "10 easy ways to fail a Ph.D." at: http://matt.might.net/articles/ways-to-fail-a-phd/. His web page, http://matt.might.net/, has a sample of these articles. THIS IS EXCELLENT!!!]
    (b) Department of Electrical and Computer Engineering:
        i. Prof. Cynthia Furse:
        – http://www.ece.utah.edu/~cfurse/
        – Cynthia Furse, *Graduate Student Survival 101*, February 2009. Available online at: http://www.ece.utah.edu/~cfurse/Tutorials/UU%20Thesis/How%20to%20Write%20a%20Thesis.htm; last accessed on December 10, 2010.

- Cynthia Furse, *Dr. Furse's OnLine Tutorials*, August 2007. Available online at: http://www.ece.utah.edu/~cfurse/Tutorials/tutorialsUofU.htm; last accessed on December 10, 2010. [Has a lot of good resources for teaching/lecturing, academic/technical writing (including thesis writing), advice for grad/Ph.D. students, making presentations and giving talks, writing grants and proposals, entrepreneurship, and resources for job hunting.]

42. Indiana University:
    (a) Indiana University, *What Every New Grad Student Should Know*, School of Informatics and Computing, Indiana University. Available at: http://www.cs.indiana.edu/docproject/grad.stuff.html; last accessed on September 1, 2010.
    (b) David Chapman (Editor), *How to do Research At the MIT AI Lab*, AI Working Paper 316, MIT AI Lab, Massachusetts Institute of Technology, October, 1988. Available at: http://www.cs.indiana.edu/docproject/grad.stuff.html; last accessed on September 1, 2010.
    (c) Marie desJardins, *How to Be a Good Graduate Student*, SRI International (formerly Stanford Research Institute), March 1994. Available at: http://www.cs.indiana.edu/docproject/grad.stuff.html; last accessed on September 1, 2010.
43. The University of Arizona:
    (a) Jonathan Sprinkle, *Students: So, you want to be my student*, Department of Electrical and Computer Engineering, The University of Arizona. Available at: http://www2.engr.arizona.edu/~sprinkjm/Main/Students; last accessed on September 5, 2010. "Choose 2-3 IEEE or AIAA journal or conference publications from my website that interest you. Do not choose technical reports, or student papers. Write a critical review of the papers, including why the work is interesting, but most importantly where you think the work should go next. In this review, you are proving to me that you understand the purpose of research, and most importantly that you understand the technical details of the paper and how they relate to research."
44. Dartmouth College:
    (a) Mark L. Tomforde, "I've passed my quals, now what? - A guide for Ph.D. candidates in mathematics at Dartmouth College," Department of Mathematics, Dartmouth College, August 5, 2002. Available online at: http://www.math.dartmouth.edu/graduate-students/current/guide/GradGuide.pdf; last accessed on December 22, 2010. [Also, available at: http://www.math.dartmouth.edu/graduate-students/current/guide/]
45. Vienna University of Technology (TU Vienna):
    (a) Silvia Miksch, *Tips: How to Do Research*, Faculty of Informatics, Vienna University of Technology. Available at: http://www.ifs.tuwien.ac.at/~silvia/research-tips/; last accessed on September 1, 2010. It has plenty of resources about:
        i. "How to Do Research"
        ii. "How to Write a Scientific Paper"

iii. "How to Design a Poster"
iv. "Tips on Organizing Conferences, Workshops, and Symposia"
v. "How to Review"
vi. "Digitial Libaries"
vii. "Tips for Writing Correct English"

46. Tufts University:
    (a) Norman Ramsey, *Resources for Students*, Department of Computer Science, Tufts University. Available at: http://www.cs.tufts.edu/~nr/students/; last accessed on September 2, 2010.
    (b) Norman Ramsey, *How to get admitted to a PhD program*, Department of Computer Science, Tufts University. Available at: http://www.cs.tufts.edu/~nr/students/admit.html; last accessed on September 2, 2010.
47. Portland State University:
    (a) Department of Computer Science; Maseeh College of Engineering and Computer Science:
        i. PSU CS 569 (MS Students) and CS 669 (PhD students) - Scholarship Skills (Fall 2010) by Prof. Andrew Black and Tim Sheard. Available online at: http://web.cecs.pdx.edu/~black/ScholarshipSkills/; last accessed on September 29, 2010.
48. State University of New York at Buffalo:
    (a) William J. Rapaport, *Information for Grad Students in Computer Science & Engineering at UB*, Department of Computer Science and Engineering, Department of Philosophy, and Center for Cognitive Science, State University of New York at Buffalo, Buffalo, NY. Available at: http://www.cse.buffalo.edu/~rapaport/GRAD/; last accessed on September 2, 2010.
49. The Ohio State University:
    (a) The Ohio Science and Engineering Alliance:
        i. Graduate School: http://www.ohiosea.org/academic/academic_grad.html
50. Swarthmore College:
    (a) Department of History:
        i. Timothy Burke, "Should You Go to Graduate School?," in his blog *Easily Distracted: Culture, Politics, Academia and Other Shiny Objects*, Department of History, Swarthmore College. Available at: http://weblogs.swarthmore.edu/burke/permanent-features-advice-on-academia/features/; last accessed on September 14, 2010. [Also, see http://www.swarthmore.edu/SocSci/tburke1/gradschool.html.]
        ii. Timothy Burke, "From ABD to the Job Market: Advice for the Grad School Endgame," in his blog *Easily Distracted: Culture, Politics, Academia and Other Shiny Objects*, Department of History, Swarthmore College. Available at: http://weblogs.swarthmore.edu/burke/permanent-features-advice-on-aca
abd/; last accessed on September 14, 2010.
51. Georgetown University:
    (a) Department of Economics:

i. Garance Genicot, "Applying to Grad School in Economics," Department of Economics, Georgetown University. Available online at: http://www9.georgetown.edu/faculty/gg58/GradSchool.html; last accessed on January 9, 2010.

