Research Trends in Computer Science

Md. Khaliluzzaman
Assistant Professor
Dept. of Computer Science & Engineering
International Islamic University Chittagong (IIUC)

Research Project Areas

https://www.techsparks.co.in/thesis-topics-for-computer-science/

- Artificial Intelligence
- Bioinformatics and application to biotechnology
- Data science
- Cluster computing
- Computer graphics and game Design
- Database and data mining
- Image processing
- Internet application -IOT
- Multimedia and programming languages
- Networking, Internet Engineering, and distributed sensor networks
- Software engineering
- Parallel & distributed systems,
- Visualization
- Web based education

Today… **YOU**

Learn a bit about Computer Science
Give it a try!
Examine how your interests & skills connect to CS
Explore paths to careers
Consider next steps

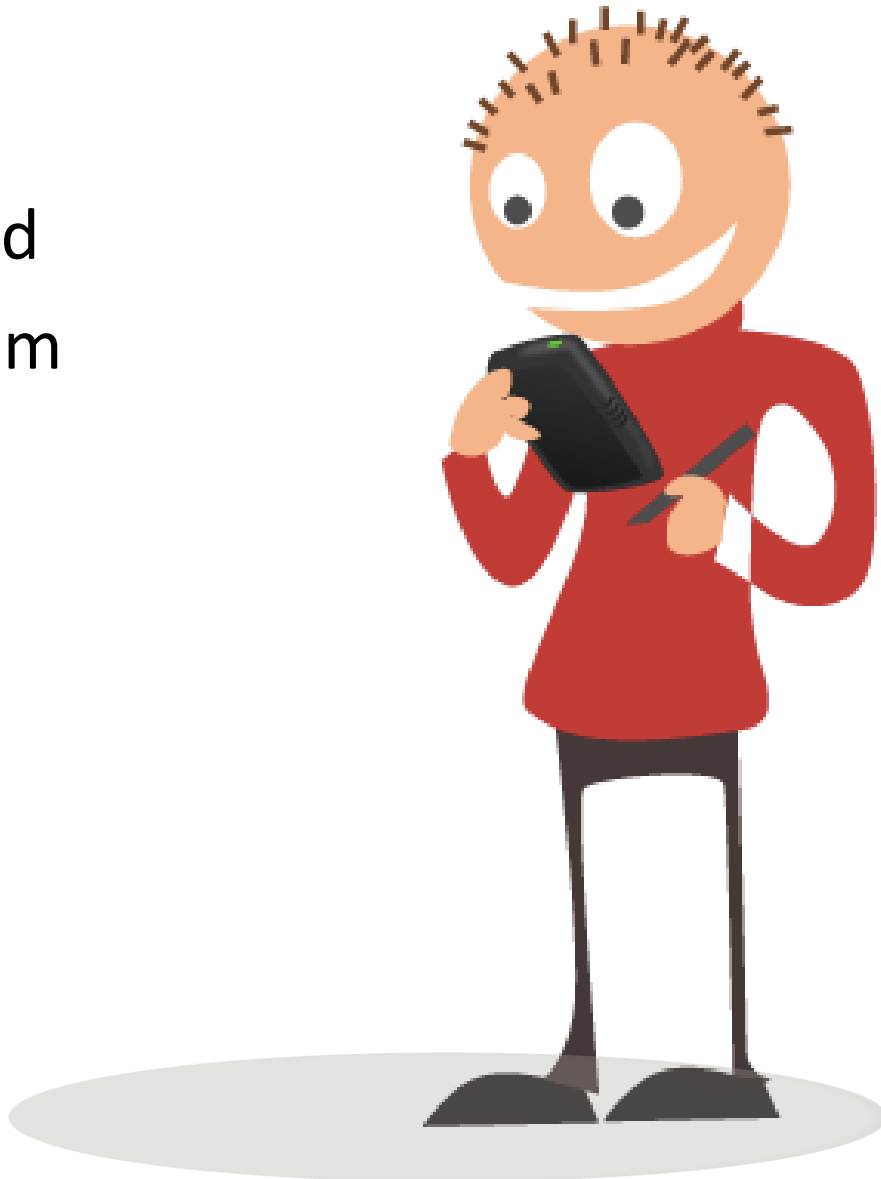
What is Computer Science?

CS is **posing a problem** in such a way that a **computer** can help us **solve** it.

- Communicate
- Solve problems
- Design and imagine
- Share, store, retrieve or manipulate information

What is Computer Science?

