Exploring Computer Science
Welcome

Adapted from Ms. Martin's "Welcome" slides by Mr. Bergquist, September 2011.

What Role do you want to have in Computer Science?

- **Consumer** – <u>pays</u> to enjoy (consume)
  - o Playing games, socializing, sharing videos, shopping, finding news & scores online.

- **User** – <u>uses</u> computers & applications in their job
  - o Creates documents, enters data and runs reports, designs promotional material.

- **Developer** – <u>develops</u> solutions with computers
  - o creating new applications, using computers to solve research problems, connecting users.

Computer Science

- So what Science is CS?
  - Engineering
  - Mathematics
  - Art
  - Magic?
- Computers are tools used to solve problems and are used practically everywhere
- CS is still a young field, especially relative to other sciences and is still defining itself
- Key is: it's about using an analytical processes to solve problems and create solutions & applications

CS myths

- Computer scientists drink Mountain Dew and eat Cheetos all day

- They have all been programming since the age of 5

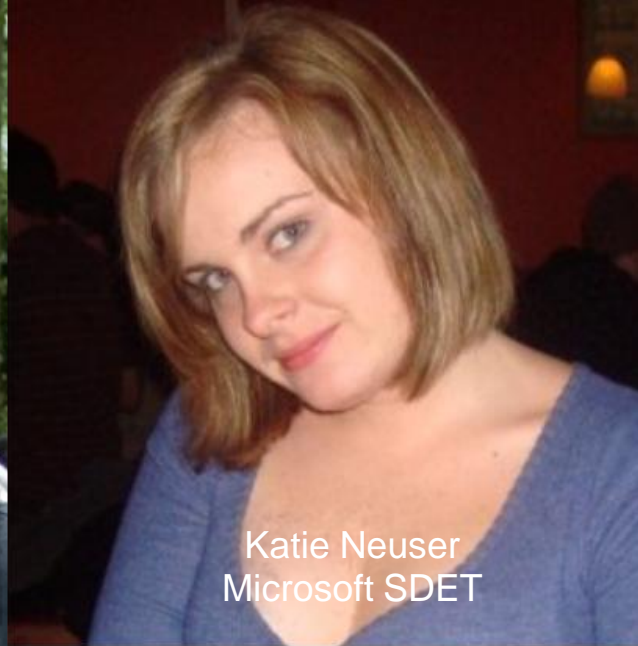- All their jobs have been outsourced

(I'm sure these guys are very nice)

Kayur Patel
UW PhD Candidate
HCI

Jonathan Lester
UW PhD Candidate
Ubicomp

Yaw Anokwa
UW PhD Candidate
ICTD

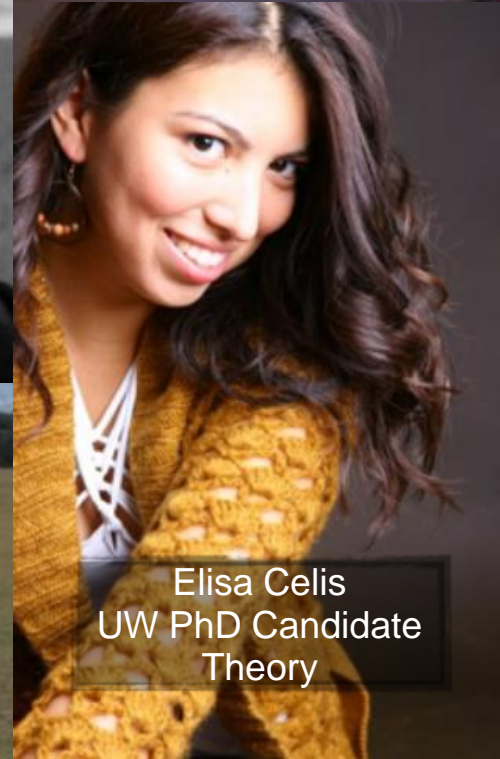Katie Neuser
Microsoft SDET

Marty Stepp
UW Lecturer

Travis Kriplean
UW PhD Candidate
Human-Computer Interaction

Ben Weintraub
iPhone Software Engineer

Elena Ursachii
Amazon Software Engineer

Elisa Celis
UW PhD Candidate
Theory

What do Computer Scientists do?

- Research to make computers faster, smaller, cooler, cheaper

- Making animated flesh look real

- Inventing approaches to solve math problems

- Creating advertising platforms on the web

- Creating interactive art installations

There are jobs out the there…

Where the jobs are and aren't

Some employers are hiring, but the openings don't overlap much with the jobs most commonly lost to the economic downturn.

