

CompSci 6

Introduction to Computer Science

active become books career challenges
china class command duke education
experience growing gu hours journey keep
knowledge kunshan learning life live mental
miles perfect person played preserve problems
program proposes read really saying scholar skill
something ten think thought
thousand together truth
understanding walk weeks
words work world yanwu year

August 30, 2011

Prof. Rodger

President Brodhead
speech graduation 2010

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Announcements

- Get the book, no reading yet.
- Lab 1 starts Sept 1
- Bring laptop to class/lab
- Before lab try to install Java, Eclipse and Python, and two plug-ins PyDev & Ambient
 - See Resources page
 - If you have trouble, just download the files for onto your laptop before coming to lab and we will help you in lab with the installation

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Introduction

- Professor Rodger



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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

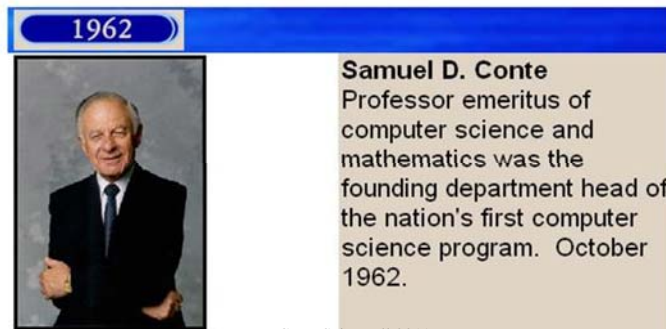


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Computer Science is a young discipline

- First computer science department formed in 1962



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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



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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.

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What Is Computer Science?

- What is it that distinguishes it from the separate subjects with which it is related? What is the linking thread which gathers these disparate branches into a single discipline? My answer to these questions is simple --- ***it is the art of programming a computer.*** It is the art of designing efficient and elegant methods of getting a computer to solve problems, theoretical or practical, small or large, simple or complex.

C.A.R. (Tony) Hoare
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C.A.R. (Tony) Hoare

- Turing Award Winner
- Knighted by Queen Elizabeth



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What is Computer Science?

- Artificial Intelligence



Spirit, Mars Rover



Roomba



CompSci 6 Fall 2011 CMU's Sandstorm 10

What is Computer Science?

- Animation



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What is Computer Science?

- The Organization of Data, and Searching



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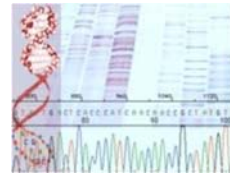
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What is Computer Science?

- 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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Fred Brooks

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What do Computer Scientists look like?



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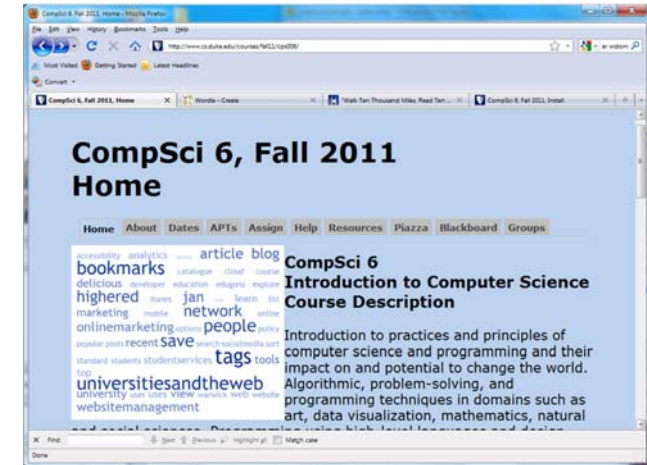
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Computer Science Duke Alums



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Course Logistics



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What will we learn in CompSci 6?

- Algorithms – solving problems
 - Organizing data to search
- Programming language Python
 - www.python.org
 - 1991, Guido von Rossom

Classwork 1: Word Cloud

- Number of occurrences/emphasis indicated by size of word
- Let's create a word cloud from the survey
- Discuss how to make a word cloud

active become books career challenges
china class command duke education
experience growing go hours keep
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miles perfect person played problems
program person really saying scholar skill
something ten think thoughts
thousand together truth
understanding walk words
work world previous year

