

CompSci 101

Introduction to Computer Science



January 8, 2015

Prof. Rodger

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Announcements

- See assigned reading on course web page
 - Reading Quiz 1 (RQ1) online on Sakai
 - due by 10am Tues, Jan 13.
- Labs start next week!
- Install course software
 - Try to install before going to lab
 - Can get help (see course web pages)
 - If you get frustrated, get help!
- Today: Introduce Computer Science

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Who are the people in this course?

- Check out survey

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What is Computer Science?

bit.ly/101S15-0108-01

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Who are all these people? bit.ly/101S15-0108-02

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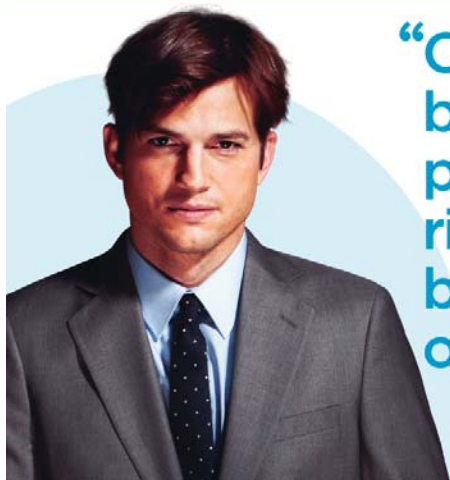
“In fifteen years we’ll be teaching programming just like reading and writing...and wondering why we didn’t do it sooner.”

— Mark Zuckerberg



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“Computer science belongs in every public school, right next to biology, chemistry, or algebra.”

— Ashton Kutcher

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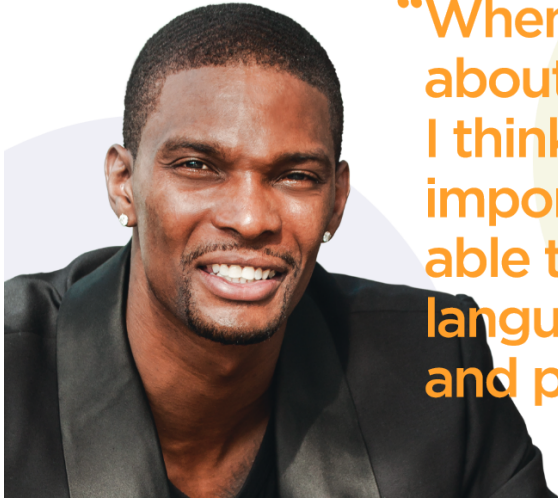
“I always did something I was a little not ready to do. I think that’s how you grow.”

— Marissa Mayer, CEO, Yahoo!



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“When you think about the future... I think it’s very important to be able to learn the language of coding and programming.”

— Chris Bosh



“From phones to cars to medicine, technology touches every part of our lives. If you can create technology, you can change the world.”

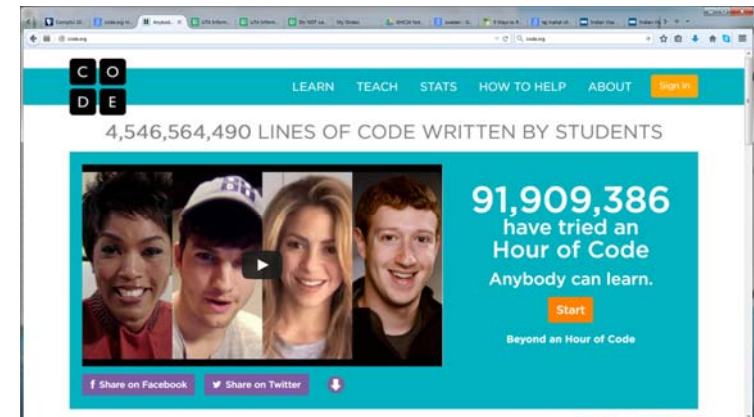
— Susan Wojcicki, CEO, YouTube



“Don’t just play on your phone, program it.”