CS is **designing** computing devices and **programming** them



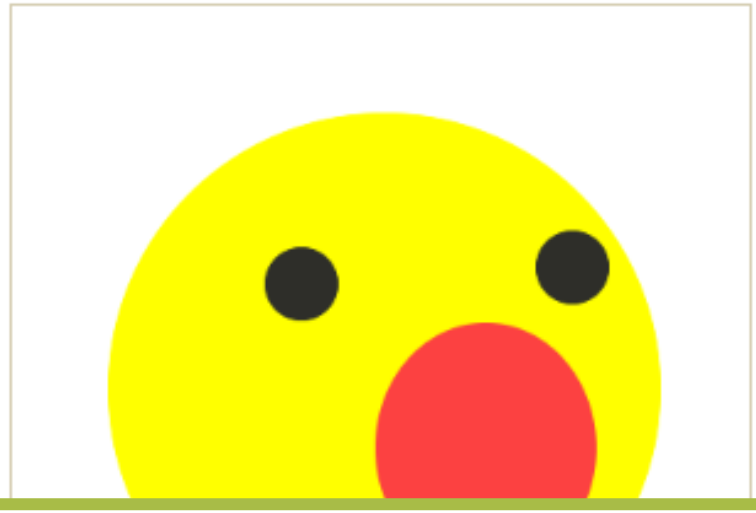

KHANACADEMY
WATCH
PRACTICE
COACH
VOLUNTEER
ABOUT
Computer Science » Browse All » Spinning Galaxy
Spinning Galaxy
New Program
// The radius of the circle
var maxRadius = 244;
var draw = function() {
background(250, 40, 117);
for (var i = 0; i < N; i += 1) {
var radius = maxRadius * sqrt(i / N);
var theta = angleChange * i;
var x = 200 + radius * cos(theta);
var y = 200 + radius * sin(theta);
ellipse(x, y, 15, 15);
}
angleChange += 0.01;
};
Save As
Share
Revert
0:00 / 3:38

```
// This is a comment! You can type anything you want
here
// as long as you keep those two slashes in the
front :D :D :D

// The line below is an instruction to the computer!
// Try commenting it out to see what it does...
noStroke();

// Change these numbers to see what each one is for
...
fill(255, 255, 0);
ellipse(202, 208, 300, 300);

// See if you can figure out what each line
does!
fill(46, 46, 41);
ellipse(157, 151, 40, 40);
ellipse(304, 142, 40, 40);
```

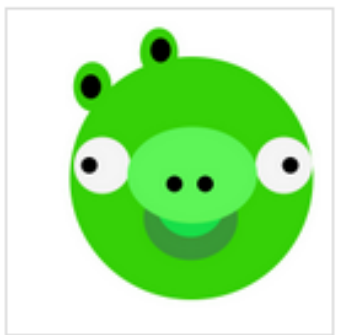


TRY any
http://goo.gl/JRySP

Save as a spin-off Restart

Questions Tips & Feedback Spin-Offs Documentatic

TRY spinning galaxy
http://goo.gl/tVCwa



Angry Birds happy pig
shsdick

3DBull
Donal Kelly

Batman
Sam Kellogg

Dumb Ways to Die (use a c...
Maddie C

Count Circula
RiverOtter19

Unlock Your Future

with Computer Science

PROTECT/SECURE

DESIGN/CREATE

CODE/DECODE

COLLABORATE/COMMUNICATE

PROBLEM SOLVE/ANALYZE

csta

CSEd WEEK

Computing is Computer Science | Computing is Computer Engineering | Computing is Informatics | Computing is Information Technology | Computing is Software Engineering | Computing is Information Systems