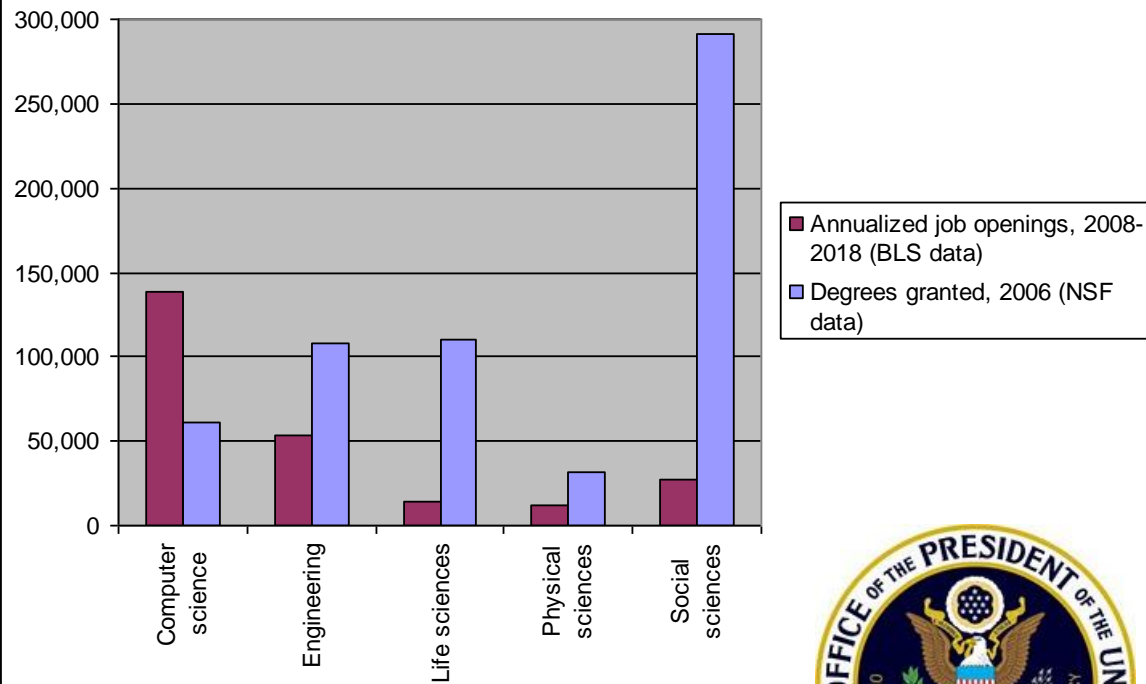| TOP 10 JOB OPENINGS IN PUGET SOUND REGION*	OPENINGS, JUNE 2011
Computer-software engineers, applications	2,980
Registered nurses	1,340
Computer-systems analysts	1,316
Computer and information-systems managers	1,132
Marketing managers	740
Customer-service representatives	680
Sales managers	644
Computer-software engineers, systems software	641
First-line supervisors of retail-sales workers	620
First-line supervisors of food preparation and serving workers	556

King, Snohomish, Pierce and Kitsap counties

TOP 10 JOB CATEGORIES IN WASHINGTON WITH GREATEST LOSSES	JOBS LOST, 2007-2010
Office clerks, general	-14,690
Construction laborers	-12,170
Cashiers	-11,730
Carpenters	-8,940
Laborers and freight, stock, and material movers	-7,920
Combined food preparation and serving workers, including fast food	-7,330
Waiters and waitresses	-6,870
Truck drivers, heavy and tractor-trailer	-5,770
Bookkeeping, accounting and auditing clerks	-5,320
Customer-service representatives	-4,780

Sources: Seattle Times analysis of WorkSource job postings and Occupational Employment Statistics data

MARK NOWLIN / THE SEATTLE TIMES

Annualized Job Openings vs. Annual Degrees Granted

Legend:
- Annualized job openings, 2008-2018 (BLS data)
- Degrees granted, 2006 (NSF data)

(Categories: Computer science, Engineering, Life sciences, Physical sciences, Social sciences)

From: Ed Lazowska's presentation "Why Computer Science?"

