“Any sufficiently advanced technology is indistinguishable from magic.”

—Arthur C. Clarke

"It's a no-brainer that 50 to 60 years from now, cars will drive themselves"

—Sebastian Thrun

Faculty director, "Junior" autonomous car project

quoted in Forbes, May 11, 2011

"Nevada has become the first state to issue an 'autonomous' license for a driverless car"

—USA Today, May 8, 2012

Google Self-Driving Car on El Camino Real
August 2015

Computing as a Growth Accelerant

“Google Data Center” Circa 1997

Image courtesy of Google

http://google.stanford.edu

Image courtesy of Google

A Day in the Life of Google

A picture is worth a few hundred million search queries…

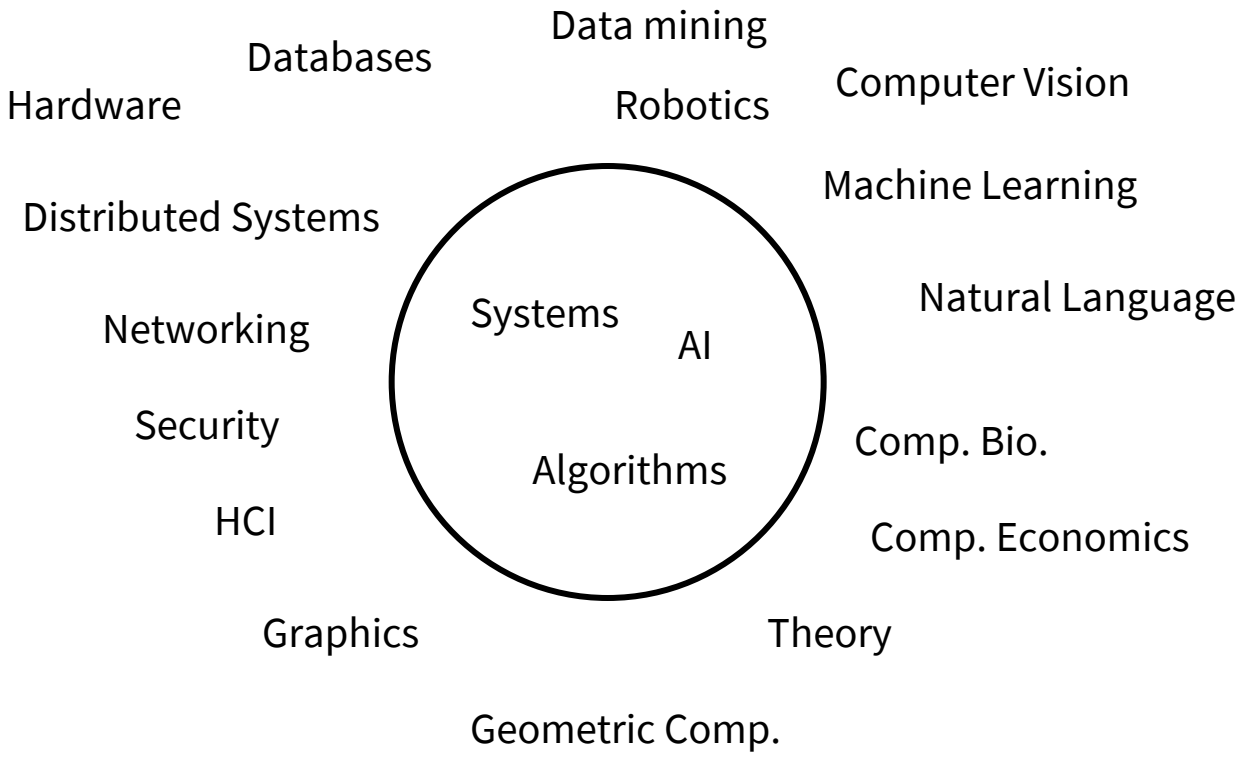
Image courtesy of Google

The Power of Computing

- Creating awareness of “CS in the large”
- Computing is increasingly needed for work in other fields
- Providing context for computing
  - Programming is a *means*, not an *end*