52. Norwegian University of Science and Technology:
    (a) "PhD Studies," Department of Computer and Information Science; Faculty of Information Technology, Mathematics and Electrical Engineering. Available online at: http://www.idi.ntnu.no/research/phd.php; last accessed on September 29, 2010. [Includes an outline of a Ph.D. research proposal that is required for applications to its Ph.D. program in computer science.]
53. North Carolina State University:
    (a) Richard M. Felder, "An Engineering Student Survival Guide," Department of Chemical and Biomolecular Engineering, North Carolina State University, 1993. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/survivalguide.htm; last accessed on August 27, 2010.
    (b) Matthias F. (Matt) Stallmann, "What CSC Graduates Should Know," Department of Computer Science, North Carolina State University, February 9, 1996. Available online at: http://people.engr.ncsu.edu/mfms/Teaching/what-grads-should-kno
    html; last accessed on October 6, 2010.
54. Michigan State University:
    (a) The Graduate School:
        i. The Graduate School, *"Setting Expectations and Resolving Conflict" Program: Developing Communication and Conflict Management Skills to Save Time and Enhance Productivity*, The Graduate School, Michigan State University, July 12, 2010. Available online at: http://grad.msu.edu/conflictresolution/; last accessed on December 22, 2010.
    (b) Collegiate Employment Research Institute:
        i. http://www.ceri.msu.edu/
        ii. Recruiting Trends 2010-2011: http://www.ceri.msu.edu/recruiting-trends-2009-
55. San Francisco State University:
    (a) Eric Hsu, Department of Mathematics:
        i. Eric Hsu, *Math Education Job Search Resources*, Department of Mathematics, San Francisco State University. Available at: http://bfc.sfsu.edu/cgi-bin/hsu.pl?Math_Education_Job_Search_Resources; last accessed on September 1, 2010. Also, accessible at: http://math.sfsu.edu/hsu/jobs.html.
        ii. Has lots of information on applying for positions in academia.
        iii. Has lists of postdoc positions and (junior) faculty openings.
56. Colorado School of Mines:
    (a) Department of Physics:
        i. Robert L. Read, "How to be a Programmer," APPLICATI, 2003. Available online at: http://samizdat.mines.edu/howto/; last accessed on September 28, 2010. [Another publisher is FEINHOCHBURG]
57. New Mexico Institute of Mining and Technology (New Mexico Tech):
    (a) Brian Borchers, "Recommendation Letters," Department of Mathematics, New Mexico Institute of Mining and Technology. Available at: http://infohost.nmt.edu/~borchers/recletters.html; last accessed on September 2, 2010.

58. University of Minnesota Duluth:
    (a) University of Minnesota Duluth, *Is Graduate School Right For You?*, Career Services, University of Minnesota Duluth. Available at: http://www.d.umn.edu/careers/grad_school/right_for_you.html; last accessed on September 2, 2010.
59. The University of Waikato:
    (a) Sean Oughton, *Graduate School Survival Guide*, Department of Mathematics, The University of Waikato. Available at: http://www.math.waikato.ac.nz/~seano/grad-school-advice.html; last accessed on September 3, 2010. [Also, see http://www.math.waikato.ac.nz/~seano/ for Sean's web page.]
60. Institute for Operations Research and the Management Sciences (INFORMS):
    (a) *Career Center* (has some information on funding/fellowships, and academic careers): http://www.informs.org/Build-Your-Career/INFORMS-Student-Union/Career-Center
61. The PhD Project:
    (a) Resources for Potential/Current Doctoral Students:
        i. http://www.phdproject.org/resources.html
        ii. Information about good business schools that offer Ph.D. programs, preparation for the GMAT, and the life in graduate school as a Ph.D. student.
        iii. Suggested Reading:
            – http://www.phdproject.org/reading.html
            – Has information life in graduate school as a Ph.D. student, racial diversity/issues in higher education, job searching in academia, and work-life balance for female Ph.D. students.
62. U.S. Department of Education:
    (a) National Center for Education Statistics (NCES); Institute of Education Sciences:

        i. National Center for Education Statistics, *Projections of Education Statistics to 2018* [report], National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, September 2009. Available online at: http://nces.ed.gov/programs/projections/projections2018/index.asp; last accessed on January 7, 2010.
63. ABD Solution Company:
    (a) Dr. Carters Educational Group, L.L.C.:
        i. Wendy Y. Carter, *TA-DA!*™ *Thesis and Dissertation Accomplished*, 2011. Available online at: http://www.tadafinallyfinished.com/index.html; last accessed on January 8, 2010.
            – *TA-DA!*™ Links and Resources: http://www.tadafinallyfinished.com/links/index.html
        ii. Educational Research Institute:
            – http://www.educationalresearchinstitute.org/
64. About.com:
    (a) About.com, *Graduate School*. Available at: http://gradschool.about.com/; last accessed on August 25, 2010.