Computing Connects

music business manufacturing communications

advertising engineering accounting the arts

safety systems science

criminal justice recreation

veterinary medicine sports

agriculture pharmaceuticals

banking law automotive

photography military

architecture medicine entertainment design

politics journalism transportation health care

Only **50%** of tech jobs are at technology companies

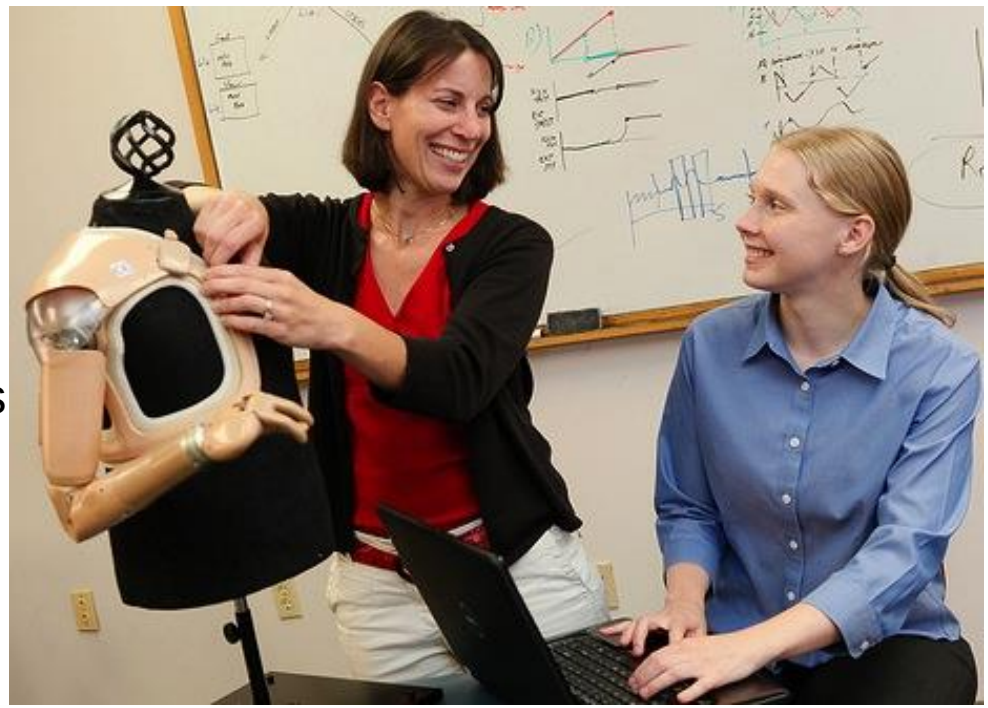
Computing Connects to Other Careers

For instance:* Are you interested in health fields*? You might want to study…

…***robotics*** and invent digital prostheses

…***computer engineering*** and build the next generation of laser surgical tools

…***bioinformatics*** and design a life-saving drug



Computer Science is *information systems*

Are you someone who:

- Understands relationships?

- Likes to do things efficiently?

- Is interested in business and connecting people?

Computer Science is *engineering new products*

Do you want to:

Create devices that can do the work for you?

Google Glass

Computer Science is
visualizing and creating imagery

Do you like:

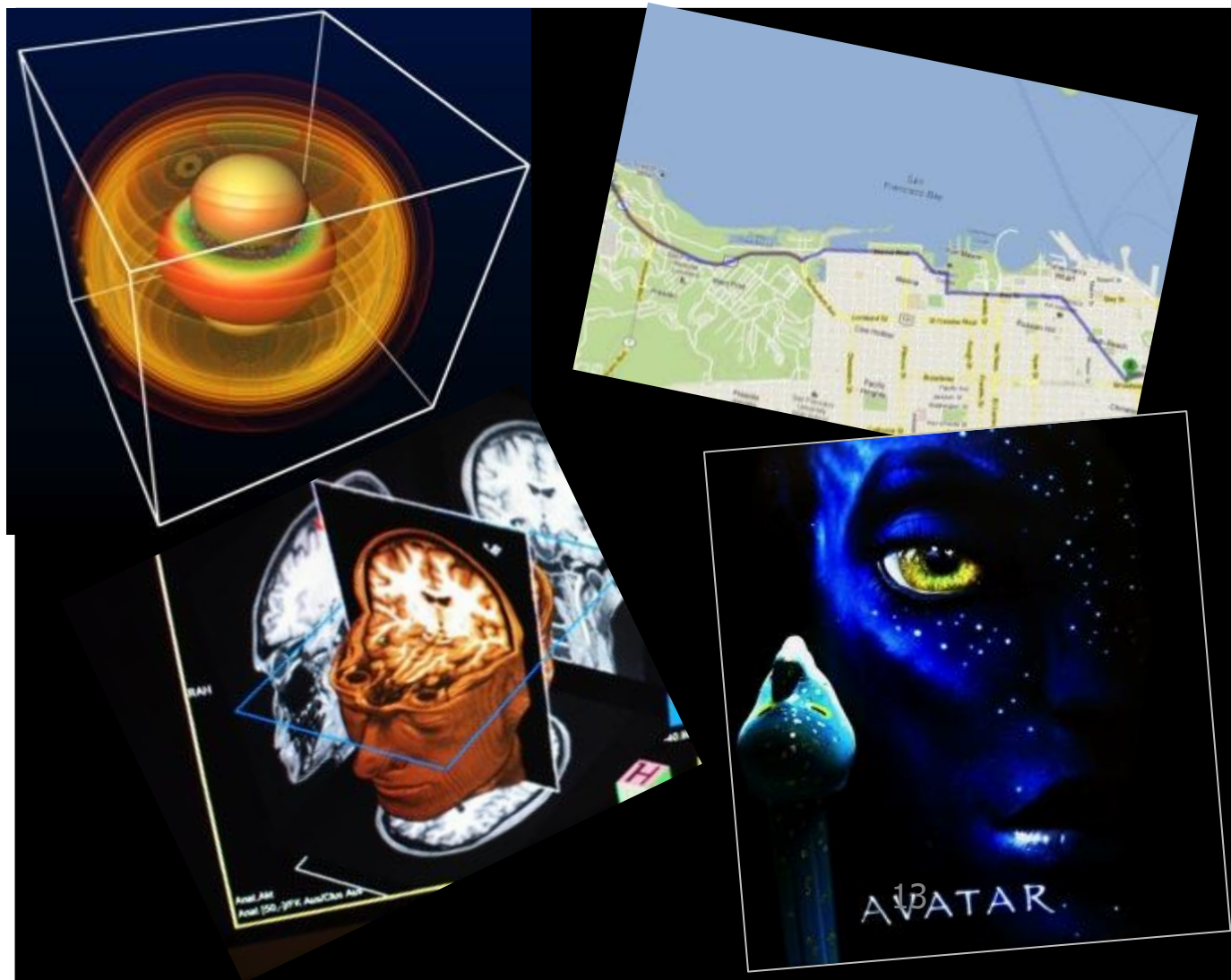
Art?