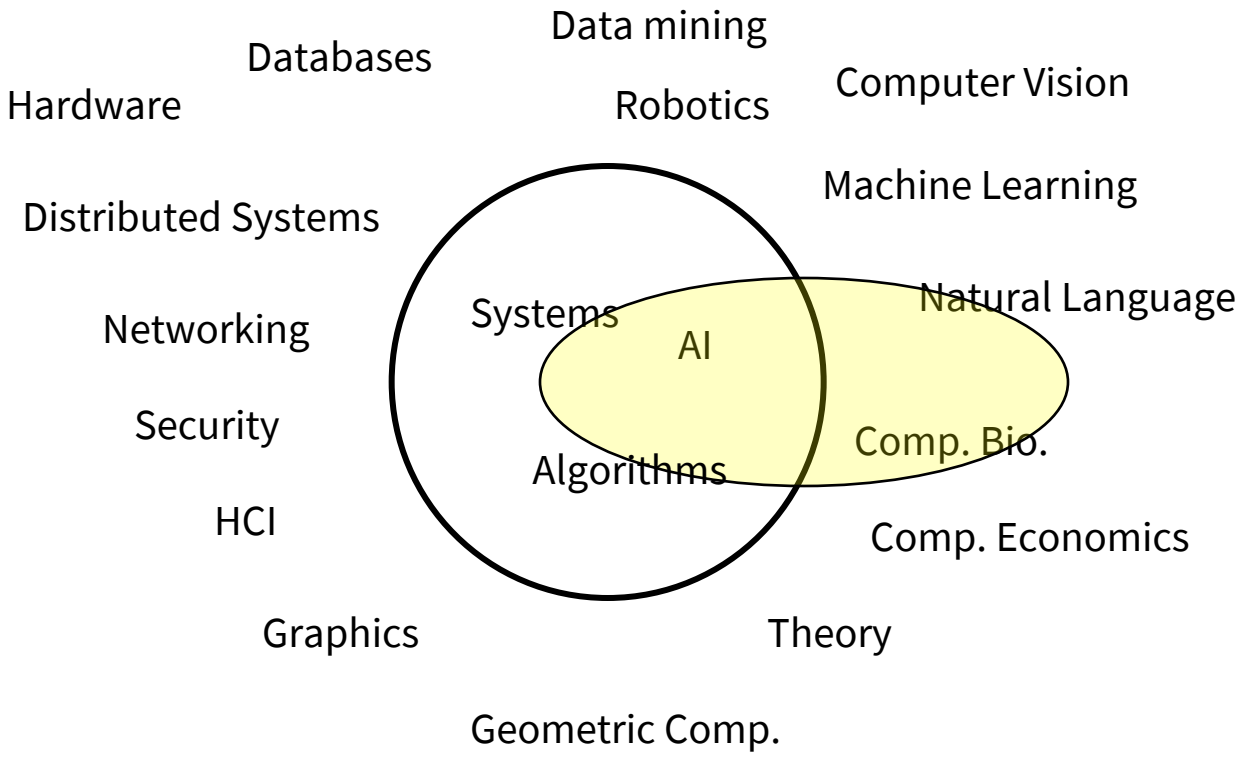
It’s about empowerment!