(b) Timothy Dzurilla, *Writing Graduate Application Essay: Tips to Writing a Successful Personal Statement*, About.com, Nov 1, 2007. Available at: http://www.suite101.com/content/writing-graduate-application-essay-a34598; last accessed on September 1, 2010. [Help with writing a statement of purpose]

(c) Naomi Rockler-Gladen, *How to Choose a Graduate School: Faculty, Fit, Student Culture, and Other Grad Program Considerations*, About.com, Nov 12, 2007. Available at: http://www.suite101.com/content/how-to-choose-a-graduate-school- last accessed on September 1, 2010. [How to select a graduate program ... EXCELLENT]

(d) Naomi Rockler-Gladen, *How to Choose a Graduate Advisor: Finding a Faculty Member to Direct an MA Thesis or PhD Dissertation*, About.com, Oct 30, 2007. Available at: http://www.suite101.com/content/how-to-choose-a-graduate-advisor last accessed on September 1, 2010. [How to pick an advisor ... EXCELLENT]

65. UndergradEcon.com, *Graduate School Economics*. Available online at: http://www.undergradecon.com/grad_school.html; last accessed on January 9, 2010.
66. Sumit Gupta, *Articles and Information about Graduate School*. Available at: http://www.4bearsonline.com/collections/grad/index.shtml; last accessed on August 25, 2010.
67. William Stallings:
    (a) *Computer Science Student Resource Site: How-To*: http://www.computersciencestudent.com/SS/SS-howto.html
    (b) *Computer Science Student Resource Site: Computer Science Careers*: http://www.computersciencestudent.com/SS/SS-career.html
    (c) *Computer Science Student Resource Site*: http://www.computersciencestudent.com/
68. Dario Toncich, *Key Factors in Postgraduate Research - A Guide for Students*. Available at: http://www.doctortee.net/KeyFactors.html; last accessed on September 1, 2010.

- Grad school admission advice:
    1. University of California, Berkeley:
        (a) Department of Economics, "Criteria," Department of Economics, University of California, Berkeley. Available at: http://www.econ.berkeley.edu/econ/grad/admit-criteria.shtml; last accessed on August 28, 2010.
    2. Harvard University:
        (a) Susan Athey, "Advice for Applying to Grad School in Economics," Department of Economics, Harvard University. Available at: http://kuznets.fas.harvard.edu/~athey/gradadv.html; last accessed on August 28, 2010.
    3. Statementofpurpose.com: http://www.statementofpurpose.com/
- Advice concerning research:
    1. University of California, Riverside:
        (a) John Baez, "Advice for the Young Scientist," Department of Mathematics, University of California, Riverside, March 25, 2007. Available at: http://math.ucr.edu/home/baez/advice.html; last accessed on August 28, 2010.
    2. Research Information Network, RIN:

(a) Researchers resources: http://www.rin.ac.uk/resources/researcher-resources
(b) Researcher development and skills: http://www.rin.ac.uk/resources/researcher-devel
(c) Publishing: http://www.rin.ac.uk/resources/publishing
(d) Learned and professional society: http://www.rin.ac.uk/resources/learned-and-profe

- advice about giving presentations:
  1. Cornell University, Department of Computer Science, Faculty of Computing and Information Science (CIS):
     (a) Charles F. Van Loan, "The Short Talk," Department of Computer Science, Cornell University. Available at: http://www.cs.cornell.edu/cv/ShortTalk.htm; last accessed on August 25, 2010.
  2. University of Wisconsin-Madison, Computer Sciences Department:
     (a) Mark D. Hill, "Oral Presentation Advice," Computer Sciences Department, University of Wisconsin-Madison, April 1992, Revised January 1997. Available at: http://pages.cs.wisc.edu/~markhill/conference-talk.html; last accessed on August 25, 2010. It includes a short summary of a presentation on this topic by Prof. David A. Patterson. David A. Patterson, "How to Give a Bad Talk," Computer Science Division, Department of Electrical Engineering and Computer Sciences, University of California-Berkeley, 1983.
  3. University of California, Los Angeles:
     (a) Terence Tao, "Talks are not the same as papers," Department of Mathematics, University of California, Los Angeles. Available at: http://terrytao.wordpress.com/career-advice/talks-are-not-the-same-as-papers/; last accessed on September 1, 2010.
  4. North Carolina State University, Department of Chemical and Biomolecular Engineering:
     (a) Richard M. Felder, "Tips on Talks," Department of Chemical and Biomolecular Engineering, North Carolina State University. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/speakingtips.htm; last accessed on August 28, 2010.
  5. Random information:
     (a) The number of presentation slides is approximately the same as the number of minutes allocated for the presentation. Therefore, for a 15 minutes presentation, the speaker shall use about 15 slides for her/his presentation.
     (b)

- Advice on studying:
  1. State University of New York at Buffalo, Department of Computer Science and Engineering:
     (a) William J. Rapaport, "How to Study: A Brief Guide," Department of Computer Science and Engineering, Department of Philosophy, and Center for Cognitive Science, State University of New York at Buffalo, Buffalo, NY. Available at: http://www.cse.buffalo.edu/~rapaport/howtostudy.html; last accessed on August 25, 2010.
  2. University of Oregon, Teaching and Learning Center:

(a) Ronald C. Blue, "How to Study," Teaching and Learning Center, University of Oregon. Available at: http://tep.uoregon.edu/resources/faqs/outsidehelp/study.html; last accessed on August 25, 2010.

3. North Carolina State University, Department of Chemical and Biomolecular Engineering:
   (a) Richard M. Felder, "Handouts for Students," Department of Chemical and Biomolecular Engineering, North Carolina State University. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Student_handouts.html; last accessed on August 28, 2010.
4. Middle Tennessee State University:
   (a) Carolyn Hopper, "The Study Skills Help Page: Learning Strategies for Success," Middle Tennessee State University. Available at: http://frank.mtsu.edu/~studskl/; last accessed on August 25, 2010.
5. Joseph Frank Landsberger:
   (a) Joseph Frank Landsberger, *Study Guides and Strategies*. Available at: http://www.studygs.net/; last accessed on August 25, 2010.

