What is Computer Science?

- Computer science is no more about computers than astronomy is about telescopes. - Edsger Dijkstra

- Computer science is not as old as physics; it lags by a couple hundred years. However this does not mean that there is significantly less on the computer scientist’s plate than on the physicist’s: younger it may be, but it has had a far more intense upbringing! - Richard Feynman

Computer Science is a young discipline

- First computer science department formed in 1962

What is Computer Science?

- Artificial Intelligence

  Mars Rover

  Roomba

  CMU’s Sandstorm
What is Computer Science?

- Animation
- The Organization of Data, and Searching
- Medicine, Genomics
- Devices
Computer Science and Programming

- Computer Science is more than programming
  - Called *Informatics* in many countries
  - Elements of both science and engineering
  - Elements of math, physics, cognitive science, music, art, and many other fields
- To some programming is an art, to others a science, to others an engineering discipline.

What Will We Do in CompSci 4?

- Web pages/html (one week)
- Learn to program with Alice
- Java (2-3 weeks at the end)

- Logistics
  - Bring laptop or use class laptops
  - Textbook

How CompSci 4 Will Work

- In Class
  - Lecture/demos
  - Tutorials
  - Classwork (in assigned pairs)
    - REQUIRED ATTENDANCE
- Outside of class
  - Complete work not finished in class
  - Reading
  - Assignments

What Is Alice?

- A modern programming tool
  - 3-D graphics
  - 3-D models of objects
- Animation
  - Objects can be made to move around virtual world (a simulation or video game)
What does Alice run on?

- Alice is written in Java – should run on many systems
  - supports Mac and PC
- Which version of Alice are we using?
  - Alice 2.2 Beta,
  - don’t use the version in the book or on the alice web page, see the CompSci 4 resources page
  - May also use Alice 3.0 Beta a little

Fast Start Up

- Can quickly learn to create
  - A simple animation in a few minutes
  - A non-trivial animation in a few class periods
- Can learn to use the Alice interface after a few more class periods

The Power of Alice

- Automatically keeps track of 3-D objects
  - What objects are in the virtual world
  - Types of objects
  - Positions of objects in the world

Objects Have Multiple Parts that are moveable

- Objects already exist in libraries
Program an Object

Class Today

- Demo of Alice
  - Simple world
  - Projects from last semester
- Go over syllabus, web page
- A simple html web page
- Assignment 1