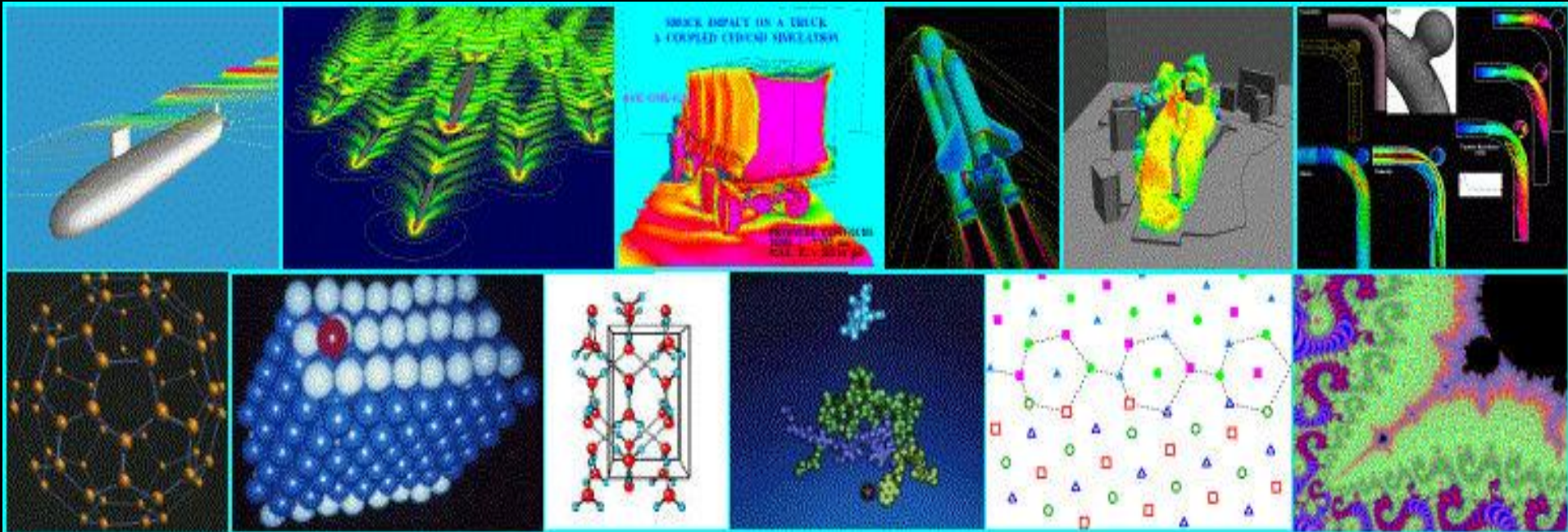# Computing for Scientists
Ethics
(April 30, 2013)

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Where We are?

Tool: MATLAB

0.   Introduction & Syllabus

Section 1. Computer Fundamentals

Section 2. Scientific Simulation

Section 3. Visualization

Section 4: Data Analysis

Section 5: Ethics

We are here!