- Advice on test preparation and test taking:
  1. North Carolina State University:
     (a) Richard M. Felder, "Random Thoughts: Memo," *Chemical Engineering Education*, Vol. 33, No. 2, pp. 136–137, 1999. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Columns/memo.html; last accessed on August 28, 2010.
     (b) Richard M. Felder and James E. Stice, "Tips on Test Taking," Department of Chemical and Biomolecular Engineering, North Carolina State University, and Deptartment of Chemical Engineering, The University of Texas at Austin. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/testtaking.htm; last accessed on August 28, 2010.
     (c) Richard M. Felder and Matthias F. (Matt) Stallmann, "Tips for Test Takers," Department of Computer Science, North Carolina State University, February 17, 2005. Available online at: http://people.engr.ncsu.edu/mfms/Teaching/tips-for-test-takers.html; last accessed on October 6, 2010.

- Advice for engineering students:
  1. University of Maryland, Baltimore County; Department of Computer Science and Electrical Engineering:
     (a) Alan T. Sherman (Alan Theodore Sherman), *How To's and Other Generic Course Documents*, Department of Computer Science and Electrical Engineering, University of Maryland, Baltimore County, September 12, 1995. Available at: http://www.csee.umbc.edu/~sherman/Courses/documents/; last accessed on August 28, 2010. Also, see http://www.csee.umbc.edu/~sherman/Courses/.
     (b) Alan T. Sherman (Alan Theodore Sherman), *Teaching Activites*, Department of Computer Science and Electrical Engineering, University of Maryland, Baltimore County. Available at: http://www.csee.umbc.edu/~sherman/mycourses.html; last accessed on August 28, 2010.

2. North Carolina State University, Department of Chemical and Biomolecular Engineering:
   (a) Richard M. Felder's column, "Random Thoughts," in the journal, *Chemical Engineering Education*. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Columns.html; last accessed on August 28, 2010.
   (b) Richard M. Felder, "An Engineering Student Survival Guide," Department of Chemical and Biomolecular Engineering, North Carolina State University, 1993. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/survivalguide.htm; last accessed on August 27, 2010.
      - Do not expect people to tell me how to solve certain problems, especially implementation details as a researcher.
      - Learn to find out for myself what I need to know. That is, determine the scope of things that I need to know, the time frame and deadline(s) in which I should acquire knowledge of those skills and knowledge, and create a plan to acquire those skills and knowledge.
      - I should learn to be more resourceful, and determine where can I get help. Particularly, resources (e.g., publications and online material), individuals, and networks of people that can provide a significant amount of help to people.
      - Make a serious effort to solve a problem before I approach others for help. Else, they may get annoyed when I did not bother to learn how to solve problems that are actually very simple. Also, bring my (attempted/considered) solutions to the people who I seek help from. Show them my flow charts, schematics, calculations, algorithms, and heuristics. This would convince them that I have done my homework, and am not asking bane questions.
      - To help me understand how to apply the skills and knowledge that I am acquiring in "practical, real-world applications," I should look at textbooks (including alternative textbooks/books, such as handbooks and encyclopedias) for such examples. I can also look ahead further in the chapter, book, or books of subsequent classes to see how these skills and knowledge will be applied. Note that information that I skip while reading my textbook, manuals, and guides may actually contain the solution that I am looking for. Think of the questions that I asked Anders Franzen about the SMT-LIB manual during my internship at FBK while working on the *MathSAT* project. I did not understand the material in the manual, since I lacked a background in compiler design and formal grammar/languages. So, I had to get he to help me interpret what I was reading. This was like when I was learning about UNIX as a freshman/sophomore. I did not understand what I was reading when I looked at the UNIX manual ("man pages"). Thus, I shall learn how to read technical literature better.
      - By reading technical and semi-technical magazines and newspapers/newsletters, I can learn about "practical, real-world applications" of the things that I am learning about. In addition, by talking to others (students further ahead of me in engineering education and professional engineers), I learn to see how can I apply the things that I am learning about in "practical, real-world applications". Furthermore, I can tap into the newsletters and technical magazines of professional organizations, such as ACM and IEEE, to find out about research opportunities/projects where I can apply what I am learning about.