Science?

Game Design?

Theater?

Movies?

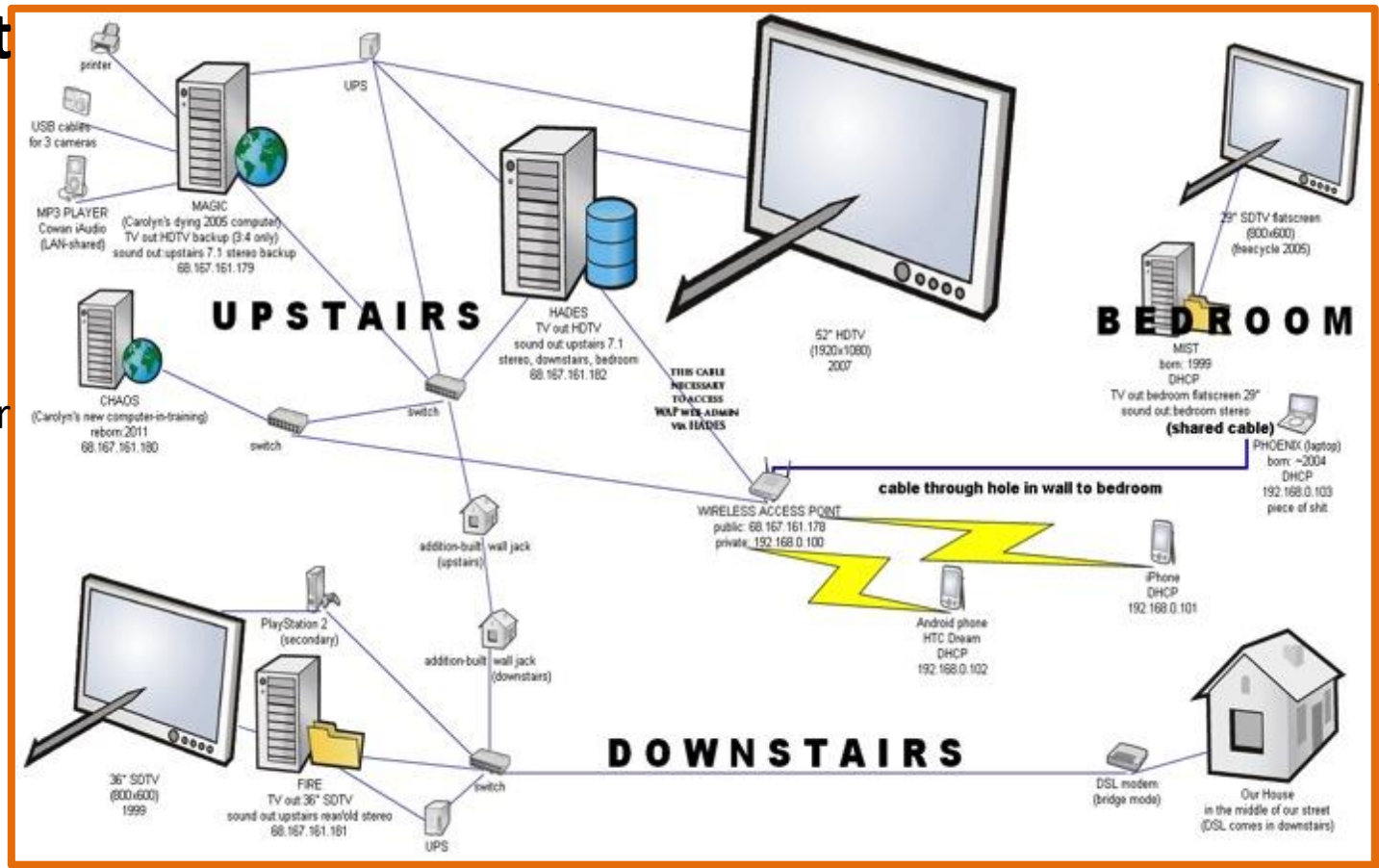


Computer Science is *Infrastructure and Networks*

Do you want to help:

