

## DAVID I. MILLER

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## EDUCATION

**Ph.D. Candidate, Psychology**

Northwestern University

Evanston, IL

2012 – 2018

- Dissertation committee: David H. Uttal, Alice H. Eagly, Larry V. Hedges
- Dissertation title: “Characterizing Pathways for Joining STEM in College and Beyond”

**Graduate Student, Science Education Research**

University of California – Berkeley

Berkeley, CA

2010 – 2012

- Research Advisor: Marcia C. Linn

**B.S., Mathematical Physics**

Harvey Mudd College

Claremont, CA

2006 – 2010

- *Scholastic Distinction*: B.S. with High Distinction; Dean's List (2006 – 2010); Honors in Physics
- Thesis Advisor: Diane F. Halpern

## RESEARCH FELLOWSHIPS

- **National Science Foundation (NSF)** Graduate Research Fellowship: \$120,000 (2011–2014)
- **Data Science for Social Good Fellowship** at University of Chicago: \$16,000 (2014)
- **University of California – Berkeley** Graduate Division Fellowship: \$21,347 (2010–2011)
- **National Science Foundation (NSF)** Research Undergraduate Experience (REU) at State University of New York – Stony Brook: \$3,500 (2008)
- **National Science Foundation (NSF)** Research Undergraduate Experience (REU) at Lowell Observatory: \$4,775 (2007)

## RESEARCH GRANTS

- **American Psychological Association of Graduate Students** Basic Psychological Science Research Grant: \$1,000 (2013)
- **Society for the Psychological Study of Social Issues** Clara Mayo Grant and Matching Funds from **Northwestern University**: \$1,500 (2012)
- **Harvey Mudd College** Research Grant for Longitudinal Extension to Thesis Project: \$575 (2010)
- **Harvey Mudd College** Shanahan Student-Directed Research Funds: \$5,000 (2009–2010)

## RESEARCH AWARDS

- Anne Anastasi General Psychology Graduate Student Research Award awarded by Division 1 (Society of General Psychology) of the **American Psychological Association (APA)**: \$300 (2013)
- Student Research Award awarded by the **Association for Psychological Science (APS)**: \$250 (2011)
- Anne Anastasi Student Poster Award awarded by Division 1 (Society of General Psychology) of the **American Psychological Association (APA)**: \$100 (2010)
- Robert L. Solso Research Award awarded by the **Western Psychological Foundation**: \$500 (2010)

## TRAVEL GRANTS

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- **American Psychological Association** Student Travel Award: \$300 (2013)
- **Northwestern University** Conference Travel Grant: \$1,150 (2013; 2016)
- **Society for Personality and Social Psychology** Diversity Fund Graduate Travel Award: \$500 (2018)
- **Society for Personality and Social Psychology** Graduate Travel Award: \$500 (2018)
  - I won this award, but had to decline receiving it because I also won the Diversity Fund Graduate Travel Award in the same year and was not allowed to receive both.
- **University of California – Berkeley** Conference Travel Grant: \$500 (2012)

