

Computer Science

—Invent the Future—



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





code.org



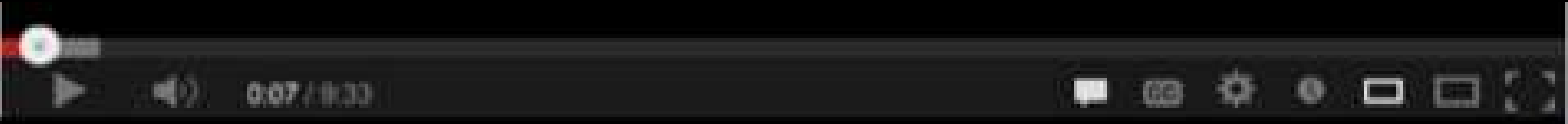
**The computer is incredibly fast,
accurate, and stupid. Man is
unbelievably slow, inaccurate,
and brilliant.**

**The marriage of the two is a
force beyond calculation.**

-Leo Cherne

**“Everybody in the country
should learn how to program a
computer... Because it teaches
you how to think.”**

-Steve Jobs



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



Spinning Galaxy

New Program

```
// The radius of the circle
var maxRadius = 244;

var draw = function() {
  background(255, 48, 117);

  for (var i = 0; i < N; i++) {
    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;
};
```