Keep computer systems up and running?

Invent new ways for technologies to connect?



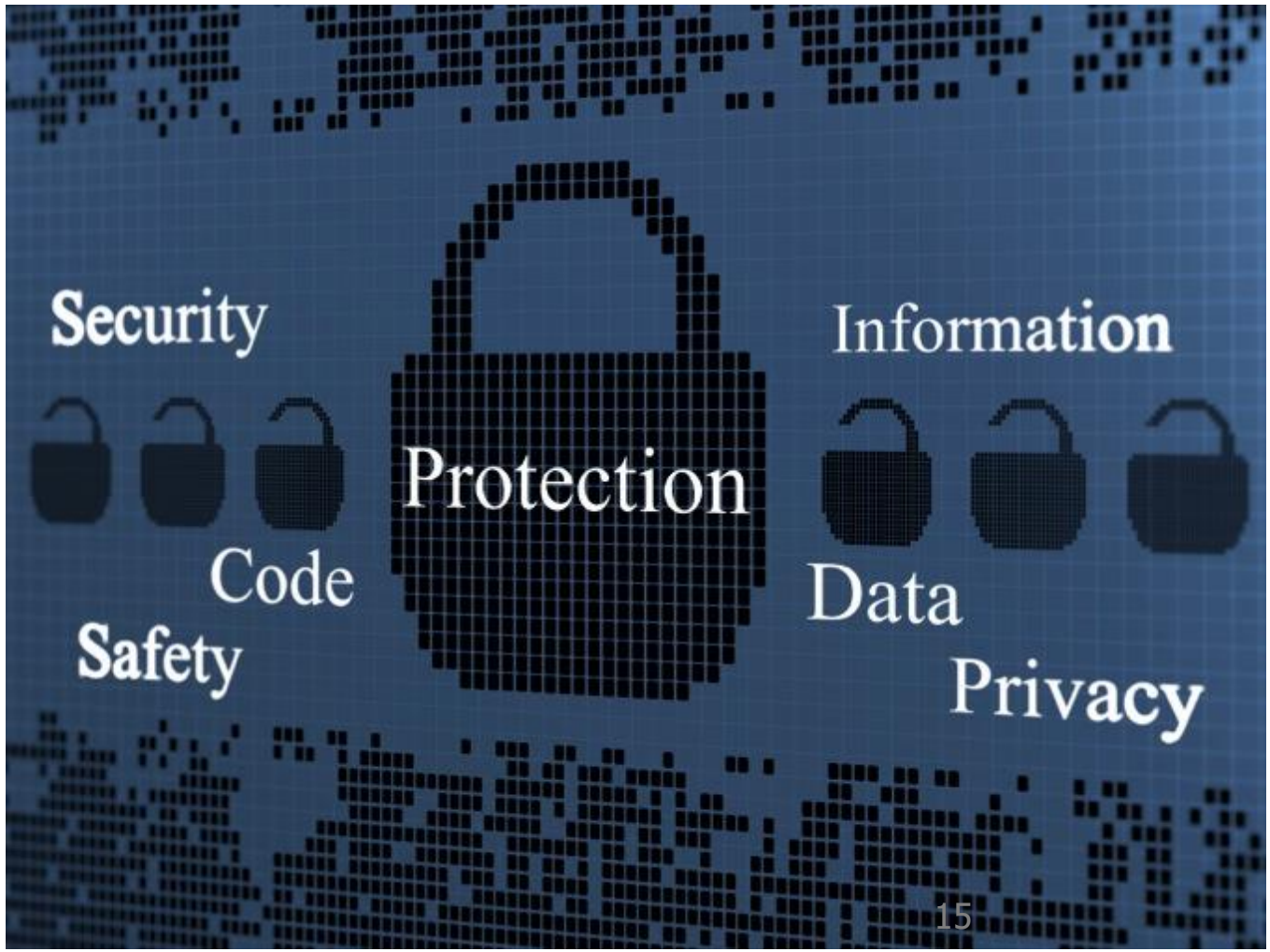
Computer Science is *Computer Forensics and Cyber Security*