## PUBLICATIONS

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- Miller, D. I.,** Nolla, K. M., Eagly, A. H., & Uttal, D. H. (under review). The development of children's gender-science stereotypes: A meta-analysis of five decades of U.S. Draw-A-Scientist studies.
- Atit, K., **Miller, D. I.,** Newcombe, N. S., & Uttal, D. H. (under review). Teachers' spatial skills across disciplines and education levels: Exploring nationally representative data.
- Hsu, K. J., Rosenthal, A. M., **Miller, D. I.,** & Bailey, J. M. (2017). Sexual arousal patterns of autogynephilic male cross-dressers. *Archives of Sexual Behavior*, 46, 247-253. doi:10.1007/s10508-016-0826-z
- Eagly, A. H., & **Miller, D. I.** (2016). Scientific eminence: Where are the women? *Perspectives in Psychological Science*, 11, 899-904. doi:10.1177/1745691616663918
- Miller, D. I.** (2016). Sex difference research and cognitive abilities. In N. A. Naples (Ed.), *The Wiley-Blackwell Encyclopedia of Gender and Sexuality Studies*. New York, NY: John Wiley & Sons, Ltd. doi:10.1002/9781118663219.wbegss098
- Hsu, K. J., Rosenthal, A. M., **Miller, D. I.,** & Bailey, J. M. (2016). Who are gynandromorphophilic men? Characterizing men with sexual interest in transgender women. *Psychological Medicine*, 46, 819–827. doi:10.1017/S0033291715002317
- Miller, D. I.,** Eagly, A. H., & Linn, M. C. (2015). Women's representation in science predicts national gender-science stereotypes: Evidence from 66 nations. *Journal of Educational Psychology*, 107, 631-644. doi:10.1037/edu0000005
- Miller, D. I.,** & Wai, J. (2015). The bachelor's to Ph.D. STEM pipeline no longer leaks more women than men: A 30-Year analysis. *Frontiers in Psychology*, 6, 36. doi:10.3389/fpsyg.2015.00037
- Miller, D. I.,** & Halpern, D. F. (2014). The new science of cognitive sex differences. *Trends in Cognitive Sciences*, 18, 37-45. doi:10.1016/j.tics.2013.10.011
- Miller, D. I.,** & Halpern, D. F. (2013). Can spatial training improve long-term outcomes for gifted STEM undergraduates? *Learning and Individual Differences*, 26, 141-152. doi:10.1016/j.lindif.2012.03.012
- Uttal, D. H., **Miller, D. I.,** & Newcombe, N. S. (2013). Exploring and enhancing spatial thinking: Links to STEM achievement? *Current Directions in Psychological Science*, 22, 367-373. doi:10.1177/0963721413484756

## PEER-REVIEWED CONFERENCE PROCEEDINGS

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- Lakkaraju, H., Aguiar, E., Shan, C., **Miller, D. I.,** Bhanpuri, N., Ghani, R., & Addison, K. L. (2015). A machine learning framework to identify students at risk of adverse academic outcomes. In *Proceedings of the 21st ACM SIGKDD Conference on Knowledge Discovery and Data Mining*. Sydney, Australia: Association for Computing Machinery.

- Aguiar, E., Lakkaraju, H., Bhanpuri, N., **Miller, D. I.**, Yuhas, B., Addison, K., ... , Ghani, R. (2015). Who, when, why: A machine learning approach to prioritizing students at risk of not graduating high school on time. In *Proceedings of the 5<sup>th</sup> International Conference on Learning Analytics and Knowledge*. Poughkeepsie, NY: Society for Learning Analytics Research.
- Matuk, C. F., McElhaney, K. W., **Miller, D. I.**, Chen, J. K., Lim-Breitbart, J., Terashima, H., ... , Linn, M. C. (2013). Reflectively prototyping a tool for exchanging ideas. In *Proceedings of the 10<sup>th</sup> International Conference on Computer Supported Collaborative Learning* (pp. 101-104). Madison, WI: International Society of the Learning Sciences.
- McElhaney, K. W., Matuk, C. F., **Miller, D. I.**, & Linn, M. C. (2012). Using the Idea Manager to promote coherent understanding of inquiry investigations. In *Proceedings of the 11<sup>th</sup> International Conference of the Learning Sciences*. Sydney, Australia: International Society of the Learning Sciences.
- Matuk, C. F., McElhaney, K. W., Chen, J. K., **Miller, D. I.**, Lim-Breitbart, J., & Linn, M. C. (2012). The Idea Manager: A tool to scaffold students in documenting, sorting, and distinguishing ideas during science inquiry. In *Proceedings of the 11<sup>th</sup> International Conference of the Learning Sciences*. Sydney, Australia: International Society of the Learning Sciences.
- Miller, D. I.**, & Halpern, D. F. (2011). Spatial thinking in physics: Longitudinal impacts of 3-D spatial training. In L. Carlson, C. Hoelscher, & T. Shipley (Eds.), *Proceedings of the 33<sup>rd</sup> Annual Conference of the Cognitive Science Society* (pp. 3465-3470). Austin, TX: Cognitive Science Society. [This research was turned into a full-length journal article in *Learning and Individual Differences* – see publications]