Computing Changes Human Behavior
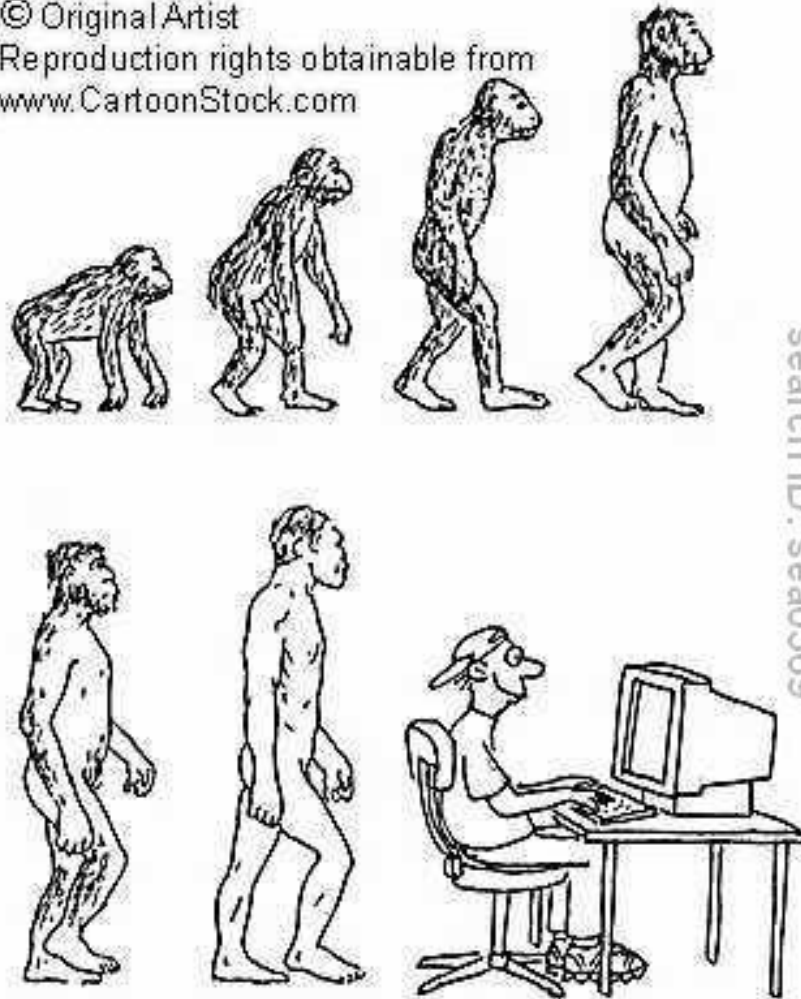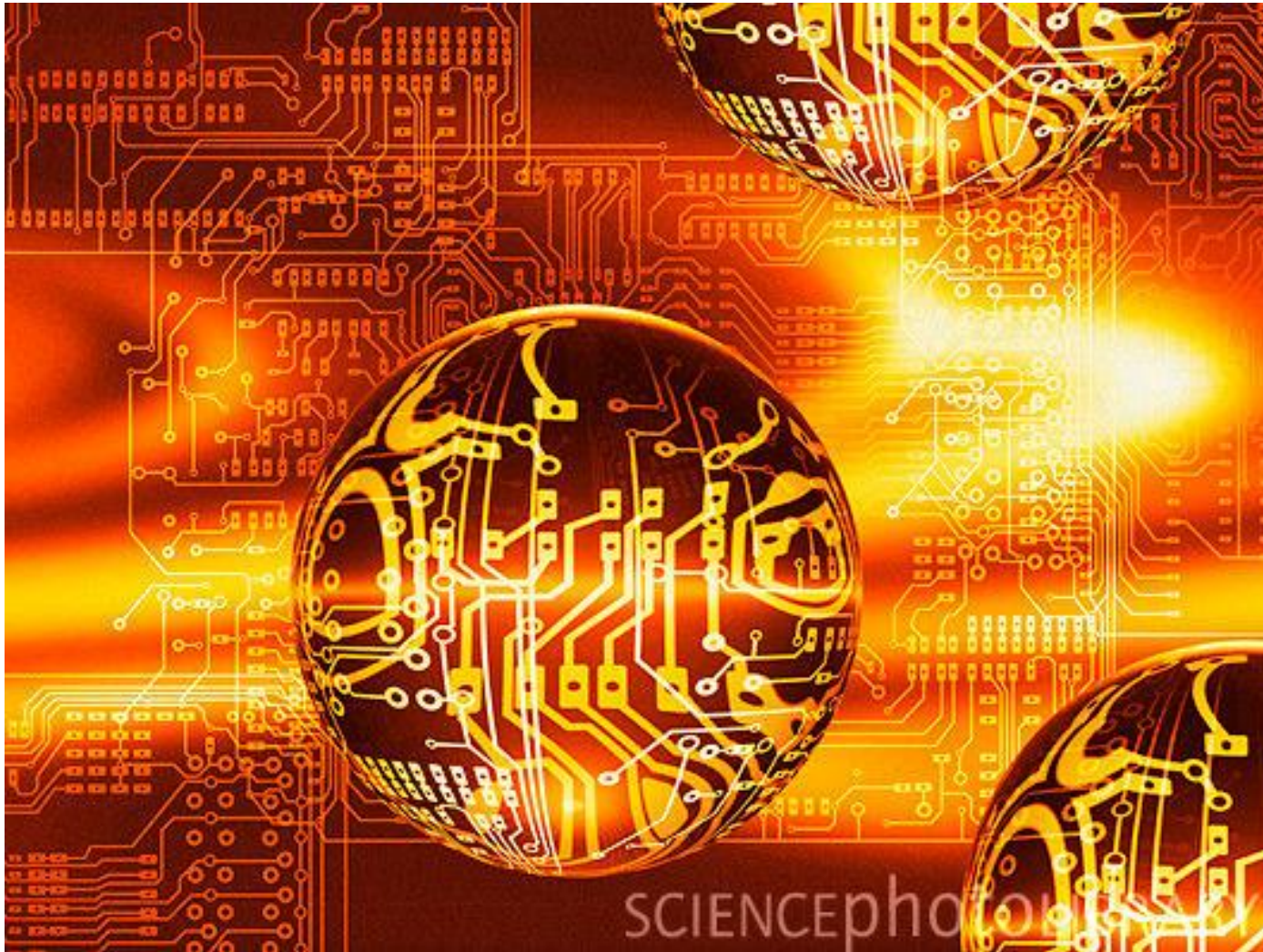
Computing Changes Human Behavior

