

CompSci 4  
Introduction to Programming  
Animation and Virtual Worlds  
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# 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

**PURDUE**  
UNIVERSITY

1962



## **Samuel D. Conte**

Professor emeritus of computer science and mathematics was the founding department head of the nation's first computer science program. October 1962.

# What is Computer Science?

- Artificial Intelligence



Roomba



Mars Rover



CMU's Sandstorm

# What is Computer Science?

- Animation



# What is Computer Science?

- The Organization of Data, and Searching



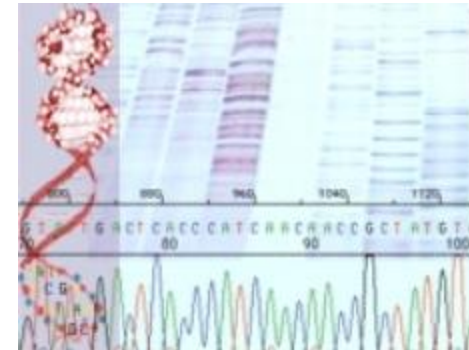
Did you mean: [computer science](#)





# What is Computer Science?

- Medicine, Genomics



# What is Computer Science?

- 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 (mostly)
- Research study
- 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 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

# 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

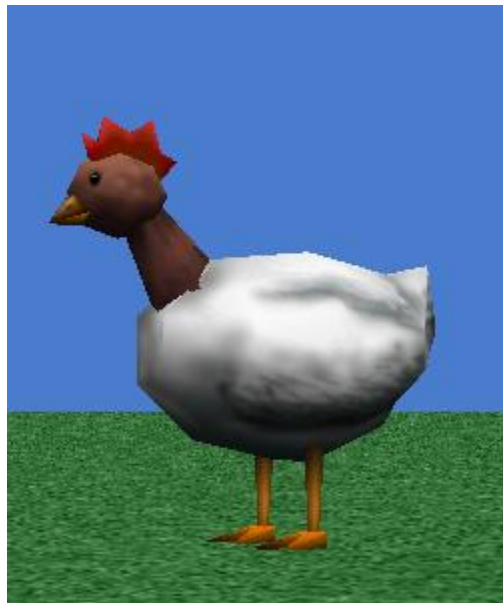
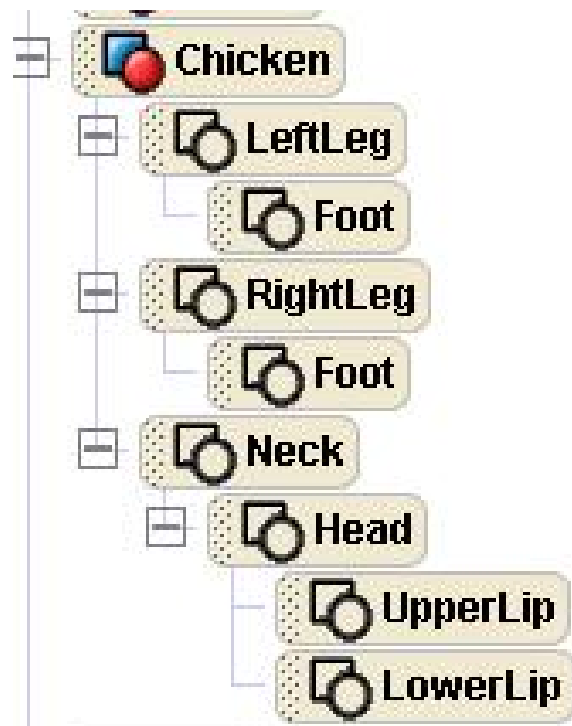


# The Power of Alice

- 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

 **World.my first method**

**World.my first method** *No parameters*

*No variables*

Chicken.Neck.Head ▾ turn right ▾ 0.25 revolutions ▾ more... ▾

Chicken ▾ move up ▾ 0.5 meters ▾ more... ▾

Chicken.Neck.Head ▾ turn left ▾ 0.25 revolutions ▾ more... ▾

Chicken ▾ roll right ▾ 2 revolutions ▾ more... ▾

 Do together

Chicken ▾ say CompSci 4 is going to be fun! ▾ duration = 4 seconds ▾ more... ▾

Chicken ▾ move down ▾ 0.5 meters ▾ more... ▾

Chicken ▾ move forward ▾ 10 meters ▾ style = abruptly ▾ more... ▾

# Class Today

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