#### POPULAR PRESS ARTICLES

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- Miller, D. I.** (2017, February 1). Stereotypes can hold boys back in school, too. *The Conversation*. Retrieved from <https://theconversation.com/stereotypes-can-hold-boys-back-in-school-too-72035>
- Miller, D. I.** (2016, June 15). LGBT equality doesn't exist – but here's how to fight for it. *The Conversation*. Retrieved from <https://theconversation.com/lgbt-equality-doesnt-exist-but-heres-how-to-fight-for-it-60977>
- Miller, D. I.** (2016, February 4). Intersectionality: how gender interacts with other social identities to shape bias. *The Conversation*. Retrieved from <https://theconversation.com/intersectionality-how-gender-interacts-with-other-social-identities-to-shape-bias-53724>
- Wai, J., & **Miller, D. I.** (2015, December 1). Here's why academics should write for the public. *The Conversation*. Retrieved from <https://theconversation.com/heres-why-academics-should-write-for-the-public-50874>
- Miller, D. I.** (2015, October 13). Men and women biased about studies of STEM gender bias – in opposite directions. *The Conversation*. Retrieved from <https://theconversation.com/men-and-women-biased-about-studies-of-stem-gender-bias-in-opposite-directions-48924>
- Miller, D. I.** (2015, July 10). Tech companies spend big money on bias training—but it hasn't improved diversity numbers. *The Conversation*. Retrieved from <https://theconversation.com/tech-companies-spend-big-money-on-bias-training-but-it-hasnt-improved-diversity-numbers-44411>
- Miller, D. I.** (2015, June 9). Beliefs about innate talent may dissuade students from STEM. *The Conversation*. Retrieved from <https://theconversation.com/beliefs-about-innate-talent-may-dissuade-students-from-stem-42967>
- Miller, D. I.** (2015, May 28). Most people think 'man' when they think 'scientist' – how can we kill the stereotype? *The Conversation*. Retrieved from <https://theconversation.com/most-people-think-man-when-they-think-scientist-how-can-we-kill-the-stereotype-42393>

- Miller, D. I.** (2015, April 16). Some good news about hiring women in STEM doesn't erase sex bias issue. *The Conversation*. Retrieved from <https://theconversation.com/some-good-news-about-hiring-women-in-stem-doesnt-erase-sex-bias-issue-40212>
- Miller, D. I.** (2015, March 3). A metaphor to retire. *Inside Higher Ed*. Retrieved from <https://www.insidehighered.com/views/2015/03/03/essay-calls-ending-leaky-pipeline-metaphor-when-discussing-women-science>

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## STATISTICAL TRAINING

- **Statistical skills:** Factor analysis (confirmatory and exploratory), latent class analysis, logistic and multiple regression, meta-analysis (fixed-effects and random-effects), multilevel modeling, nonparametric inference, structural equation modeling, propensity score matching
- **Statistical packages used regularly:** R, SPSS, Stata
- **Data collection software used regularly:** Amazon Mechanical Turk, Inquisit, Qualtrics
- **Advanced statistical courses taken in graduate school:**
  - Latent variable modeling (instructor: William Revelle)
  - Meta-analysis (instructor: Larry V. Hedges)
  - Multilevel modeling (instructor: Sophia Rabe-Hesketh)
- **Advanced statistical workshops attended at conferences:**
  - Causal inference with quasi-experimental designs (AERA 2012 conference, facilitator: Joseph R. Cimpian)
  - Longitudinal exploratory data mining (APS 2013 conference, facilitator: John J. McArdle)
  - Network modeling (APS 2011 conference, facilitator: Lourens J. Waldorp)
- **Advanced statistical workshops attended at conferences:**
  - Two-day course on causal analysis using international data (AERA 2015 Institute on Statistical Analysis for Education Policy, facilitator: William Schmidt)
  - Week-long course on causal inference using non-experimental data (2015 Northwestern-Duke Causal Inference Workshop, facilitators: Bernie Black, Jens Hainmueller, Stephen Morgan, Don Rubin)

