INTRODUCTION TO
HUMAN-COMPUTER INTERACTION

Maya Cakmak, Matt Kay, Brad Jacobson, King Xia
Winter 2015, Tue/Thu 10:30-11:50, EEB 045
MAYA CAKMAK pronounced “Chuck Mock”

PhD in Robotics
Georgia Inst. of Technology

Post-doc
Willow Garage, Inc.

Assistant Professor
University of Washington
I ❤️ ROBOTS
MATT KAY

Computer Science (minor in Fine Art)
University of Waterloo

Grad student at Washington (2010-20XX)

Research: Communicating uncertainty in end-user systems

Interests: Typography & design, visualization, experimental statistics
KING XIA

University of Washington, 2015
Computer Science & Business

**Interests:** The Kingkiller Chronicles, learning new languages, LoL, cooking, debate
BRAD JACOBSON

BA, Psychology
Dartmouth College, 2013

MS, University of Washington
HCDE, 2013 – 2014

**Interests:** User research, “pop-psych” books, soccer, skiing, and plenty of tv shows and movies
Let's meet you
Let’s meet you
Let’s meet you

• Who knows at least one other person in the class?
Let’s meet you

- Who knows at least one other person in the class?
- Who are the non-majors?
Let’s meet you

- Who knows at least one other person in the class?
- Who are the non-majors?
- Who has taken an HCl related course before?
Let’s meet you

- Who knows at least one other person in the class?
- Who are the non-majors?
- Who has taken an HCI related course before?
- Who has industry experience?
Let’s meet you

• Who knows at least one other person in the class?
• Who are the non-majors?
• Who has taken an HCI related course before?
• Who has industry experience?
• Who is born/raised in Seattle?
Let’s meet you

- Who knows at least one other person in the class?
- Who are the non-majors?
- Who has taken an HCI related course before?
- Who has industry experience?
- Who is born/raised in Seattle?
- Who is international?
Let’s meet you

- Who knows at least one other person in the class?
- Who are the non-majors?
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- Who has industry experience?
- Who is born/raised in Seattle?
- Who is international?
- Who wants to go to graduate school?
Let’s meet you

• Who knows at least one other person in the class?
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• Who is international?
• Who wants to go to graduate school?
• Who wants to build a start-up company?
Let’s meet you

• Who knows at least one other person in the class?
• Who are the non-majors?
• Who has taken an HCI related course before?
• Who has industry experience?
• Who is born/raised in Seattle?
• Who is international?
• Who wants to go to graduate school?
• Who wants to build a start-up company?
• Have you heard of IDEO?
TODAY

• [05min] Intro
• [05min] What is CSE 400 about?
• [25min] IDEO video
• [10min] Course details
• [20min] Brainstorming exercise
What is this course about?
What is this course about?

• Who took CSE 332 (Data Abstractions) last quarter?
What is this course about?

• Who took CSE 332 (Data Abstractions) last quarter?
  – Remember Assignment #6?
What is this course about?

• Who took CSE 332 (Data Abstractions) last quarter?
  – Remember Assignment #6?

```bash
./getpopulation -x 10 -y 50 -d [10, 10]
> Total population: 4.74M
> % US population: 1.5%
```
What is this course about?

- Who will use this?
- What will they use it for?
- Why is it important?
- Why is it this way?
- Is it really useful?
What is this course about?

..not implementation!

• Who will use this?
• What will they use it for?
• Why is it important?
• Why is it this way?
• Is it really useful?
Everything is designed
Everything is designed

• There are many ways to solve some problems
  – That’s why there is so much diversity
Everything is designed

• There are many ways to solve some problems
  – That’s why there is so much diversity
Everything is designed

• There are many ways to solve some problems
  – That’s why there is so much diversity

• Some are good, some are bad
  – The design process helps you make sure it is good
Everything is designed

• There are many ways to solve some problems
  – That’s why there is so much diversity

• Some are good, some are bad
  – The design process helps you make sure it is good

• Some you like, some you hate
  – Design is subjective and emotional
What is this course about?

Introduction to Human-Computer Interaction: User Interface Design, Prototyping, and Evaluation
What is this course about?

Introduction to Human-Computer Interaction: User Interface Design, Prototyping, and Evaluation

I’d call it

Iterative Interaction Design: Need finding, Prototyping, and Evaluation
What is this course about?

Iterative Interaction Design:
Need finding, Prototyping, and Evaluation
What is this course about?

It is essentially a design course

Iterative Interaction Design: Need finding, Prototyping, and Evaluation
What is this course about?

It’s not only about computers

It is essentially a design course

Iterative Interaction Design: Need finding, Prototyping, and Evaluation
What is this course about?

No one gets it right the first time!

It’s not only about computers

It is essentially a design course

Iterative Interaction Design: Need finding, Prototyping, and Evaluation
What is this course about?

Iterative Interaction Design: Need finding, Prototyping, and Evaluation

You’re great at solving problems. But can you identify them?
What is this course about?

Iterative Interaction Design: Need finding, Prototyping, and Evaluation

You shouldn’t have to build a whole system to evaluate an idea
What is this course about?

Iterative Interaction Design: Need finding, Prototyping, and Evaluation

How do you know your design is “good”?
IDEO Deep Dive

https://www.youtube.com/watch?v=taJ0V-YCiel
What does the course involve?