- If my lecture slides/notes and textbooks(s) do not have adequate worked-out examples (e.g., only trivial examples) to help me understand mathematical theories and formulas, and engineering concepts, I shall seek other resources. E.g., I can look at lecture slides/notes from equivalent/similar classes that are taught at other universities. In addition, I can look at other textbooks/books on this subject. Note that for advanced topics, such as those covered by advanced graduate classes, I may only be able to find 1 or 2 books on this topic. So, I may not always have the luxury of looking at worked examples from other textbooks; e.g., I could find many textbooks for differential equations and vector analysis, but not for antenna analysis or satisfiability modulo theories.
- I shall improve my ability to work out problems on my own if I cannot find adequate examples for that problem or similar problems. In addition, I shall document worked solutions digitally, so that I can refer to them during revision for an exam, my prelims/quals, or when I encounter a similar problem during research and development.
- I shall also improve the way I revise/relearn concepts, technologies, skills, and knowledge. Documenting resources and prior solutions to problems would help me relearn things. Such documentation requires proper information management, so that I can reuse the previously acquired knowledge and skills. Remember that using LaTeX on a UNIX-like operating system helps me with information management.
- If I do not understand how and why things work, determine if knowledge of that is required for solving problems in my research/class project, or assignment. If not, I can move on and address this when I have more free time (e.g., "slack" periods during the calendar year). To find out more about how certain things work, I can look into the references in my lecture slides/notes and textbooks(s), or search/google for references online. Note that learning how and why certain things work may require (advanced) knowledge that is outside the scope of my discipline or research area. Hence, it is important to know when to stop delving into (/investigating/probing) a concept/technique. Remember my problems with understanding Prof. Sanjit A. Seshias publications on adaptive eager encodings, in which he used "polyhedral theory" (I believe in the context of integer programming and combinatorial optimization) to prove a theorem regarding the satisfiability of UTVPI formulas? Ditto for lambda expressions (and lambda calculus) so that I can understand how syntax is represented for a given signature in first-order logic.]
- I shall improve my ability to convert descriptions of architectures and techniques into hardware/software implementations. It is easier to grasp the concepts in pseudocode, flowcharts, schematics, figures, and demonstrations than to learn the concepts from text and create abstractions of those concepts on my own. I shall improve my ability to create pseudocode, flowcharts, schematics, figures, and demonstrations from what I have read, especially in journal and conference papers.
- I shall improve my ability to perform statistical analysis on my experimental data, and analyze the figures/graphs that I have plotted.

- Use a book from the *Schaum's Outline* series from *McGraw-Hill* to help me learn material from introductory and intermediate classes. "Even if you can't find a reference with exactly the type of coverage that works best for you, just reading about the same topic in two different places usually clarifies the ideas." [Remember how I read about the same topic in different advance engineering math textbooks to learn concepts for my classes in differential equations and vector analysis?]
- Working with others allows me to overcome obstacles that I may not be able to overcome on my own. While I may give up on learning certain things or overcome specific problems in individual projects, my teammates may be able to come up with solutions to problems in group projects. In addition, working in a diverse group exposes me to solutions that can be more effective and/or efficient... *students routinely teach one another in group work – and as any professor will tell you, teaching something is probably the most effective way to learn it.*
- Try to find groups of three to four people to work on a problem. When I work in pairs, I may not expose myself to a sufficient variety of approaches. Similarly, when I work in larger groups (i.e., > 4), some individuals may be left out of the "active problem-solving process".
- I shall endeavor to outline solution on my own first, without being boggled or encumbered by the implementation details. Subsequently, I can work out the complete solutions with my group. If each individual does this, each group member can learn how to get started in solving problems in the project. That is, let's outline solutions to the problem, before we meet to discuss our considered solutions and develop the complete solution together.
- "For group work to be fully effective, every group member should be able to explain in detail every solution obtained in a work session. Having the group members (particularly the weaker ones) go through these explanations before ending the session is a good way to make sure that the session has achieved its objectives." This will mitigate the tendency for the more technically challenged and reserved individuals to accept proposed solutions without understanding those solutions.

(c) Richard M. Felder, "How to Survive Engineering School," Department of Chemical and Biomolecular Engineering, North Carolina State University. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Columns/Surviving-School.html; last accessed on August 28, 2010.

- Advice on teaching:
  1. Stanford University:
     (a) Stanford University, *Teaching at Stanford*, Center for Teaching and Learning, Stanford University. Available at: http://ctl.stanford.edu/teaching-at-stanford.html; last accessed on September 1, 2010.
     (b) Stanford University, *Handouts and Teaching Tips*, Center for Teaching and Learning, Stanford University. Available at: http://ctl.stanford.edu/teachingta/handouts-and-teaching-tips.html; last accessed on September 1, 2010.
     (c) Stanford University, *Speaking of Teaching Newsletters*, Center for Teaching and

Learning, Stanford University. Available at: http://ctl.stanford.edu/speaking-of-teac
html; last accessed on September 1, 2010.

2. University of California, Riverside; Department of Mathematics:
   (a) John Baez, "How to Teach Stuff," Department of Mathematics, University of California, Riverside, January 23, 2006. Available at: http://math.ucr.edu/home/baez/teaching.html; last accessed on August 28, 2010.
3. University of Oregon, Teaching and Learning Center:
   (a) Teaching Effectiveness Program, *Teaching Resources*, Teaching and Learning Center, University of Oregon. Available at: http://tep.uoregon.edu/resources/index.html; last accessed on August 25, 2010. Also, look the "Teaching FAQ's": http://tep.uoregon.edu/resources/faqs/
   (b) Teaching Effectiveness Program, Resources for *Teaching with Technology*, Teaching and Learning Center, University of Oregon. Available at: http://tep.uoregon.edu/technology/index.html; last accessed on August 25, 2010.
4. North Carolina State University, Department of Chemical and Biomolecular Engineering:
   (a) Richard M. Felder, *Student-centered Teaching and Learning*, Department of Chemical and Biomolecular Engineering, North Carolina State University. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Student-Centered.html; last accessed on August 28, 2010.
   (b) Richard M. Felder, *Index of Learning Styles*, Department of Chemical and Biomolecular Engineering, North Carolina State University. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/ILSpage.html; last accessed on August 28, 2010.
   (c) Richard M. Felder, *Learning Styles*, Department of Chemical and Biomolecular Engineering, North Carolina State University. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Learning_Styles.html; last accessed on August 28, 2010.
   (d) Richard M. Felder, *Richard Felder's Education-related Publications*, Department of Chemical and Biomolecular Engineering, North Carolina State University. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/Education_Papers.html; last accessed on August 28, 2010.
5. Joseph Frank Landsberger:
   (a) Joseph Frank Landsberger, *Teaching Guides and Strategies*. Available at: http://www.studygs.net/teaching/; last accessed on August 25, 2010.