— President Barack Obama

Those quotes are all from
Code.org



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



1962

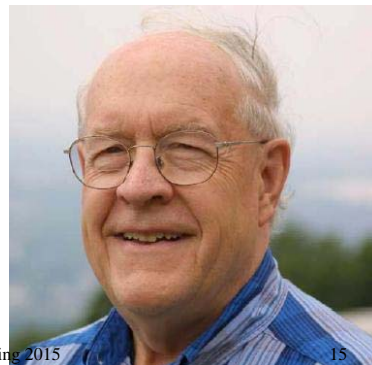


Samuel D. Conte
Professor emeritus of computer science and mathematics was the founding department head of the nation's first computer science program. October 1962.

Scientists and Engineers

- Scientists build to learn, engineers learn to build. - Fred Brooks

- Duke alum
- Chair of UNC's Computer Science Department
- Turing Award Winner



What is Computer Science?

- Artificial Intelligence



Spirit, Mars Rover



Roomba



CMU's Sandstorm 16

What is Computer Science?

- Animation



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What is Computer Science?

- The Organization of Data, and Searching



Web

Did you mean: [computer science](#)



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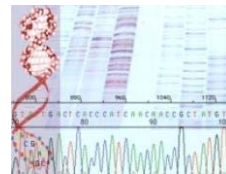
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What is Computer Science?

- Medicine, Genomics



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What is Computer Science?

- Devices



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Why is Programming Fun?

- What delights may its practitioner expect as a reward
 - First is the sheer joy of making things.
 - Second is the pleasure of making things that are useful.
 - Third is the fascination of fashioning complex puzzle-like objects of interlocking moving parts.
 - Fourth is the joy of always learning.
 - Finally, there is the delight of working in such a tractable medium. The programmer, like the poet, works only slightly removed from pure thoughtstuff.

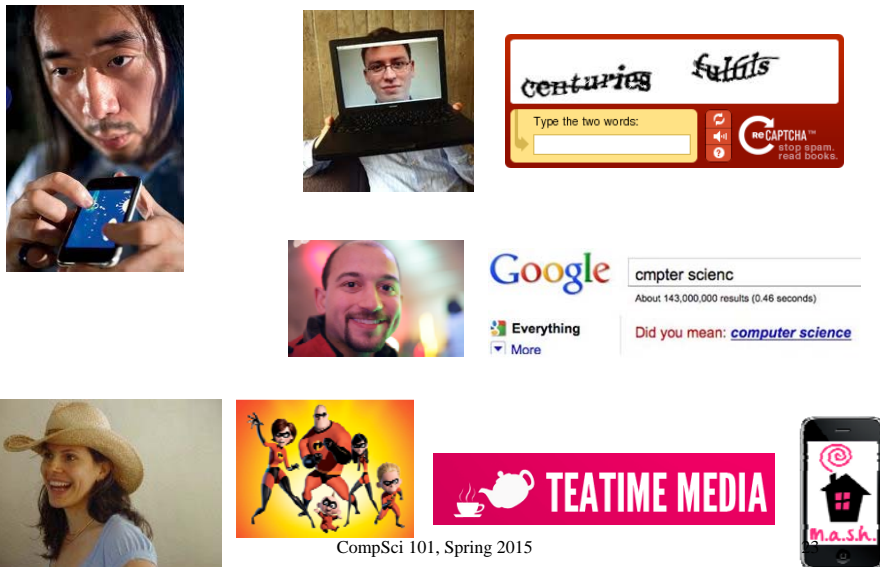
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What do Computer Scientists look like?



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Computer Science Duke Alums



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Go over Course Syllabus - Who is Prof. Rodger?

www.cs.duke.edu/courses/spring15/compsci101

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What language will we learn?

- <http://www.python.org/>
- Python is a *multi-paradigm* language
 - Procedural
 - Functional
 - Object-Oriented
- Simple, huge libraries, widely used
- Guido is BDFL



Why is it called Python?



What are these logos?

bit.ly/101S15-0108-03



Python code hello.py

```
'''
Created on Jan 7, 2015
```

```
@author: Susan
'''
```

```
print "hello world"
```

Python code

bit.ly/101S15-0108-04

```
def main():
    filename = "romeo.txt"
    fileToProcess = open(filename)

    count = 0
    for line in fileToProcess:
        words = line.strip().split()
        for word in words:
            if len(word) == 4:
                count = count + 1
    print "count is", count

if __name__ == "__main__":
    main()
```