A Broad View of Computer Science

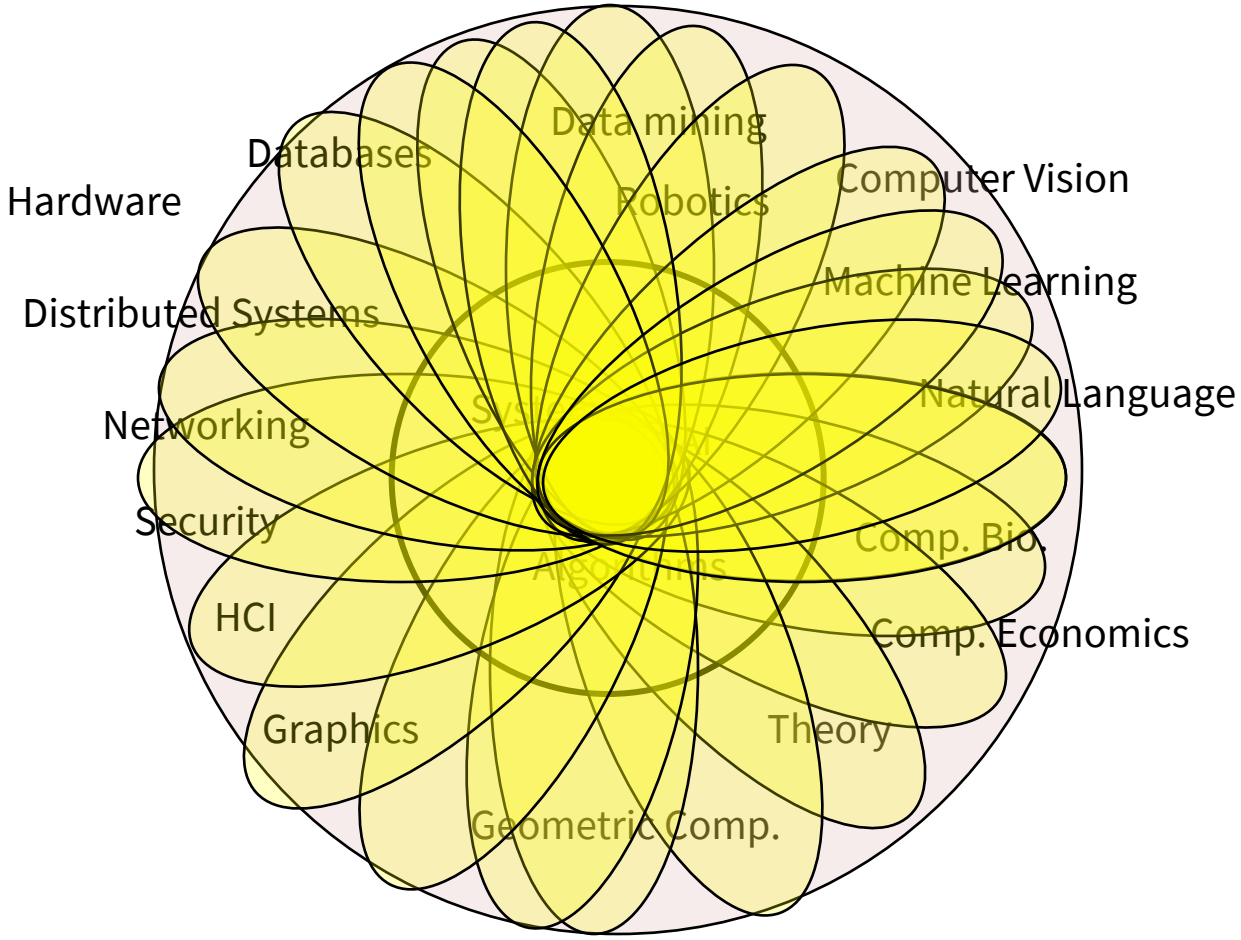


Editor's Note: Two-dimensional projection clearly does not capture the relative importance or organizational nuances of the field. Some topics may be closer to you than they appear on this slide.