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## SYMPOSIUM ORGANIZED

### New Research Directions on Gender Stereotypes in Science, Math, and Engineering

Association for Psychological Science

Washington, DC

May 26<sup>th</sup>, 2013

- **Miller, D. I.** Lead organizer and chair for symposium at the 35<sup>th</sup> Association for Psychology Science (APS) Annual Convention.
- Presenters: **David I. Miller**, Diane F. Halpern (discussant), Frederick L. Smyth, Greg M. Walton, Toni Schmader.

### Using Visual and Spatial Thinking in Science Education

American Educational Research Association

San Francisco, CA

May 1<sup>st</sup>, 2013

- **Miller, D. I., & Linn, M. C.** Lead organizer for symposium at the 2013 Meeting of the American Education Research Association (AERA).
- Presenters: David H. Uttal, **David I. Miller**, Edward Pan, Kevin W. McElhaney, Marcia C. Linn (chair), Mary Hegarty, Nora S. Newcombe (discussant).

## **Spatial Thinking and Social Psychology: How Can They Inform Each Other?**

Association for Psychological Science

Chicago, IL

May 27<sup>th</sup>, 2012

- **Miller, D. I.** Lead organizer and chair for symposium at the 34<sup>th</sup> Association for Psychology Science (APS) Annual Convention.
- Presenters: **David I. Miller**, Elizabeth A. Gunderson, Keith B. Maddox, Stephanie A. Gagnon, Susan C. Levine (discussant).

## INVITED CONFERENCE PRESENTATIONS

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### **How Gender Bias Relates to Career Progression in STEM**

Society for Personality and Social Psychology

San Diego, CA

January 28<sup>th</sup>, 2016

- **Miller, D. I.** Invited oral presentation at the Gender Preconference at the 2016 Society for Personality and Social Psychology Annual Convention.

### **Increasing Women's Access to Training in Science and Technology**

VHTO Gender & STEM Conference

Amsterdam, The Netherlands

November 12<sup>th</sup>, 2015

- **Miller, D. I.** Invited keynote address at the 2015 VHTO Higher Education Gender & STEM Conference.

### **Using Women's Potential for Science and Technology Careers**

Public Policy Exchange

Brussels, Belgium

July 2<sup>nd</sup>, 2015

- **Miller, D. I.** Invited oral presentation at the Public Policy Exchange forum on “Driving Forward Gender Equality in Europe: Combating Discrimination in the Workplace and Beyond.”

## OTHER CONFERENCE PRESENTATIONS

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### **The Development of Children's Gender-Science Stereotypes: A Meta-Analysis of Five Decades of U.S. Draw-A-Scientist Studies**

Society for Personality and Social Psychology

Atlanta, GA

March 2<sup>nd</sup>, 2018

- **Miller, D. I.**, Nolla, K. M., Eagly, A. H., & Uttal, D. H. Poster presentation at 2018 Society for Personality and Social Psychology Annual Convention.

### **How Have U.S. Children's Stereotypes About Scientists Changed Over Time?**

Am. Assoc. for the Advancement of Science

Washington, D.C.

Feb. 14<sup>th</sup>, 2016

- **Miller, D. I.**, Nolla, K. M., Eagly, A. H., & Uttal, D. H. Oral presentation at 2016 American Association for the Advancement of Science Annual Meeting.

### **Untapped Talent: Can Better Testing and Data Accelerate Creativity in Learning and Societies?**

Salzburg Global Seminar

Salzburg, Austria

December 13<sup>th</sup>, 2015

- **Miller, D. I.** Panel discussant for the “Innovations in North America / Europe” session at the Salzburg Global Seminar on “Untapped Talent: Can better testing and data accelerate creativity in learning and societies?”

