I'll give you time to fill out evals at the end. Please wait until I'm out of the room!
Major themes

- **Abstraction**
  - Leverage existing components without understanding details
  - Create components that can be used as black boxes

- **Recursion**
  - Reason about problems in terms of self-similarity
  - Write very short code to achieve complex behaviors

- **Algorithm analysis**
  - Scalability and growth
  - Tradeoffs between implementations

- **Beauty**
Automate all the things

- Wall Street: high frequency trading
- Music: identifying hits
- Medicine: smart diagnostics
- Marketing: using the right message
- Law: summarize evidence
- Foreign policy: predict events
- Sports: identifying superstars
Leveraging existing code

- Accessing Facebook data
  - [http://restfb.com/](http://restfb.com/)

- Processing language

- Building games with physics
  - [http://jbox2d.org/](http://jbox2d.org/)

- Processing biological data
  - [http://biojava.org/wiki/Main_Page](http://biojava.org/wiki/Main_Page)
Using the restFB API

- Add the restfb jar to your build path
  - In Eclipse, right click on your project > properties
  - In Java Build Path, Add JARs...

- Get an access token from the Facebook Graph API Explorer
Other languages?

• Expanding your Java knowledge with a project is valuable

• Pick a project, see what language is most appropriate
  • iOS: Objective-C
  • Android: Java
  • Client-side web: Javascript
  • Beautiful visuals: Processing
  • Quick data processing: Python
  • Embedded systems: C/C++

• Learn a new paradigm
  • Functional languages: Racket, Haskell
What project?

- Little text-processing applications
  - identify lines above 100
  - remove line-breaks

- Add a GUI to the random sentence generator

- Automate chemistry, physics, calculus problems, etc

- Find quotes by keyword in books

- What are you currently doing that a computer could do?
Beyond programming

- Mind-controlled robots
  - [http://www.youtube.com/watch?v=TQ7EOpPNQyw](http://www.youtube.com/watch?v=TQ7EOpPNQyw)

- Muscle-controlled interfaces
  - [http://www.youtube.com/watch?v= pktVSTwC8qo](http://www.youtube.com/watch?v=pktVSTwC8qo)

- 3D models from pictures
  - [http://www.youtube.com/watch?v=25Yifq70elY](http://www.youtube.com/watch?v=25Yifq70elY)

- Face aging
  - [http://www.youtube.com/watch?v=fLQtssJDMMo](http://www.youtube.com/watch?v=fLQtssJDMMo)

- Animation
  - [http://www.youtube.com/watch?v=b4kkPILdMvI](http://www.youtube.com/watch?v=b4kkPILdMvI)

- Security
Weekly meetings

- Change – technologies for low-income regions
  - http://change.washington.edu/

- Dub – human-computer interaction and design
  - http://dub.washington.edu/
Explore Big Ideas

- **Historical context**
- **Key algorithms**
- **Privacy**
Courses?

- CSE non-majors
  - CSE 154: Web Programming
  - CSE 373: Data Structures and Algorithms
  - CSE 374: Programming Concepts and Tools (C/C++, Linux, ...)
  - CSE 131: Digital Photography
  - CSE 460: Animation Capstone (open to all majors)
  - INFO, AMATH, DXARTS, ...

- CSE majors
  - CSE 311: (Mathematical) Foundations of Computing
  - CSE 332: Data Abstraction (Data Structures and Algorithms)
  - CSE 331: Software Design and Implementation
  - CSE 341: Programming Languages
  - CSE 344: Intro to Data Management (and databases)
  - CSE 351: Hardware/Software Interface