Do you want to help:

Solve crime?

Keep us safe?

Secure information?



Computer Science is *Design*

Do you wan to:

Make models?

Design cars, houses, fashion, anything?

Paths to Careers

How people get started in Computer Science

Paths to Careers
What skills does CS require?

Computer Science might be right for you if you have…

Curiosity and imagination
Flexible, creative thinking
Work ethic – make an effort in math and science
Communication skills in order to tackle challenges with others

Paths to Careers: *How do people get started?*

Keep taking Science and Math

Learn Computer Science

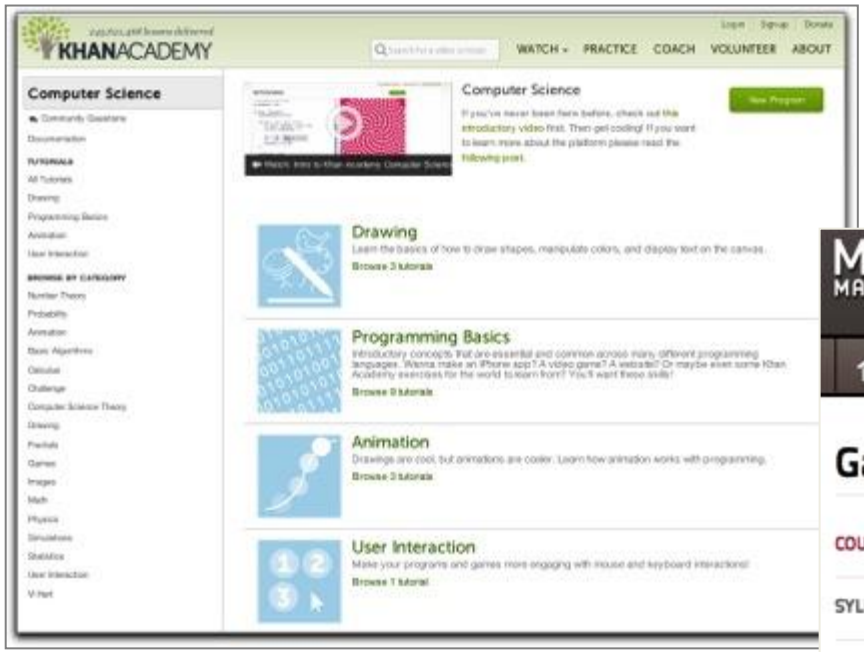
A first high school CS course might have you studying…

- Human Computer Interactic
- Problem Solving
- Web Design
- Introduction to Programr
- Robotics
- Computing Applications

Paths to Careers: *How do people get started?*

Learn Computer Science

You might study on your own or with buddies…



Take an online class…

Computing Careers

Among the **fastest growing, stable** and **flexible** offering **good salaries**

Examine Pathway Cards. Pair up and read. What do you notice?

Examine careers that connect with your interests at http://goo.gl/MlnCU (type the web address carefully)

Report back

Learn More!

Takeaway Tech information on

- Programming, Robotics and other Computing Activities
- Camps, Clubs, Competitions
- Computing Careers
- Opportunities for Self- Study

Go to: www.ncwit.org/takeaway

5 Trends in Computer Science Research

Check out these five trends storming the tech industry!

1. Artificial intelligence and robotics

2. Big data analytics

3. Computer-assisted education

4. Bioinformatics

5. Cyber security

Artificial intelligence and robotics

- With the global robotics industry forecast to be worth US$38 billion by 2018
- A large portion of this growth is down to the strength of interest and investment in artificial intelligence (AI)
- One of the most controversial and intriguing areas of computer science research.
- Tech giants like Facebook, Google and IBM are investing huge amounts of money and resources into AI research

Major and sub fields

There are so many different areas in computer science, For example, artificial intelligence, which aims to create computers programs that can reason like humans, includes the following subfields:

Cognitive Science

Computer Vision

Data Mining

Evolutionary Computing

Human-Computer Interaction

Imagine Processing

Information Retrieval

Knowledge Representation

Machine Learning

Natural Language Processing

Pattern Recognition

Robotics ….