- Resources to improve my English skills:
  1. *Guide to Online Schools*:
     (a) *Guide to Online Schools* [or *GuideToOnlineSchools.com*], *Resources to Help Improve Your English Pronunciation*. Available at: http://www.guidetoonlineschools.com/tips-and-tools/english-pronunciation; last accessed on August 25, 2010.

- time management:
  1. *Guide to Online Schools*:

(a) *Guide to Online Schools* [or *GuideToOnlineSchools.com*], *The Best Compilation of Time Management Resources on the Web*. Available at: http://www.guidetoonlineschools.com/tips-and-tools/time-management; last accessed on August 25, 2010.

- Math and Science revision:
  1. Basic high school math:
     (a) North Carolina State University, Department of Chemical and Biomolecular Engineering:
        - Kenny Felder and Gary Felder, "Kenny's Math and Physics Help," 2009. Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/kenny/home.html; last accessed on August 28, 2010.
        - Kenny Felder, "Selected Other Educational Sites on the Web". Available at: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/kenny/edulinks.html; last accessed on August 28, 2010.

- good blogs about graduate school:
  1. Marc Eaddy, *Marc Eaddy: Confessions of an Ex-PhD Student*. Available at: http://marceaddy.blogspot.com/; last accessed on August 28, 2010.
  2. The Academic Blog Portal: http://academicblogs.org/wiki/index.php/Main_Page

- fun stuff about grad school:
  1. Jorge Cham, *Piled Higher and Deeper*. Available at: http://www.phdcomics.com/; last accessed on August 28, 2010. See the latest "PHD Comics" at: http://www.phdcomics.com/comics.php. This comic strip pokes fun at the [fun, harsh, interesting, and absurd] realities of life in grad school.
  2. Jorge Cham, *Academica*. Available online at: http://academia.edu/academica; last accessed on October 3, 2010.
  3. Jorge Cham, *The PhD Forums*. Available online at: http://www.phdcomics.com/proceedings/index.php; last accessed on October 3, 2010. [Has useful guidelines for surviving graduate school and is a decent resource for some technical support (e.g., with LaTeX or C++).]

- other information about or related to grad school (and higher education):
  1. *Eurodoc*: union of grad student associations of each European country; see http://en.wikipedia.org/wiki/EURODOC and http://www.eurodoc.net/
  2. *European Association for Quality Assurance in Higher Education* (ENQA): union of accreditation board(s) of each European country; see http://en.wikipedia.org/wiki/ENQA and http://www.enqa.eu/
  3. *Innolyst*:
     (a) Innolyst, *ResearchCrossroads*, Innolyst:
        i. Ernest Kuh, UC Berkeley: http://www.researchcrossroads.org/Researchers/830167 or http://www.researchcrossroads.org/index.php?option=com_content&view=article&id=49&Itemid=55&user_id=830167
        ii. US-based researchers who receive US government funding for their research have profiles in *ResearchCrossroads*. E.g., I can find the amount of public funding that my professors at USC received, and the organization that funds them. I can also read an abstract of the project that they got funded for.

iii. http://www.researchcrossroads.org/

(b) http://www.innolyst.com/

4. A. Lee, C. Dennis, and P. Campbell. Nature's guide for mentors. Nature, 447(7146):791–797, June 14, 2007 [9].
5. American Council of Trustees and Alumni (ACTA):
   (a) The American Council of Trustees and Alumni (ACTA) is an independent, non-profit organization committed to academic freedom, excellence, and accountability at Americas colleges and universities.
   (b) Launched in 1995, we are the only organization that works with alumni, donors, trustees, and education leaders across the United States to support liberal arts education, uphold high academic standards, safeguard the free exchange of ideas on campus, and ensure that the next generation receives a philosophically rich, high-quality college education at an affordable price.
   (c) ACTA Publications: https://www.goacta.org/publications/. [ACTA publications cover many aspects of issues concerning higher education institutions, and serve to provide standards of academic excellence and strategies for achieving these standards.]
6. GOOD, *GOOD Education*: http://www.good.is/series/good-education/
7. Lumina Foundation for Education, *Publications*. Available at: http://www.luminafoundation.org/publications/; last accessed on September 4, 2010.
8. National Center for Academic Transformation: http://thencat.org/
9. Graduate Software Engineering 2009 (GSwE2009): http://www.gswe2009.org/
10. CollegeMeasures.org (a joint endeavor by American Institutes for Research and Matrix Knowledge Group): http://collegemeasures.org/
11. Association of American Colleges and Universities (AAC&U):
    (a) http://www.aacu.org/
    (b) DiversityWeb:
        i. The DiversityWeb project is housed within the Office of Diversity, Equity and Global Initiatives at the Association of American Colleges and Universities (AAC&U)
        ii. http://www.diversityweb.org/index.cfm
12. Newsweek Education: http://education.newsweek.com/index.html
13. GRE: [2, 7, 8, 10, 12, 13, 15, 17]
14. Council for Higher Education Accreditation: http://www.chea.org/
15. Council of Graduate Schools (CGS):
    (a) http://www.cgsnet.org/
    (b) Ph.D. Completion Project: http://www.phdcompletion.org/
16. Unigo:
    (a) http://www.unigo.com/
    (b) Offers students' perspectives on various aspects of college life, from admissions and dorm/college life to studying abroad and academics (studying skills and selecting a major)
17. NAFSA / Association of International Educators (formerly, National Association of Foreign Student Advisers):
    (a) http://www.nafsa.org/