Plus CS Positions pay well…

UC Berkeley Majors and their Associated Salaries
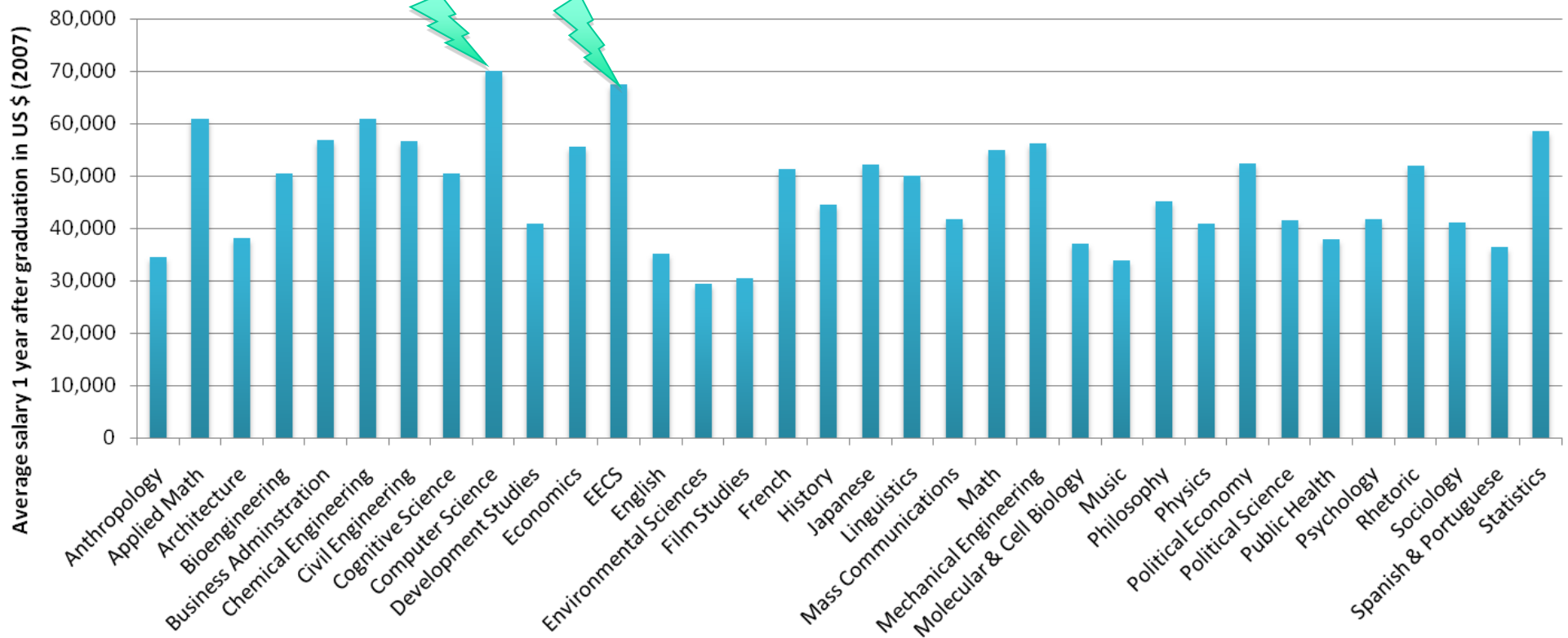
This course is about:

- How computing affects our lives

- Our roles as Consumers, Users, and Developers of computer technology

- How computers work
  - hardware
  - software
  - systems

- Discovering the variety of ways CS is applied almost practically industry

This course is NOT:

- A programming course

- Showing off how good you are at Half-Life

- Surfing for sports scores or latest news on the Internet

- Narrowly focused – we will explore:
    - a little hardware
    - a little web development
    - a little programming... And more.

Why Mr. Bergquist?

- **Computer Engineer for 20+ years:**
- Designed computer chips for Hewlett Packard
  - Worked on the chip set to operate HP's first fiber optic connection between computer & their disc drives
- Database design & IT, creating custom applications to:
  - Deliver fresh meals & services to over 600 clients for a local non-profit and coordinate hundreds of volunteers
  - Track donations and fundraising, including raising millions of dollars by a series of Dance-A-Thon events in the 90's
  - Grew our network to over 40 PC's and 8 Mac's (IT)
- Manager of Software Test Engineering at Amazon.com for third party selling projects from 1999 to 2010, including:
  - The "used & new" offering on product pages
  - Merchant storefronts of other sellers on Amazon.com
  - Custom website solutions for Target and Marks & Spencer

Corporate Classroom Expectations

- This is an Occupational Education (CTE) class which includes:

    - The Goal to help students develop solid workplace skills
    - Higher expectations of professional behavior, independent effort and team cooperation
    - Leadership roles and opportunities
    - Follow our Professional Classroom Standards, Procedures and Garfield Rules

Grading

- **45% - Projects**
  - Applying all we learn to demonstrate new skills
  - Primarily in-class

- **35% - Daily Class Work**
  - Web explorations, worksheets, reflections and "warm up exercises"
  - Collaboration, respect, leadership and participation

- **20% - Quizzes and Tests**
  - Demonstrate long-term retention of essential content and application of new skills

Getting help

- Cliche but true: no stupid question

- Ask early, ask often

- Seek help from classmates and try looking online

- I am often in class after school; ask if you want to meet

- email: embergquist@seattleschools.org

Our Four Professional Classroom Standards

1. **Respect:** respect and encourage fellow students, yourself, and the teacher, allowing us to benefit from all our contributions.

2. **Safety:** always act safely, follow safety procedures, and help others to act the safest; the limb you save may be your own.

3. **Learning:** participate in the learning process by listening to, suggesting and trying out new ideas.

4. **Teamwork:** assist other by sharing your skills cooperatively to help everyone succeed.

What do these Professional Standards mean to you?

1. **Respect:** …
2. **Safety:** ...
3. **Learning:** …
4. **Teamwork:** ...

Let's write down what the will mean to us as a class.

So what Role do you want to have in Computer Science?

Let's start Exploring Computer Science
by seeing

How techy are we?

How techy are we?