Big data analytics

- Back in 2012, the Harvard Business Review branded data science the ‘sexiest job’ of the 21 century
- From banking to healthcare, big data analytics is everywhere
- As companies increasingly attempt to make better use of the enormous datasets they have, in order to personalize and improve their services

Computer-assisted education

- The use of computers and software to assist education and/or training, computer-assisted education brings many benefits and has many uses.
- For students with learning disabilities, for instance, it can provide personalized instruction and enable students to learn at their own pace,
- freeing the teacher to devote more time to each individual

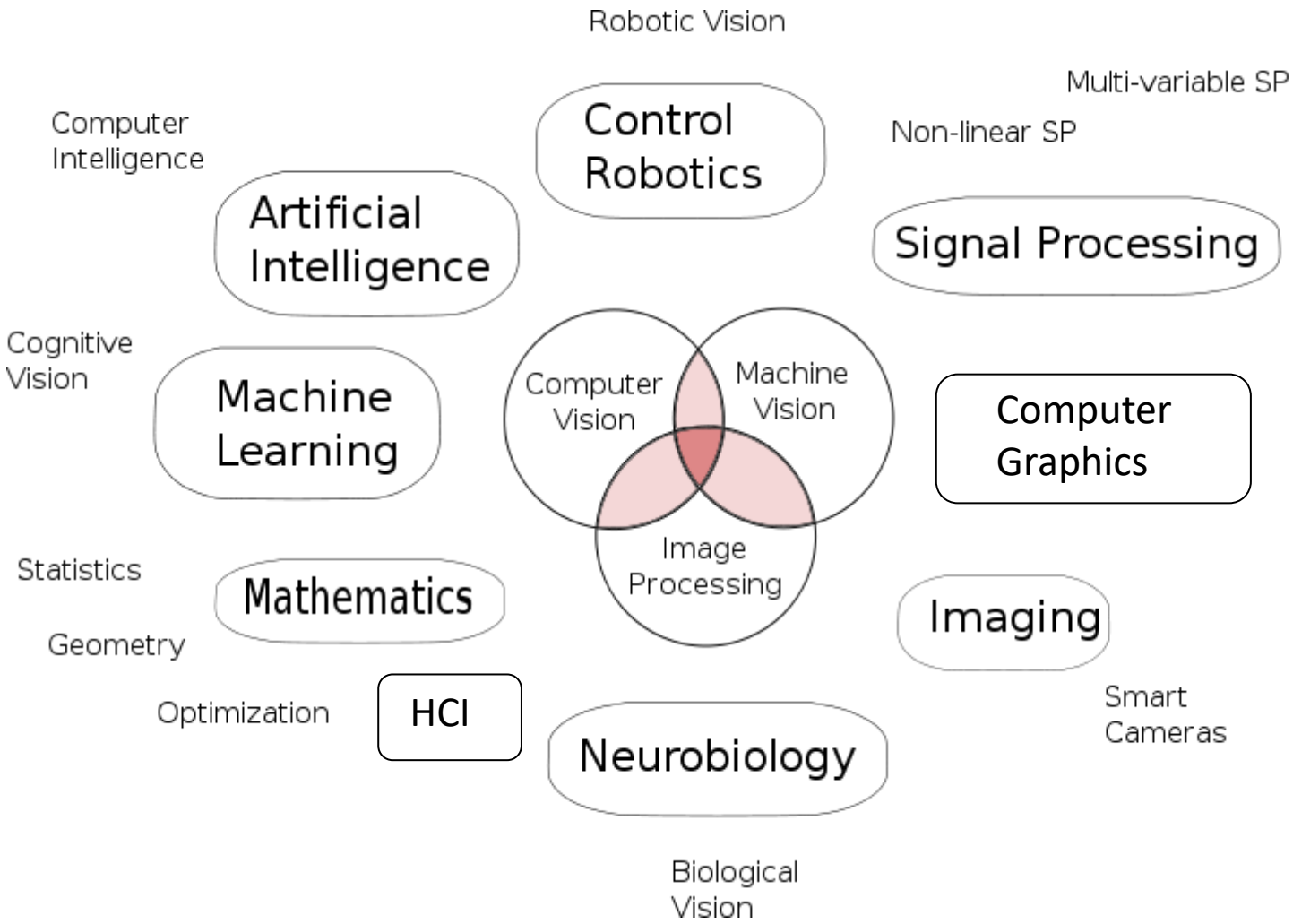
Bioinformatics

- A fascinating application of big data, bioinformatics, or the use of programming and software development to build enormous datasets of biological information for research purposes, carries enormous potential
- Linking big pharma companies with software companies, bioinformatics is growing in demand and offers good job prospects for computer science researchers and graduates interested in biology, medical technology, pharmaceuticals and computer information science