(b) For Students:
   i. http://www.nafsa.org/students.sec/
   ii. Resources about seeking financial aid for study abroad programs, absentee ballot procedure

(c) *Connecting Our World*: http://www.connectingourworld.org/

23.1 Zhiyang's Suggestions for Graduate School Applications

Notes about applying to graduate school:

1. Unless you go to a good research university in the US, you have to make trade-offs. So, it's a matter of picking a more appropriate trade-off for you, rather than for anybody else. Each person would naturally prefer a different trade-off and perform better in certain types of trade-offs. Hence, your task is to find out what trade-offs do you have to make, and make them so that you can be part of an academic environment that poorly resembles those at good U.S. research universities... If you have not published good research papers, like some undergrads in the US, you don't have much of a choice. And, you can't effectively formulate this as a multi-objective optimization problem and find the most suitable Pareto-optimal trade-off because of your ignorance, bias, and prejudices.
2. As a general guide, a lot of the NCAA Division I schools (especially research universities that are good at sports) are also good or average research universities. Think about Michigan, UT Austin, University of Florida, University of Illinois at Urbana-Champaign, UCLA, USC, University of North Carolina at Chapel Hill, University of Virginia, University of Massachusetts at Amherst.
3. Personally, I would say pick a program based on its technical excellence. Join the best lab in your preferred research area/topic. If it can provide you with a good broad and deep base via interdisciplinary classes and rare advanced classes in your research topic, go for it. As far as the culture and environment of the campus goes, you can adapt to it. If you are smart enough to do a Ph.D., you can find workarounds or poor substitutes for different problems and challenges that you would face. You may not always or regularly find workarounds or poor substitutes, but you can.
4. Things that you may want to look into:
   (a) Availability of research lab and professors in area of research interest
   (b) Availability of very advanced classes for grad students that are hardly offered in the world. For example, a class on satisfiability modulo theories (SMT), neural implant engineering (alternatively known as neural prostheses design, neuroprosthetics design, or neural prosthetics design), neural image processing, or sequential equivalence checking may only be offered by 1-5 universities in the world. These classes should have 2-4 big projects, a weekly/fortnightly assignment, ≥1 midterm (mid-semester exam), and (perhaps) a final (exam). You should look to see if programs have several graduate classes in your research area of interest; good Ph.D. programs have several graduate classes for their Ph.D. students to help them gain technical knowledge in their research interests/topics (via the big projects using industrial tools and tool/work flows for EE/CS grad students). These classes have small numbers of students (e.g., 5-30), and have high class numbers (e.g., EE 290A at Berkeley or EE 681 at USC)

(c) Are there enough advanced classes for grad students to help you with learning additional information and skills (this may not be that helpful in outside science and engineering), especially for subject material that is hard to pick up on your own? What is the quality of the coursework involved like? In terms of classes to be taken, how much is the academic workload for Ph.D. students?

(d) For the research labs that you want to join, how many of the grad students get funded? Does the professor help her/his students get scholarships, fellowships, and internships? Have any of the professor's students or alumni win best paper awards, best dissertation awards from organizations such as ACM, and prestigious Ph.D. and postdoc fellowships from Microsoft, Intel, IBM, NVIDIA, and Google? How accomplished are the professors that you wanna work with? If you want to be a professor, how many of the professors's former students (including alumni from her/his current research lab) end up as tenured faculty in world-class universities? If you wanna become a research scientist, how many of them are working as research scientists at IBM, Intel, Sun Microsystems, HP, Bell Labs, Google, Yahoo, Microsoft, NVIDIA, or Adobe?

(e) Availability of funding (for the project and your grad student stipend)

(f) Number of professors in research area (preferably 2-6), which is more general than a research topic

(g) Start-up/entrepreneurship and industrial involvement (created, co-founded, or funded start-ups and collaborate with industry on research projects). Pay attention to professors who get funding from big companies or consortiums in your research area. E.g., Google or Intel

(h) Support and encouragement for interdisciplinary research

(i) Does the culture of the research lab suit you? You can guess the culture of the lab by looking at the web pages of the professor(s) and students in the lab. Do they use programming languages that most people have difficulty learning or are too lazy to learn (e.g., Clojure) or software development tools that average students do not use (e.g., GNU Autotools)? Do they use a UNIX-like OS? Is the lab diverse? As in, are they mostly Indian, Persian, or Korean?

(j) Weather of the city/town

(k) Campus safety (Are there mad people running around with guns?) as well as safety in the surrounding communities

(l) Support for student groups, such as international students, women, and minorities. This also includes support groups and staff teams on campus, such as the departments dealing with residential education, support for sexual assault survivors, support for students whom have to deal with deaths of loved ones, and support for the significant others of Ph.D. students.

(m) Amount of stipend for grad students

(n) Student services, including medical, dental, and counseling services

(o) Dining options on and around campus. Trust me, you don't want to eat goop and rice everyday. Also, if you have to stay up till 4 or 6 am to work on a class project or conference paper, can you get food (e.g., a sandwich, burger, or burrito) and coffee/tea or energy drinks (e.g., Red Bull or Rockstar) at 3 am?

(p) Environment of the campus and neighborhood. Does it have a nice arboretum that you can walk in, just like those at Berkeley, Stanford, or UCLA? Psst, it's a nice place to

walk around to chill out with a date, to run in, or just to take your mind off research.

(q) Social life on campus and in the town/city. Do you want to be single for several more years?

