What is computing & information science?
And what will we do here?

http://www.cs.cornell.edu/courses/cs1305

Today's agenda
- What is CIS?
- Course mechanics
- Computing in society

Lunch and extra time to activate NetID, get textbook and other supplies, register (for international students), etc.
College admissions workshop

Computing is the study of natural and artificial information processes

- Information – data …
- Information process – the discovery (generation), storage, retrieval, and transmission of information
- Artificial – human built; simplified representation of a complex (natural) system or item
- Natural – biology; natural language

Common sense conceptions of “information”

- Knowledge derived from study, experience, or instruction
- Be something or be about something, (a message, a substance, a concept)
- Be true: a falsehood is mis-information, not information itself
- Can be documented and later accessed

H. Rosenbaum, Indiana University

Have you used a computer since arriving on campus?
What (where) are these computers?

A rapidly changing field…

- 40 years ago:
  How to make a computer useful
- Today:
  Applications
Many grand challenges relate to computing.

Grand challenges in science & engineering from 10 years ago…

- Prediction of change in weather, climate, global environment
- Human genome project
- Autonomous vehicle
- Speech recognition
- Computer vision
- Verified software
- Information retrieval

Computer Vision & Artificial Intelligence

- Sensors
- Data
- Artificial Intelligence (Brain)
- World
- Act
- Vehicle
- Action Plan, Control

Computer Vision

- Medical imaging (MRI)
- Object recognition
- Image correction

Computer Graphics

- Digitally synthesize and manipulate visual content
- Applications in entertainment, medicine, scientific visualization, military training

Artificial Intelligence … beyond robotics

- Machine learning
  - Spam filtering
- Natural language processing
  - Sentiment analysis
  - Machine translation
- Information retrieval
  - Library catalog search
  - Google search
Related to search technology, there are many other topics of interest and importance...

- Database
- Trustworthy system, security, privacy
- Human-computer interaction
- Web design and applications
- Policy and law

Our goals

- Learn about the broad field of computing & information science
- Analyze the social, legal, and ethical issues in computing today
- Learn about some cool CS/IS methods behind popular technologies (e.g., Google search)
- Learn some computer programming
- Discover the programs of study leading to careers in CIS

What will we cover? Lots…

Four main threads

- Social, ethical, and legal issues in computing
- CS Application areas: artificial intelligence, machine learning, information retrieval
- IS Application areas: information architecture, human-computer interaction, information retrieval
- Computer programming: graphics, media manipulation, 3-d modeling

What will you do?

- Participate in discussion, lecture, lab
- Read, reflect, and write…
- Develop computer programs
  - Manipulate digital media, build a spam classifier
- Perform a usability study on a real website
- Submit a term paper (and debate)
- Present a final project

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What determines your grade?

- Participation 10%
- Lab exercises and homework 45%
- 2 Tests 20%
- Term paper (and debate) 20%
- Final presentation 5%
Logistics

- **Typical** locations:
  - M-F 9:00-10:15  PH403
  - M-F 10:30-11:45  PH403
  - M-R 1:15-2:45  UP109 or ACCEL lab
  - M-R 3:00-4:45  ACCEL lab

- **Office hours:**
  - MWR 5-6p, TW 7-8p, F noon-1p