### **Who, When, Why: A Machine Learning Approach to Prioritizing Students at Risk of Not Graduating High School on Time**

Learning Analytics and Knowledge

Poughkeepsie, NY

March 18<sup>th</sup>, 2015

- Aguiar, E., Lakkaraju, H., Bhanpuri, N., **Miller, D. I.**, Yuhas, B., Addison, K., ... , Ghani, R. Oral presentation at the 5<sup>th</sup> International Learning Analytics & Knowledge Conference.

### **How Communal Goals Contribute To STEM Employment**

Society for Personality and Social Psychology    Long Beach, CA

February 26<sup>th</sup>, 2015

- **Miller, D. I.**, Uttal, D. H., & Eagly, A. H. Poster presentation at the 16<sup>th</sup> Society of the Personality and Social Psychology (SPSP) Annual Meeting.

### **How Spatial Skills Relate To Movement Into And Out of STEM**

Spatial Cognition

Bremen, Germany

September 18<sup>th</sup>, 2014

- **Miller, D. I.**, Wai, J., & Uttal, D. H. Poster presentation at the 2014 Spatial Cognition conference.

### **Identifying Students At Risk Accurately and Early**

Knowledge Discovery and Data Mining

New York City, NY

August 26<sup>th</sup>, 2014

- Aguiar, E., Lakkaraju, H., Bhanpuri, N., **Miller, D. I.**, & Yuhas, B. Oral and poster presentation at the 20<sup>th</sup> ACM SIGKDD Conference on Knowledge Discovery and Data Mining.

### **Replacing The Leaky Pipeline Metaphor**

Inter-Science of Learning Center Conf.

Pittsburgh, PA

February 3<sup>rd</sup>, 2014

- **Miller, D. I.**, Wai, J., & Uttal, D. H. Oral presentation at the 7<sup>th</sup> Inter-Science of Learning Center Student and Post-Doc Conference.

### **How Have Children's Gender-Science Stereotypes Changed Over Time? A Meta-Analysis**

Society for Personality and Social Psychology    Austin, TX

February 14<sup>th</sup>, 2014

- **Miller, D. I.**, Nolla, K., Eagly, A. H., & Uttal, D. H. Poster presentation at the 15<sup>th</sup> Society of the Personality and Social Psychology (SPSP) Annual Meeting.

### **Women's Representation in Science Predicts National Gender-Science Stereotypes**

American Psychological Association

Honolulu, HI

August 3<sup>rd</sup>, 2013

- **Miller, D. I.**, Eagly, A. H., & Linn, M. C. Poster presentation at the 121<sup>st</sup> American Psychological Association (APA) Annual Convention.

### **Reflectively Prototyping a Tool for Exchanging Ideas**

Computer Supported Collaborative Learning    Madison, WI

June 18<sup>th</sup>, 2013

- Matuk, C. F., McElhaney, K. W., **Miller, D. I.**, Chen, J. K., Lim-Breitbart, J., Terashima, H., ... , Linn, M. C. Oral presentation at the 10th International Conference on Computer Supported Collaborative Learning.

### **Comparing Gender Stereotypes Across Cognitive Intelligences: Spatial Stereotypes Matter**

Association for Psychological Science

Washington, DC

May 26<sup>th</sup>, 2013

- **Miller, D. I.**, Maloney, E., Beilock, S. L., & Uttal, D. H. Oral symposium presentation at the 35<sup>th</sup> Association for Psychological Science (APS) Annual Convention.

### **How Does Traditional Science Education Assess Visual and Spatial Thinking?**

American Educational Research Association    San Francisco, CA

May 1<sup>st</sup>, 2013

- **Miller, D. I.**, & Linn, M. C. Oral symposium presentation at the 2013 Meeting of the American Educational Research Association (AERA).