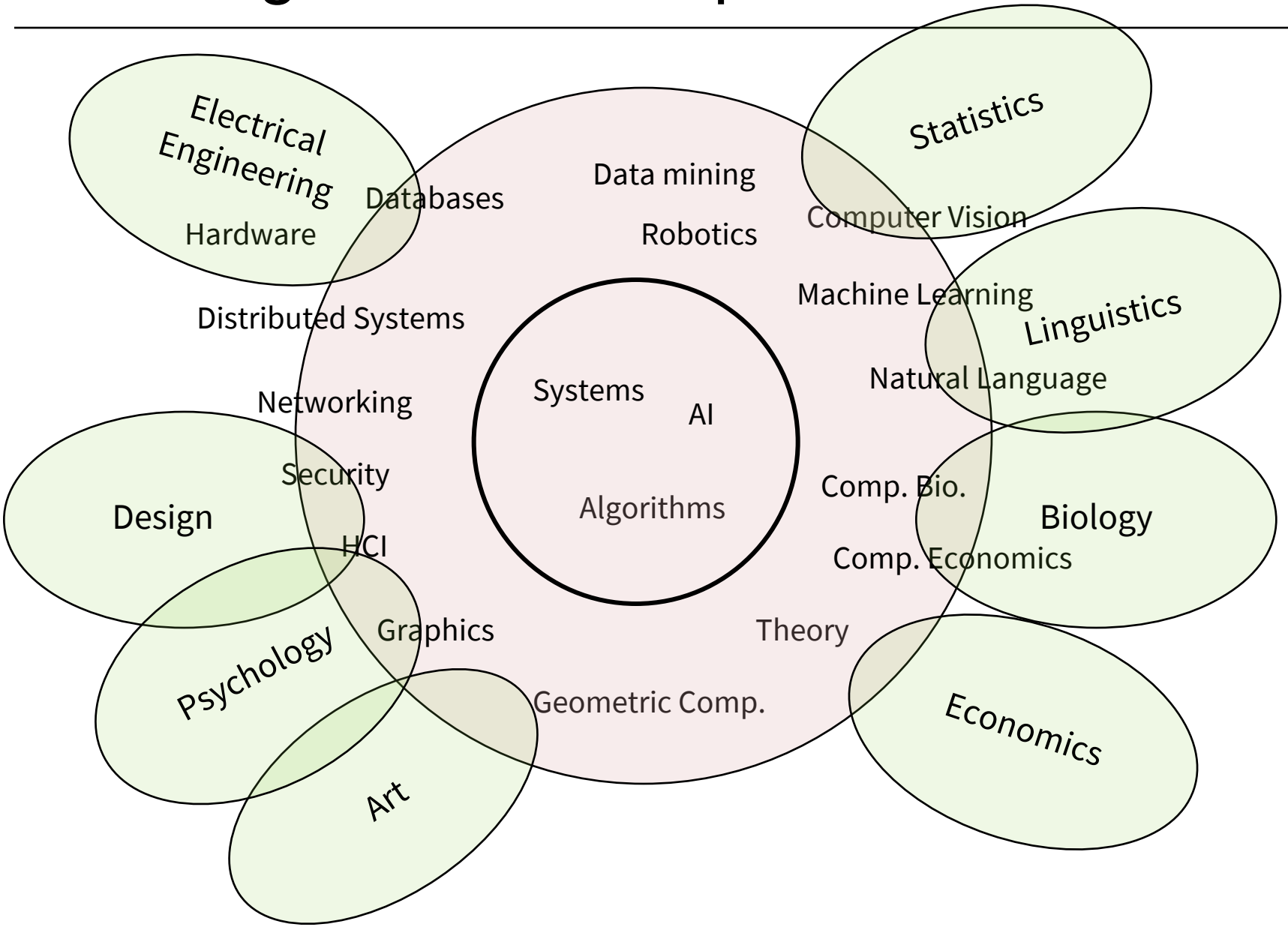
CS Major Allows Exploration



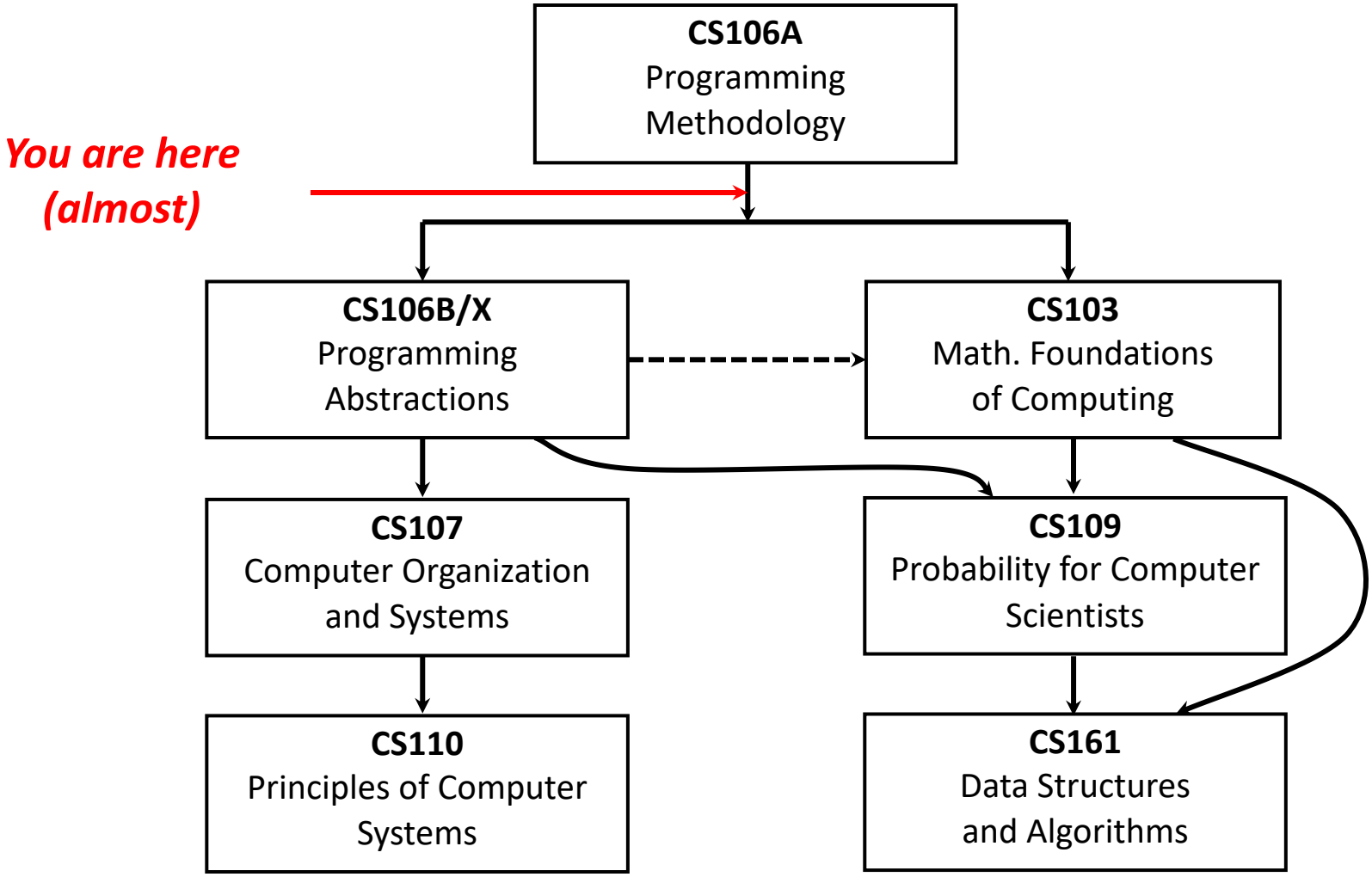
...in a Diverse Set of Areas



The “Big Tent” of Computer Science



CS Core Course Sequence



Tracks Areas

- Artificial Intelligence
- Theory
- Systems
- Computer Engineering
- Human-Computer Interaction
- Graphics
- Information
- Biocomputation
  - Incorporates many pre-medical school requirements
- Unspecialized
- *Individually Designed*

Sample of CS Areas of Research

- Artificial Intelligence
  - Robotics, machine learning, computer vision, …
- Computational Biology
  - Bioinformatics, genomics, drug design, …
- Graphics
  - Animation, modeling, motion capture, architecture, …
- Databases and information systems
  - Web search, transaction management, data integrity, …
- Security
  - Cryptography, secure protocols, …
- Systems
  - Network design, cloud computing, virtualization, …
- Human-Computer Interaction
  - Interface design, user-centric computing, …

Sampling of Career Paths

- High-tech industry
  - Research and development
  - Engineering management
  - Product management
- Entrepreneurship (consider Mayfield Fellows Program)
  - Start-ups (over 2,500 companies found by Stanford community)
  - Venture capital
- Graduate and professional schools
  - Graduate school → Academia/research/teaching
  - Law school → Public policy (consider CS181/182)
  - Business school → Management/entrepreneurship
- Teaching (consider CS198)

