Introduction to Computer Science I

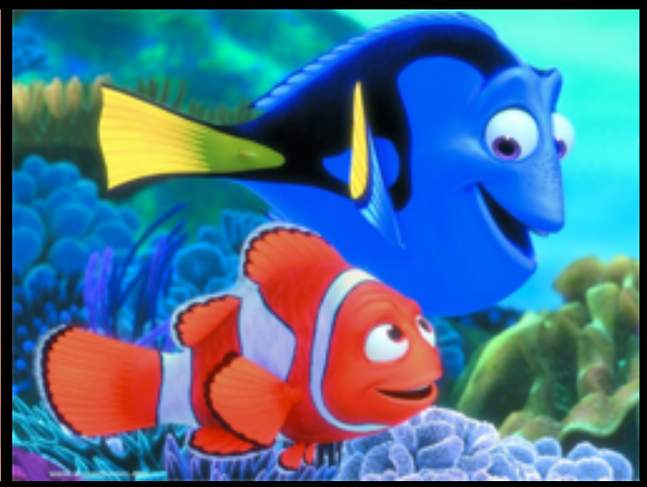
Alark Joshi

What is Computer Science?

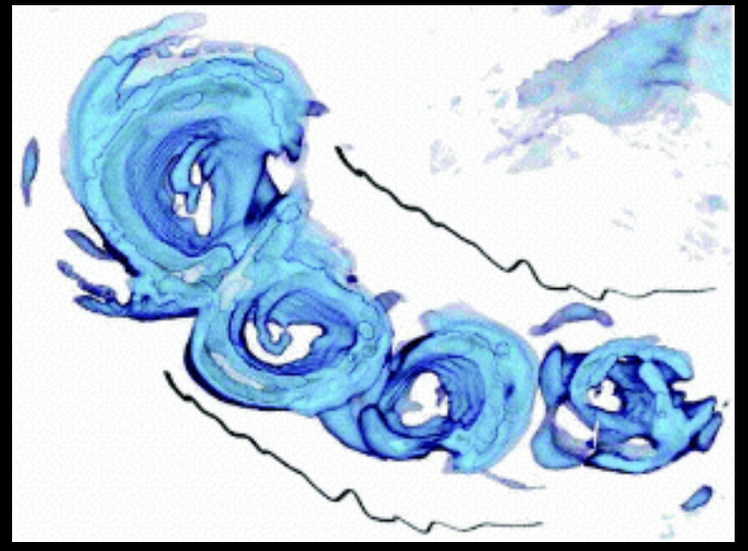
Who am I?

- Alark Joshi - Please call me Alark
- Ph.D. in Computer Science - 2007
  - University of Maryland
- Postdoctoral Associate - 2008-2010
  - Yale University
- Associate Professor
  - University of San Francisco

Research Interests



- Computer Graphics
- Scientific Visualization
- Graphics in Games
- Human-Computer Interaction



Contact Information

- Email: apjoshi@usfca.edu
- Course Website: http://cs.usfca.edu/~apjoshi/cs110
- Office: Harney 526
- Office Hours: Wednesdays 12:45am-2:15pm and Fridays 11am-12:30pm or by appointment

Teaching Assistants

- Theresa Nguyen
  - Email: tpnugyen@dons.usfca.edu
  - Office hours: Mondays, Fridays 1-2pm
- Rubin Trailor
  - Email: rmtrailor@dons.usfca.edu
  - Office hours: Tuesdays and Thursdays from 4:45pm-6:00pm

Syllabus

- Objectives
  - Learn the foundations of computer programming, computer algorithms, and data structures.
  - Practice computer programming using the **Python Programming Language (Python 3.x)**.
  - Learn HTML and Web Applications
  - Learn how to perform numerical computations, process text, draw graphics, and build dynamic web sites.
  - Become a Python Ninja/Princess! Have fun! :)

Problem Areas

- Academic Dishonesty
- Late policy for programming assignments
  - 20% deduction per day
- Pet peeves
  - Turning things late without giving ANY prior notice
  - Coming late to class
  - Being distracted (IM, other courses, etc.)

Resources

- Textbook (**required**) -
  - Starting out with Python by Gaddis (3rd edition)
- Lecture Notes and handouts
- Online resources page
  - http://cs.usfca.edu/~apjoshi/cs110/resources.html

Grading

- Programming Labs (25%)
- Projects (30%)
- In-class programming (5%)
- Quizzes (40%)

- How did you get "really" good at something?
- socrative.com - student login - ROOM#: USFCS110

A pottery teacher split her class into two halves.