(r) Student housing. Can you stay in a dorm or residential college, which have various activities to help you develop academically, personally, and professionally? Events at the residential colleges that I have been in include career talks by engineers from Motorola, a visit to the university's supercomputer center and research lab in computer vision, tutorials to provide academic support for students, seminars on writing your resume/CV (there is a difference between the CV and resume in the US), seminars on applying for internships as international students, and many cultural and social events. If you prefer to live in an apartment, can you find affordable apartments on campus or close to campus? Does the campus have excellent social events for students, including those in the arts and music?

(s) The dominant language and culture on campus (a Taiwanese university will issue Chinese names to students who do not have one), and the surrounding neighborhood around campus and in the town/city.

(t) Social, economic, and political stability of the country.

(u) Immigration issues for international students.

(v) Some advisors are crazy, and treat you like their property/slave. Are there any professors in the Ph.D. program who are like that? Can you find out if the professor who you want to work with is supportive of students who desire to get married during their Ph.D. programs, or female students whom get pregnant then, and students whom have to deal with deaths of loved ones? With regards to the first two cases, I am not suggesting that you make an absolute decision about whether you will get married or have a child during the Ph.D. program and stick to it. What I would want to know is that if I decide to get married during my Ph.D. candidature, regardless of my current decision about getting married as a grad student, I would like to know if my advisor would disapprove of it. For female grad students, it would be nice to have an advisor who cares about your personal needs and desires as well as your academic and research progress.

5. Good research universities will satisfy most of your preferences for the above considerations (in the sub-list, "Things that you may want to look into"). As you can see, you will miss out on a lot when you are not studying in a world-class research university in the US. Hence, you should find a Ph.D. program that allows you to have as many of these benefits/advantages as possible. I would encourage you to focus on satisfying your considerations for the first few points that are relevant to the classes that you will take and research that you will carry out.
6. In summary, examine your personal and professional goals and desires, skills and knowledge, as well as strengths and weaknesses. Subsequently, determine which Ph.D. program and higher education system (e.g., US or European system) is more suitable for you to become a good researcher in your chosen field (e.g., computer science) and research area/topic (e.g., electronic design automation / logic synthesis). Next, apply to programs that are more suitable for you. When you get your Ph.D., if you are considering a career in academia, you can apply the same method to select research labs that you may want to join as a postdoc.
7. In Apply-to-Grad-Schools, when no research area is preferred [lines 1-2], you may want to apply to the best Ph.D./graduate program that you can get into. This requires you to estimate

the rank of the Ph.D. programs under consideration. This means that the ranking that you use would be based on the (biased) opinions of others. You can attempt to rank the universities on your own by obtaining your own data. However, this involves a lot of work, and would be an overkill... [lines 1-17] A lot of US Ph.D. programs don't require you to work only in the research labs that you mention in your statement of purpose. In Europe, you must convince a professor (who is leading the research group/lab that you want to join) or the admissions committee that a particular research topic interests you by explaining why it interests you... [line 13] Use reference management software to manage the database of references. Examples of reference management include *Mendeley*, *JabRef*, and *BibDesk*... [line 20] Note that US Ph.D. programs tend to have deadlines in December/January; European Ph.D. programs have different deadlines, depending on the country and the university. Canadian Ph.D. programs have deadlines from December till March, Taiwanese Ph.D. programs have deadlines in March and April, and Ph.D. programs at the Technion in Israel have deadlines on April 15 and Sep 15... [line 24] By applying to reach schools, match schools, followed by safety schools, I would have some room for error with respect to match schools. If I mess up an earlier application, I can learn from my mistakes... [line 25] Use comments in your LaTeX documents to comment/uncomment previously written sections that can be reused later... [line 26] Examples of revision control systems include *CVS*, *Subversion*, *Git*, and *Mercurial*... [line 26] When you apply to labs in a given research area, some of the projects in these labs may be similar. Hence, you can reuse information from previous SOPs. However, always customize your SOP...

```
APPLY-TO-GRAD-SCHOOLS()
    // Input : None
    // Output : None

 1  if no-research-area-preferred
 2      Apply to the best Ph.D. program that you can get into
 3      exit // End of procedure
 4  elseif you want to work in a research area that you like
        // x := number of weeks for literature review
 5      int x = 4;

 6      while x > 0
 7          Read technical magazines to get an idea of research trends
            // E.g., IEEE Computer magazine or Communications of the ACM

 8          if (topic is too difficult/challenging for me)
 9              ignore that topic
10          elseif (topic is interesting and doable)
11              take note of that topic
12              read journal and conference papers of that topic
13              for each paper, enter it into your database of references

14              if (a professor's papers are very interesting)
15                  apply to that lab

16          narrow down list of research topics to 2-3 related topics
            // use the 2/3 topics for grad school applications
17          x--;

18  if (research area has been selected)
19      Decide which higher education system do I prefer (e.g., US/Europe)
20      Determine the academic requirements and application deadlines
21      Group research labs or Ph.D. programs into match schools, safety schools, & reach schools
        // Most of your programs that you want to apply to should be match schools
        // Apply to some reach schools and safety schools
        // Or group them into reach, target, and reliable schools.

22      Put the deadlines on a digital calendar // E.g., use Google Calendar or iCal
23      Create a prioritized timeline of the deadlines // A Gantt chart will help
24      Apply to reach schools, match schools, followed by safety schools
25      Use LaTeX to write your resume/CV, and statement of purpose (SOP)
26      Use a revision control system to keep track of the changes in your LaTeX documents
```

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[5] Marie Ellen desJardins. A day in the life of . . . Marie DesJardins. *ACM Crossroads*, 8(2):8–9, December 2001.

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