0:00

Save As

Show

Restart



0:00 / 3:38

Spinning Galaxy

by




```
// 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>

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

Questions Tips & Feedback Spin-Offs Documentation



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



DESIGN/CREATE



CODE/DECODE



PROTECT/SECURE



COLLABORATE/COMMUNICATE



PROBLEM SOLVE/ANALYZE



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

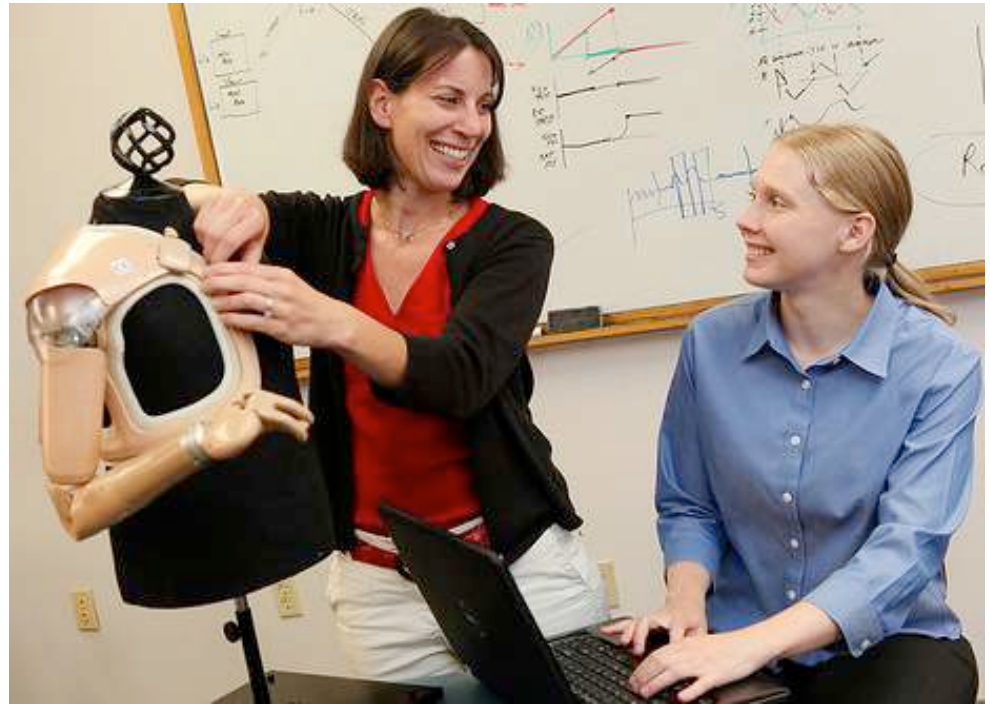
Computing Connects to Other Careers

*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:

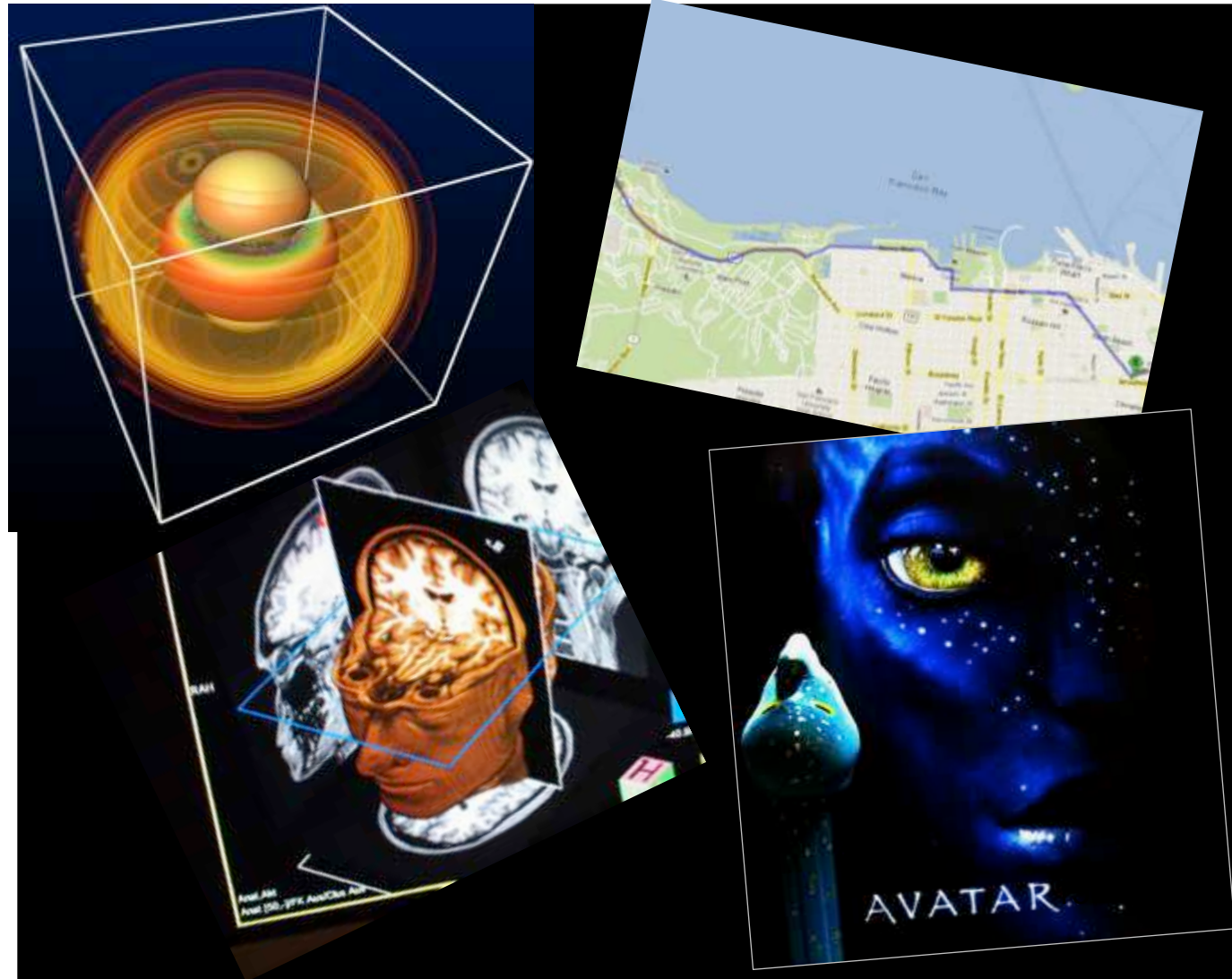
Art?

Science?

Game Design?

Theater?

Movies?

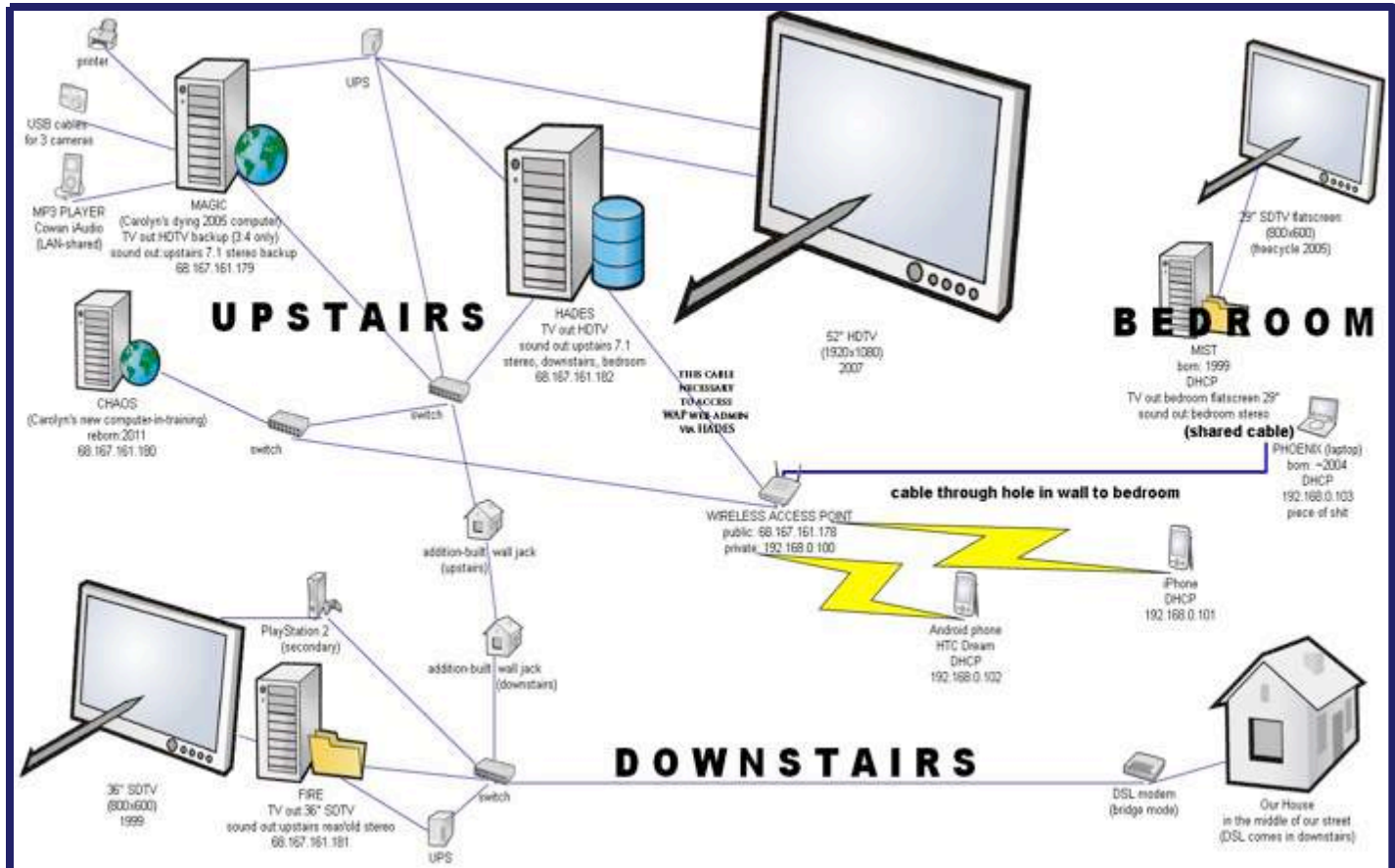


Computer Science is *Infrastructure and Networks*

Do you
want to
help:

Keep
computer
systems up
and running?

Invent new
ways for
technologies