Computing Changes "Human"

Future: Cloud Computing

Future: Quantum Computing

Computing Ethics: Definition

Ethics: also known as moral philosophy, is a branch of philosophy that addresses questions about morality – that is, concepts such as good and evil, right and wrong, etc.
-----http://en.wikipedia.org/wiki/Ethics

Computer Ethics is a branch of philosophy which deals with how computing professionals should make decisions regarding professional and social conduct
-----http://en.wikipedia.org/wiki/Ethics

What is unique?

- Issues are new, and yet new issues are emerging
  - ~ 60 years of computer
  - ~ 30 years of internet
  - 14 years of Google.com
  - 8 years of Facebook.com
  - 3 years of Ipad
  - 1 month of Google Glass
- It means that there is no standard solution yet.

What is unique?

- Computing ethics are different from other professional ethics.
  - Internet is promoting information sharing
  - Internet is global
  - Internet is interactive
  - Internet is anonymous
  - Internet is fast and reproductive.

Sample Ethic Issues

1. Software piracy

2. File sharing: share music, movies using programs such as Napster, Kazaa, BitTorrent

3. Monitoring of employee

Sample Ethic Issues

4. Computer security: virus, worms, Trojan horses, cookies, spyware, phishing

5. Storage of personal information, e.g, in social networking websites such as Facebook and Twitter

Case Study

Similar Programs from Two Students

In a computer class, students are asked to do an independent project involving a sizable programming in JAVA. The teacher noticed remarkable similarity among the programs turned in by student A and B. The algorithms are identical. The orderings of the lines of the source code are identical. There are only a few changes on the names of the variables. The teacher determined that one of the students must have copied the code from the other student.

Question: (1) What is wrong? Why?
(2) How should the teacher respond to the issue? Why?
(3) When the teacher informed the two students about the "copying", how should the students respond to it? Why?

Case Study

Copying music/movie from internet

There are websites providing free music and movies. Many people download them and share with friends, especially among young people

Question: (1) What is wrong with the web host? Why? And why do they do this?
(2) What is wrong with the users? Why?
(3) What penalty should be given? By who?
(4) Legal issue versus ethical issue?

The Ten Commandments
For Computer Ethics

1. Thou shalt not use a computer to harm other people.
2. Thou shalt not interfere with other people's computer work.
3. Thou shalt not snoop around in other people's files.
4. Thou shalt not use a computer to steal.
5. Thou shalt not use a computer to bear false witness.
6. Thou shalt not use or copy software for which you have not paid.
7. Thou shalt not use other people's computer resources without authorization.
8. Thou shalt not appropriate other people's intellectual output.
9. Thou shalt think about the social consequences of the program you write.
10. Thou shalt use a computer in ways that show consideration and respect.

The End