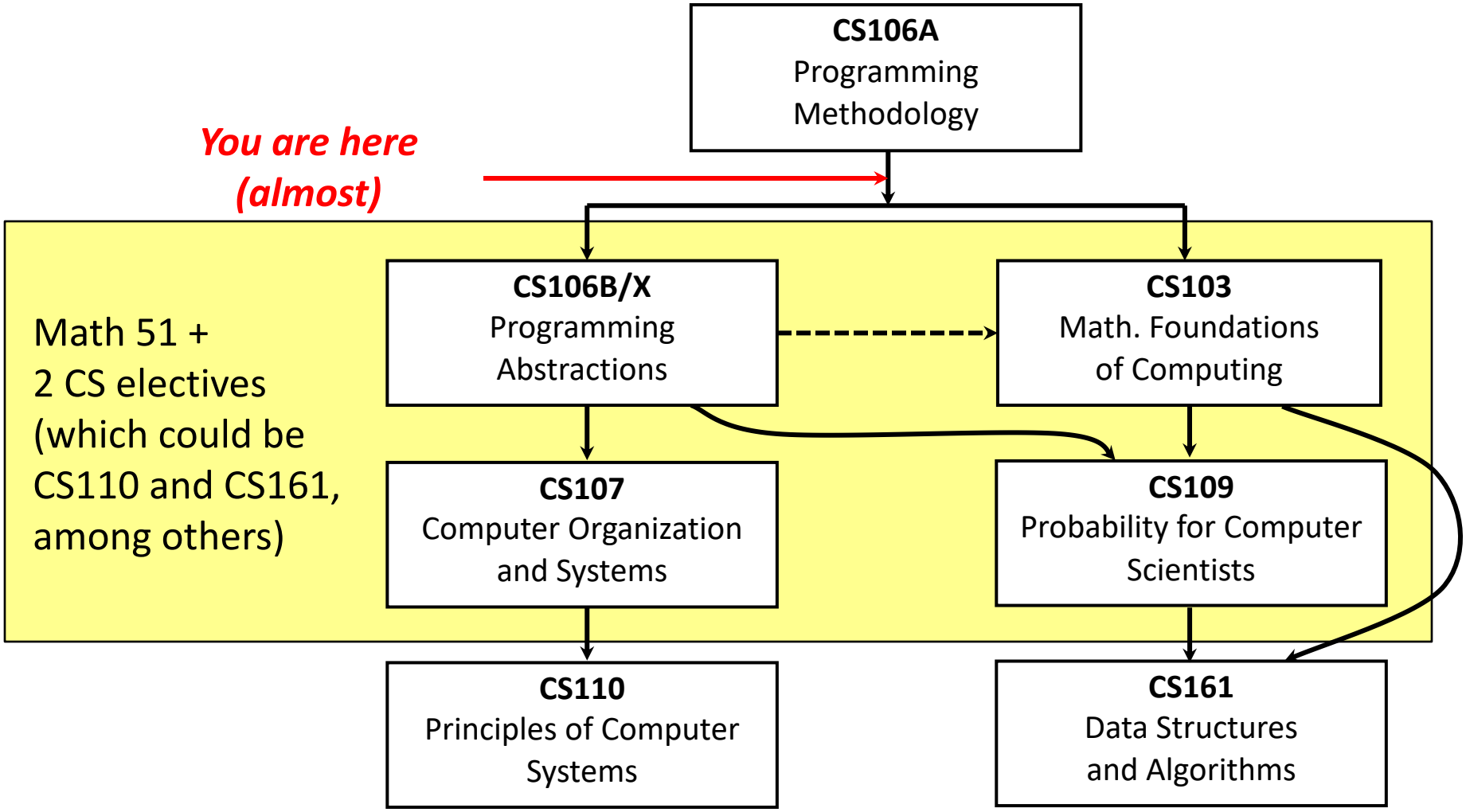
CS Minor

- Math through Math 51

- Required:
  - CS106B
  - CS107
  - CS103
  - CS109

- Two additional CS elective courses

CS Minor


CS106A
Programming
Methodology
You are here
(almost)
Math 51 +
2 CS electives
(which could be
CS110 and CS161,
among others)
CS106B/X
Programming
Abstractions
CS103
Math. Foundations
of Computing
CS107
Computer Organization
and Systems
CS109
Probability for Computer
Scientists
CS110
Principles of Computer
Systems
CS161
Data Structures
and Algorithms

Related Majors

- Math and Computational Science
  - Math, CS, Statistics, and MS&E, …
  - Tracks in Biology, Engineering, Statistics
- Electrical Engineering
  - Hardware, information science, analog/physical systems, …
  - Tracks in: areas above as well as Bio-EE, Green-EE, Music-CC
- Symbolic Systems
  - CS, Philosophy, Linguistics, Psychology. …
  - Tracks in: Logic, AI, Cognitive Science, Computer Music, Decision-Making, Human-Computer Interaction, Learning, Natural Language, Neurosciences, Philosophical foundations

A Now Some Fun Movies…

- Lighthouse
- Fireball
- Curtain
- Robot