### **How Do Gender Stereotypes Impact Spatial Thinking?**

Inter-Science of Learning Center Conf.

Philadelphia, PA

February 22<sup>nd</sup>, 2013

- **Miller, D. I.**, Maloney, E., Beilock, S. L., & Uttal, D. H. Poster presentation at the 6<sup>th</sup> Inter-Science of Learning Center Student and Post-Doc Conference.

### **Broadening Spatial Thinking by Investigating its Role in Scientific Practices**

Spatial Cognition

Bavaria, Germany

September 2<sup>nd</sup>, 2012

- **Miller, D. I.** Oral presentation at the 2012 Spatial Cognition conference.

### **Using the Idea Manager to Promote Coherent Understanding of Inquiry Investigations**

Intl. Conference of the Learning Sciences      Sydney, Australia      July 5<sup>th</sup>, 2012

- McElhaney, K. W., Matuk, C. F., **Miller, D. I.**, & Linn, M. C. Oral presentation at the 2012 International Conference of the Learning Science (ICLS).

### **The Idea Manager: A Tool to Scaffold Students Documenting, Sorting, and Distinguishing Ideas in Science Inquiry**

Intl. Conference of the Learning Sciences      Sydney, Australia      July 4<sup>th</sup>, 2012

- Matuk, C. F., McElhaney, K. W., Chen, J. K., **Miller, D. I.**, Lim-Breitbart, J., & Linn, M. C. Poster presentation at the 2012 International Conference of the Learning Science (ICLS).

### **Removing Stereotype Threat Substantially Boosts Women's Spatial Performance: A Meta-Analysis**

Association for Psychological Science      Chicago, IL      May 27<sup>th</sup>, 2012

- **Miller, D. I.** Oral symposium presentation at the 34<sup>th</sup> Association for Psychological Science (APS) Annual Convention.

### **Can a Bridging Visualization Help Chemistry Students Integrate Observable and Molecular Views?**

American Educational Research Association      Vancouver, Canada      April 14<sup>th</sup>, 2012

- **Miller, D. I.**, McElhaney, K. W., & Linn, M. C. Poster presentation at the 2012 Meeting of the American Educational Research Association (AERA).

### **Spatial Thinking in Physics: Longitudinal Impacts of 3-D Spatial Training**

Cognitive Science Society      Boston, MA      July 23<sup>rd</sup>, 2011

- **Miller, D. I.**, & Halpern, D. F. Poster presentation at the 33<sup>rd</sup> Cognitive Science Society Annual Conference.

### **Longitudinal Impacts of 3-D Spatial Training among Gifted STEM Undergraduates**

Association for Psychological Science      Washington, DC      May 28<sup>th</sup>, 2011

- **Miller, D. I.**, & Halpern, D. F. Oral award address and poster presentation at the 23<sup>rd</sup> Association for Psychological Science (APS) Annual Convention.

### **Spatial Training Improves Mathematical Physics Problem-Solving**

American Psychological Association      San Diego, CA      August 13<sup>th</sup>, 2010

- **Miller, D. I.**, & Halpern, D. F. Poster presentation at the 118<sup>th</sup> American Psychological Association (APA) Annual Convention.

### **Can Spatial Skills Training Improve Students' Understanding of Introductory Physics?**

American Association of Physics Teachers      Portland, OR      July 21<sup>st</sup>, 2010

- **Miller, D. I.**, Halpern, D. F., & Saeta, P.N. Oral presentation at the Summer Meeting of the American Association of Physics Teachers (AAPT).

### **Spatial Training Narrows Gender Differences in Spatial Skills**

Western Psychological Association      Cancun, Mexico      April 23<sup>rd</sup>, 2010

- **Miller, D. I.**, & Halpern, D. F. Poster presentation at the 90<sup>th</sup> Western Psychological Association (WPA) Annual Meeting.

