

# CS10 The Beauty and Joy of Computing

Lecture #1 Welcome; Abstraction

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Lecturer SOE
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#### ALGORITHMS CONTROL THE WORLD?

The algorithm is rapidly taking over vital functions of businesses, from the next Pandora song, to suggesting what to buy on Amazon, to evaluating whether a movie was going to be a hit, to making trades, etc. They're running a Chi-NY dedicated fiber so an algorithm can close deals 3ms faster!



www.bbc.co.uk/news/technology-14306146

## **Design constraints of CS10**

- CS61A expects program. experience, recursion
- $\,^{\circ}\,$  CS10 hits that in week 5, just about the same time as CS3
- What should ugrads know about computing?
  - Computational Thinking
  - History, CS+X, Industry guests
  - apps that changed the world, hot research
  - "How stuff works" ... demystifying computing
- Passion, Beauty, Joy & Awe
  - Take every step to make fun for non-traditional students
- Make all resources free, available (Berkeley way)
  - Videos, notes, exercises, book!

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# Non-majors: Out with CS3, In with CS10

- CS3S & CS3L
  - Programming, programming, programming
    - Prog Ideas: Recursion, Functions-as-data
  - Scheme
  - + Same as CS61A
  - some take CS3L for wrong reason
  - Never remix code
  - Maybe graphical, interactive by week 15
  - 1 big Final project

- CS10
  - Programming ½ story
    - Big ideas, HowStuffWorks, history, great applications, social implications too!
    - Prog Ideas: Recursion, Functions-as-data
  - Scratch + BYOB
    - CS10,61[ABC] each in a different language
    - · Graphical, interactive,
  - musical by week 2
  - Share and upload code!
  - Two projects + essay

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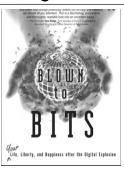
## Format, Textbooks, Grading

- Format
  - Two 1-hr lectures / wk
  - Two 2-hr labs / wk
  - One 1-hr TA discussion/wk

#### Selected Reading

- Taken from recent books and papers
- Grading
  - Quest, Midterm, Final
  - One paper (or blog)
  - Midterm project
  - Final project
- Weekly readings & HW
- Effort, Participation, Altruism

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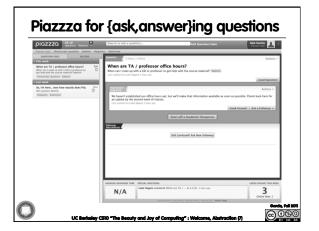
#### **Peer Instruction**

- Increase real-time learning in lecture, test understanding of concepts vs. details
- As complete a "segment" ask multiple choice question
  - 1-2 minutes to decide yourself
  - 2 minutes in pairs/triples to reach consensus. Teach others!
  - 2 minute discussion of answers, questions, clarifications





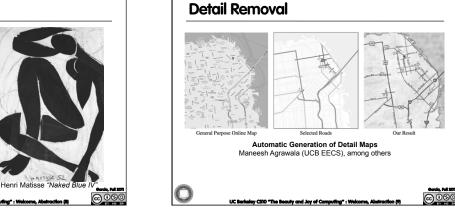
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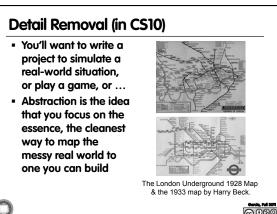


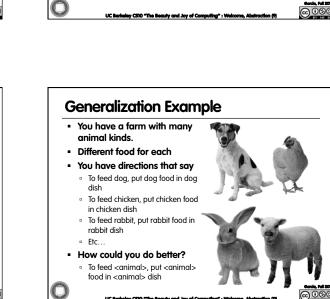


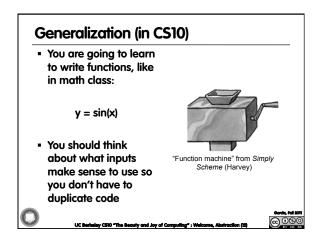
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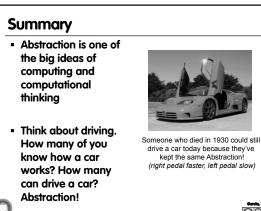
instances\*











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