to connect?



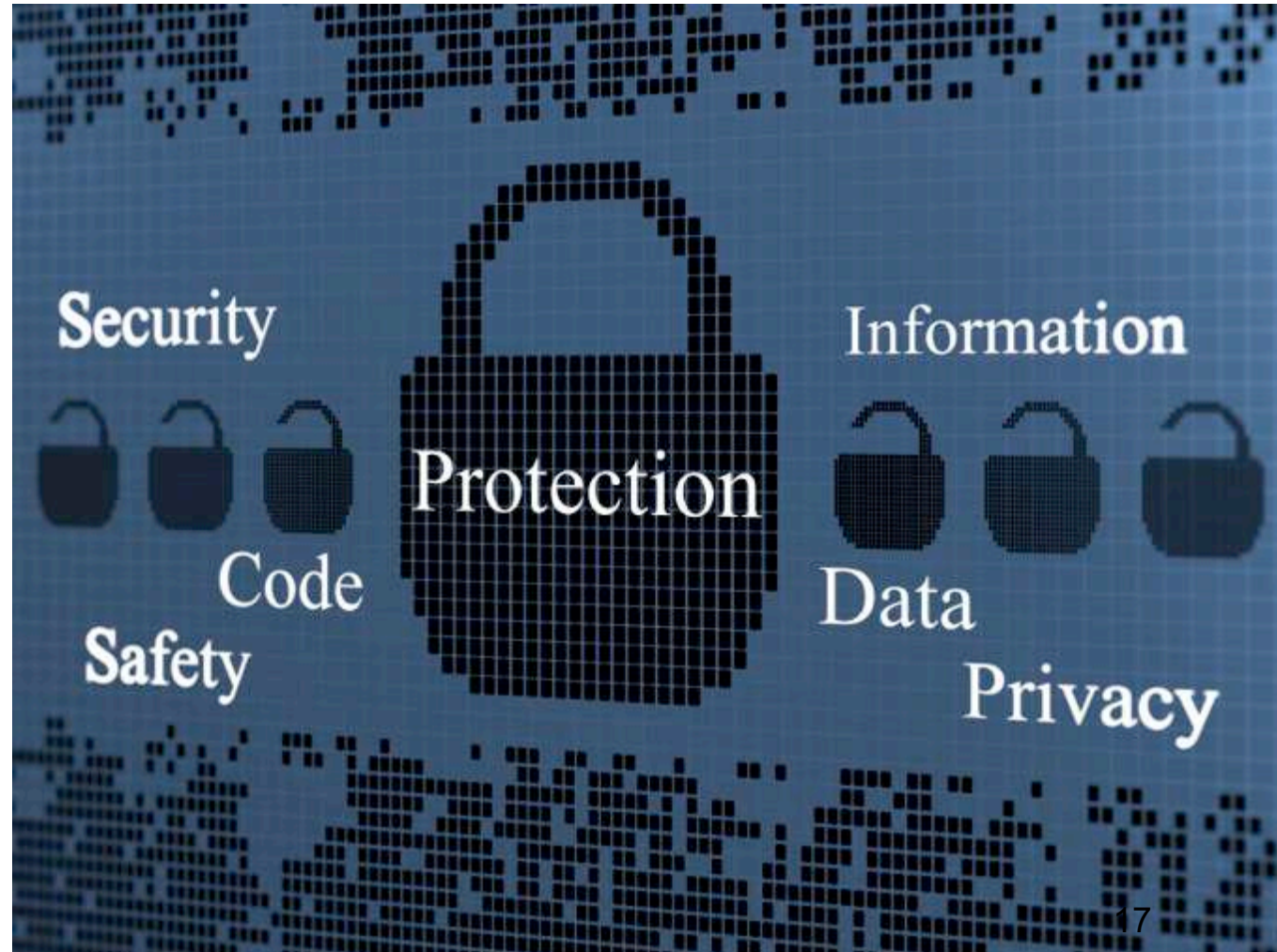
Computer Science is *Computer Forensics and Cyber Security*

**Do you want
to help:**

Solve crime?

Keep us
safe?

Secure
information?



Computer Science is *Design*

**Do you
want 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...

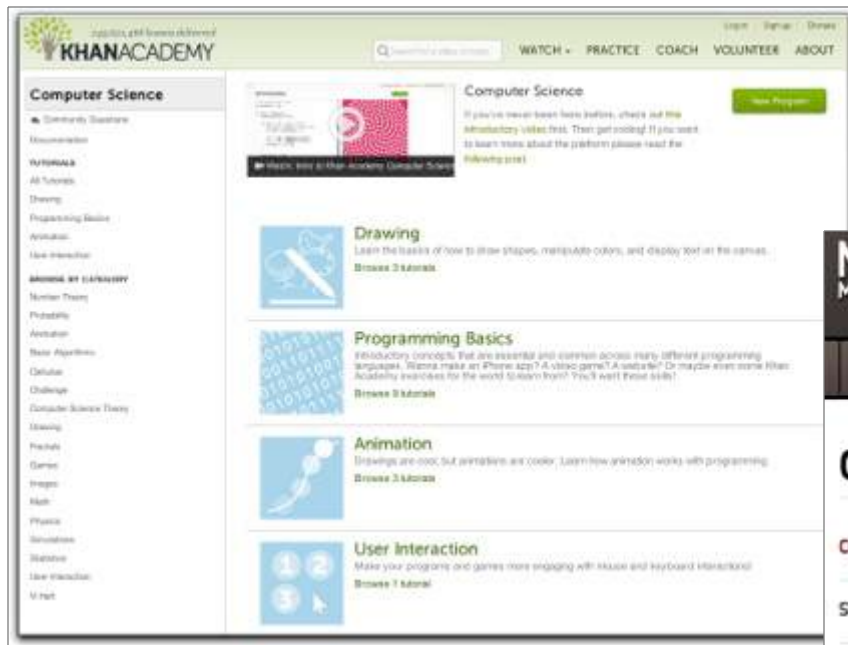
- Human Computer Interactions
- Problem Solving
- Web Design
- Introduction to Programming
- Robotics
- Computing Applications



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

Learn Computer Science

You might study on your own or with buddies...



Take an online class...



Sample First Year College Courses

Purdue University, Indiana

Problem-solving and object-oriented programming
Programming in C
Computer Architecture

University of California, Berkeley

Beauty and Joy of Computing
Introduction to CS Theory
Operating Systems and System Programming

University of Illinois

Little Bits to Big Ideas
Theory of Computation
Introduction to Programming

Other Courses

Computers and Society
Software Project Management
CSI Computer Programming
Network Security and
Hacking Prevention
PC Forensics
The Meaning of Information
Technology
Fundamentals of Digital Design
Theory of Computing
Computer Architecture

Artificial Intelligence
Design and Analysis of
Probabilistic Systems
Linear Algebra
Software Design
Programming Languages
Critical Thinking in Technology
Networks & Data
Communications
E-business/Web Development
Adv. Programming

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/MInCU> (type the web address carefully)
- Report back

Learn More!

Takeaway Tech information c

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

Go to: www.ncwit.org/takeaway