### **INVITED LABORATORY GROUP PRESENTATIONS**

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### **Gender-STEM Stereotypes: From the Sociocultural to Cognitive**

University of Chicago      Chicago, IL      May 3<sup>rd</sup>, 2013

- **Miller, D. I.** Invited presentation at Sian Beilock's Human Performance Laboratory Group Meeting.

### **Spatial Thinking in STEM Education: How Do Cognitive Strategies and Stereotypes Interact?**

University of Illinois at Chicago

Chicago, IL

April 9<sup>th</sup>, 2013

- **Miller, D. I.** Invited presentation at Mike Stieff's Research Group.

### **How Does Conceptual Knowledge and Psychosocial Factors Influence Spatial Thinking?**

University of Chicago

Chicago, IL

September 19<sup>th</sup>, 2012

- **Miller, D. I.** Invited presentation at Susan Levine's Research Group Meeting.

### **Longitudinal Impacts of 3-D Spatial Training among Gifted STEM Undergraduates**

University of California – Santa Barbara

Santa Barbara, CA

July 12<sup>th</sup>, 2011

- **Miller, D. I., & Halpern, D. F.** Invited presentation at the Mary Hegarty's Spatial Thinking Laboratory meeting at University of California – Santa Barbara.

### **Longitudinal Impacts of 3-D Spatial Training among Gifted STEM Undergraduates**

Temple University

Philadelphia, PA

May 31<sup>st</sup>, 2011

- **Miller, D. I., & Halpern, D. F.** Invited presentation at Nora Newcombe's Research in Spatial Cognition (RISC) Laboratory meeting at Temple University.

## **PHYSICS PROFESSIONAL PRESENTATIONS**

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### **Low Temperature Pressure Gauge Based on a Quartz Tuning Fork**

American Physical Society

Portland, OR

March 19<sup>th</sup>, 2010

- Huisman, F.M., Van Cleve, E., **Miller, D. I., & Taborek, P.** Oral presentation at the 2010 American Physical Society Annual Meeting.

### **Electron Counting Algorithm for Hadron Blind Detector - Hub and Spoke**

Physics/Astronomy REU Student Symposium

Stony Brook, NY

August 8<sup>th</sup>, 2008

- **Miller, D. I., & Hemmick, T.K.** Oral presentation at the annual 2008 Physics/Astronomy REU Student Symposium.

### **Hub and Spoke Counting Algorithm - Simulation Results and Future Directions**

Brookhaven National Laboratory

Stony Brook, NY

August 5<sup>th</sup>, 2008

- **Miller, D. I., & Hemmick, T.K.** Invited oral presentation at Brookhaven National Laboratory's August 5th Hadron Blind Detector (HBD) group meeting.

### **The Open Cluster Berkeley 70 and its Association with Cepheid Variable Auriga 45**

Astronomy REU Student Symposium

Flagstaff, AZ

August 8<sup>th</sup>, 2007

- **Miller, D. I., & Mandushev, G.** Oral presentation at the annual 2007 Astronomy REU Student Symposium.

## **PHYSICS RESEARCH EXPERIENCE**

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### **Physics Intern – Low-Temperature Physics Laboratory**

University of California - Irvine

Irvine, CA

June 2009 – August 2009

- Collaborated with a team of two graduate students and professor to implement a quartz crystal tuning fork as a sensitive pressure gauge in a vacuumed cryostat at operating temperature <2 K.
- Communicated results to laboratory group through oral presentation and written report.



## Research Experience for Undergraduates (REU) – High-Energy Nuclear Physics

SUNY – Stony Brook

Stony Brook, NY

June 2008 – August 2008

- Developed an event reconstruction algorithm to be used with the installation of the novel Hadron-Blind Detector (HBD) and tested its efficacy using realistic simulated collision events.
- Presented results during an international conference call of  $\sim 25$  physicists involved with the HBD's original design at Brookhaven National Laboratory's Relativistic Heavy Ion Collider (RHIC).