Cyber security

- According to 2014 data from Burning Glass, cyber security jobs in the US grew by 74% between 2007 and 2013 – more than twice the rate of IT jobs
- In February 2015, President Barack Obama spoke of the need to "collaborate and explore partnerships that will help develop the best ways to bolster our cyber security"
- It's not hard to understand why he might think so. from banking to dating to governmental infrastructure – is done online.
- In today's world, data protection is no longer optional, for either individuals or nations, making this another growing strand of computer science research.

DIP/Vision is multidisciplinary



From wiki

Research Field Focus in CSE, IIUC (not limited to)

1. Software Development, E-Commerce and E-Governance
2. Data Science, Big Data, Database Systems
3. Computer Networks, Data Communication, Network and Information Security
4. Internet of Things, Embedded Systems
5. Computer Vision, Human Computer Interaction, Image and Signal Processing
6. Expert System

https://www.techsparks.co.in/thesis-topics-for-computer-science/

Faculty Members Involved in MSC Program, CSE, IIUC

Name of the Faculty	Short Form
Prof. Dr. Md. Monirul Islam	DMMI
Prof. Mohammed Shamsul Alam	MSA
Mr. Mohammad Mahadi Hassan	MMH
Mr. Tanveer Ahsan	TA
Dr. Abdul Kadar Muhammad Masum	DAKM
Mr. Shahidul Islam Khan	KSI
Mr. Md. Mahiuddin	MMU
Mr. Mohammad Aman Ullah	AU
Mr. Md. Jamshed Alam Patwary	JAP
Mrs. Zinia Sultana	ZS
Mr. Md. Mahmudur Rahman	MMR
Dr. Touhidul Alam	DTA
Mrs. Subrina Akter	SA
Mr. Md. Khaliluzzaman	MK
Ms. Lutfun Nahar	LN
Mr. Shayhan Ameen Chowdhury	SHA

Research Focus by the Faculty (as per my knowledge)

Fields	Name of the faculty
Software Development, E-Commerce and E-Governance	All Teachers
Data Science, Big Data, Database Systems	MSA, DAKM, KSI, MMU, AU, JAP, MMR
Computer Networks, Data Communication, Network and Information Security	DMMI, MMU [MSU - CU]
Internet of Things, Embedded Systems	MSA, DAKM, MMR, DTA [MSU-CU]
Computer Vision, Human Computer Interaction, Image and Signal Processing	TA, MMH, MK, SHA

Faculty Members Research Interest According to Google Scholar, Researchgate, ORCID

Name of the Faculty	Short Form
MK	https://www.researchgate.net/profile/Md_Khaliluzzaman
	https://scholar.google.com/citations?user=_SXy3FkAAAAJ&hl=en
	https://orcid.org/0000-0001-6846-1610

Follow the Interest Person's/LAB'S Works

For Example: **ISLAB**

ULSAN UNIVERSITY

https://islab.ulsan.ac.kr/

IIUC Data Science Research Group

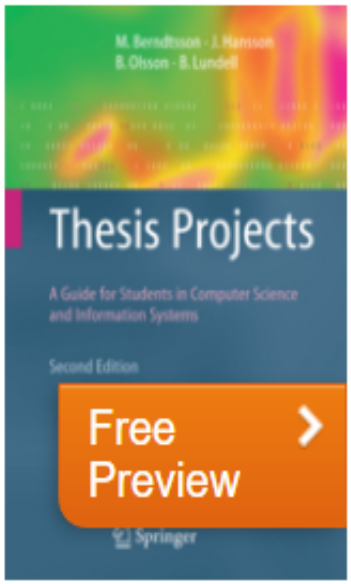
International Islamic University Chittagong

https://iiucdatascience.org/

AIMS Lab

United International University

http://aimsl.uiu.ac.bd/



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Thesis Projects

A Guide for Students in Computer Science and Information Systems

Authors: **Berndtsson**, M., **Hansson**, J., **Olsson**, B., **Lundell**, B.

Thanks !!