To the first half she said, "You will spend the semester studying pottery, planning, designing, and creating your perfect pot. At the end of the semester, there will be a competition to see who's pot is the best".

To the other half she said, "You will spend your semester making lots of pots. Your grade will be based on the number of completed pots you finish. At the end of the semester, you'll also have the opportunity to enter your best pot into a competition."

The first half of the class threw themselves into their research, planning, and design. Then they set about creating their one, perfect pot for the competition.

The second half of the class immediately grabbed fistfulls of clay and started churning out pots. They made big ones, small ones, simple ones, and intricate ones. Their muscles ached for weeks as they gained the strength needed to throw so many pots.

At the end of class, both halves were invited to enter their most perfect pot into the competition. Once the votes were counted, all of the best pots came from the students that were tasked with quantity. The practice they gained made them significantly better potters than the planners on a quest for a single, perfect pot.

Labs and Projects

- Labs (8-9) are small programs that reinforce smaller concepts.
- Projects (4/5) are larger programs that need planning, time and much more effort than labs

Team-Based Learning

- Team-based learning (TBL) approach
  - Individual quiz (modified MCQ)
  - Team quiz following individual quiz
  - Mini-lecture/Team-based activities to reinforce learning and understanding

Name Brenna Lee Team Rex

Instructions: Each question is worth 4 points. You should assign a total of 4 points on each line. If you are uncertain about the correct answer you may assign points to more than one box.

Q #	A	B	C	D	E	Ind. points
1			4			4
2	4					4
3				4		4
4		4				4
5		~~4~~				0
6	4					4
7		4				4
8	~~4~~	~~4~~				0
9					~~4~~	0
10					~~4~~	0
					Totals	24

Team Test Instructions: After deciding on an answer, scratch off the covering to see if you are correct.

1 scratch = 4 points
2 scratches = 2 points
3 scratches = 1 point
4 scratches = 0 points

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT®)

Name Team Fergus Test # 1

Subject Total 40

SCRATCH OFF COVERING TO EXPOSE ANSWER

	A	B	C	D	E	Score	
1.					☆	4	
2.			☆			4	
3.					☆	4	
4.	☆					4	
5.				☆		4	
6.			☆			4	
7.		☆				4	
8.			☆			4	
9.	☆					4	
10.		☆				4	

Form# E017 ● © 2012 Epstein Educational Enterprises, Inc. U.S. Patent No. 6,210,171

Team-based learning

- Long lectures proven to be less effective
- Team-based learning
  - Apply
  - Question
  - Reflect upon material and
  - Discuss content as a group

Team-based learning

- Quiz every Tuesday unless specified
- Each quiz will be taken first as an individual
  - Same quiz will be taken as a team
  - Instant feedback for the team
- TBL quizzes – individual vs team performance
- Meet team members and introduce yourself

Purpose of the course

- Why are you here? Reasons to learn Python
- Python is the most commonly used language in industry today
  - http://www.tiobe.com/index.php/content/paperinfo/tpci/index.html
  - monster.com - search for Python related jobs
- Interview questions are based mostly on what you learned in your introductory CS courses.
- Time to learn the material is *now*

Collaborative Learning

- Not competitors, but collaborators
- Piazza invite sent out
- Ask questions anonymously (me/TA's/class)
- Use Piazza to help each other *respectfully*
- Answer questions and doubts that everyone seems to be having

Learning about Computer Science

- Post interesting articles on Piazza
- Tweet out interesting news (@alark)
- Discuss recent issues and their implications

Assignments

- Use PyCharm for your assignments
  - Download and install Python 3.x (newest version) from python.org
  - Download and install PyCharm Community Editon before next class (https://www.jetbrains.com/pycharm/)
  - Post questions on Piazza if you get stuck or need any help at all

Command Line/Terminal

- The command line/terminal is the interface to your computer
- You can efficiently perform functions on your computer using the command line
- Codeacademy's tutorial
  - https://www.codecademy.com/courses/learn-the-command-line

Attendance

- Attendance is **mandatory** unless a doctor's excuse is provided
- There will be no make up quizzes

For next class

- Activate Piazza account
- Install Python 3.x and PyCharm Community Editon
- Complete codeacademy's command line tutorial bring print out of the final screen to the TA at the next class

Questions?