## Physics Research Assistant – High-Energy Particle Physics

Harvey Mudd College

Claremont, CA

Sept. 2007 – March 2008

- Applied different multivariate statistical classifiers to search for a faint signal of an excited charm-strange baryon using Stanford’s BaBar petabyte database of electron-positron collisions.

### Research Experience for Undergraduates (REU) – Astrophysics

Lowell Observatory

Flagstaff, AZ

June 2007 – August 2007

- Designed a novel statistical field star removal algorithm to construct an open cluster's color-magnitude diagram using data acquired from the Hall 42" telescope at Anderson Mesa, AZ.
- Presented results to audience of thirty people including fellow REU interns and mentors.

## TEACHING EXPERIENCE

## Teaching Assistant for Research Methods

Northwestern University

Evanston, IL

March 2013 – June 2013

- Hold consultation sessions to help develop students' research projects.
- Lead class section on how to use SPSS.
- Facilitate group discussions during class.

## Harvey Mudd Physics Academic Excellence (AE) Tutor

Harvey Mudd College

Claremont, CA

Sept. 2008 – May 2010

- Worked with a team of two to three other tutors guide an average of 15-20 freshmen and sophomores each session to complete weekly homework assignments while emphasizing development of problem-solving and critical-thinking skills.

## Harvey Mudd Physics Tutor

Harvey Mudd College

Claremont, CA

Sept. 2007 – May 2008

- Independently organized weekly group review-sessions to develop Harvey Mudd freshmen's understanding of special relativity and quantum mechanics through homework problems and conceptual review questions.

## Community College Mathematics Tutor

South Seattle Community College (SSCC)

Seattle, WA

Sept. 2005 – Jan. 2006

- While in high school, tutored college students in both group and individual settings at SSCC's Math and Science Tutoring Center. Subjects taught ranged from beginning algebra to multivariable calculus.

## STUDENT ADVISEES

**Calvin Dorsey: Undergraduate Research Assistant**

Northwestern University

Evanston, IL

January 2013 – Present

- Mentoring him in writing a proposal for summer research funding.
- Trained him in running participants for psychology experiments.

**Silva Tang: Undergraduate Research Assistant**

Northwestern University

Evanston, IL

October 2013 – Present

- Mentoring her on how to code articles for conducting meta-analyses.

**Kylie Nolla: Undergraduate Summer Intern**

Northwestern University

Evanston, IL

January 2013 – Present

- Mentored on her how to search literature databases, code articles, and conduct meta-analyses.
- Worked with her to prepare a poster presentation for a national conference.

**Stuart Babcock: Undergraduate Research Assistant**

Northwestern University

Evanston, IL

Oct. 2012 – June 2013

- Mentoring him in coding assessment items for their required visual-spatial thinking.
- Trained him in running participants for psychological experiments.

**Jessica Kwa: CalTeach Intern**

University of California - Berkeley

Berkeley, CA

June 2011 – August 2011

- Mentored her in formulating research questions and analyzing student data for her CalTeach internship which helps prepare future math and science K-12 teachers.

**REVIEWING EXPERIENCE**

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- Ad-hoc journal reviewer:
  - *Cognitive Processing*
  - *Developmental Psychology*
  - *IEEE Transactions on Learning Technologies*
  - *Journal of Applied Research in Memory and Cognition*
  - *Journal of Educational Psychology*
  - *Learning and Individual Differences*
  - *Proceedings of the National Academies of Sciences*
  - *Review of Psychology Frontier*
  - *Spatial Cognition*
- Reviewer for the Student Research Award Competition hosted by the Association for Psychological Science Student Council (2012; 2013)
- Reviewer for the RISE Award Competition hosted by the Association for Psychological Science Student Council (2012; 2013).

**PROFESSIONAL ORGANIZATIONS**

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- American Educational Research Association (AERA)
- American Psychological Association (APA)
- Association for Psychological Science (APS)
- Cognitive Science Society
- Society for the Psychological Study of Social Issues (SPSSI)
- Society for Personality and Social Psychology (SPSP)