• One big team project
• Learning about methods & practicing them
Project scope

Iterative Interaction Design: Need finding, Prototyping, and Evaluation

Contextual inquiry
Scenarios, personas
Task analysis
Project scope

Iterative Interaction Design: Need finding, Prototyping, and Evaluation

Sketching, Storyboarding
Paper/video prototypes
Low fidelity and interactive prototypes
Project scope

Iterative Interaction Design: Need finding, Prototyping, and Evaluation

User testing  
Cognitive walkthrough  
Think aloud  
Heuristic evaluation
Quantity versus quality

Class-A: Graded on quantity

Class-B: Graded on quality

Which produces best quality?

[Bayles and Orland, 2001]
Quantity *over* quality

Class-A: Graded on quantity

“busily churning out piles of work and learning from their mistakes”

Class-B: Graded on quality

“theorizing about perfection, and in the end had little more to show for their efforts than grandiose theories and a pile of dead clay”

[Bayles and Orland, 2001]
The design diamond

Getting the right design

Getting the design right

generate

select
The design diamond
The design diamond

danger
The design diamond

danger

danger

danger
The design diamond

danger

explicit & intentional switch!
The design diamond

danger

explicit & intentional switch!

many ideas will get thrown out!
What does the course involve?

• One big team project
• Learning about methods & practicing them
• LOTS of critique and feedback
What does the course involve?

• One big team project
• Learning about methods & practicing them
• LOTS of critique and feedback
• LOTS of assignment
  – Two project deliverables every week
  – Due Mon and Thu nights, feedback on the next day
  – Additional reading assignments
  – Two powerpoint presentations, one poster presentation
Warning!

• Things I do not want to see in the teaching evaluation feedback form:
  – The workload was too high
  – The course was subjective
  – Evaluation with friends should have been okay
  – There was no implementation
Webpage

http://courses.cs.washington.edu/courses/cse440/15wi/

- Assignments
- Readings
- Slides
- Calendar
Canvas (Catalyst is on its way out)

- Assignment submission
- Your grades
- Discussions
Contacting us, office/studio hours

• **Contact**: Email all teaching staff at once:
  – cse440-instr@cs.washington.edu

• **Office hour**: See calendar or take appointment by email.

• **Studio/section**: Assigned but there might be some changes; all team members in the same section.
Grading

• Group project (65%)
  – We will provide grading scales
  – Full grade on a milestone does not mean you are done, you still need to act on the feedback!

• Readings (5%)

• Exam (last day of classes) (20%)

• Participation and teamwork (10%)
This week

**Brainstorming**
Now, in class, generate 32 project ideas

**Assignment-1a**
Three project ideas (problems, not solutions!)

**Assignment-1b**
Project proposal (listen to the feedback!)

DUE: Wed night
DUE: Fri night
Project Theme: Personal Informatics

YOU ARE JUST A NUMBER

Can you make yourself healthier and happier by logging every snore, step and mood swing? As a Californian trend for obsessionel data-tracking makes its way over here, Tim Chester covers his body in gadgets to find out if self-knowledge is power. Photograph by Paul Stuart

Today I have climbed the equivalent of a 12400还需 Coffee every 3 hours before Foot. On average, I walk 10720 steps a day, burning 1200 calories, over 2.4 hours of activity. I sleep for 8 hours and 45 minutes a night. This week, my sleep efficiency is 79% and my Food is 77%. I have hit 18/365 in percentage scores, below the red line for men my age, and no average daily Net score is 175, although I have made a week's Net score 20. I am at sea, nothing more than a bundle of numbers and sensations, sequenced by LEDs and divided by pop-up messages. A wireless armory for the iPhone, perhaps its most sophisticated yet.

My arms are covered in bands, my pockets squinted with_readers, my ever-nub from all the chaos, my heart mapped to the heart of a heart rate monitor and forming its work in to sleep up with the national average. My head is in trouble from the OFF, the positive affirmation and profit monitoring, but it's OK. Because my memories are being stored in my heart and my mood changes are coming up "happy" from strangers.

I amETHICAL, hardwired and behold the sharing personal data. I am becoming thinner, happier and more productive. I am staying motivated by giving badges. There become a Quantified Self.

The QF movement that I've been the first to see is the latest to be San Francisco Bay Area in 2005. Two Wheel magazine editors, Gary Wolf and Kevin
“We define personal informatics systems as those that help people collect personally relevant information for the purpose of self-reflection and gaining self-knowledge. There are two core aspects to every personal informatics system: collection and reflection.”

Dey&Forlizzi, CHI 2010.
Old idea..

DaVinci

Benjamin Franklin

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<thead>
<tr>
<th>TEMPERANCE.</th>
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<td>EAT NOT TO DULLNESS.</td>
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<td>DRINK NOT TO ELEVATION.</td>
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..re-popularized with smartphones
..and wearables / sensing devices

- Pedometer
- Heart rate monitor
- Blood glucose meter
- Thermometer
- Blood pressure monitor
Closely related: Quantified self

“The Quantified Self is an international collaboration of users and makers of self-tracking tools.”

“Our aim is to help people get meaning out of their personal data.”

“Self knowledge through numbers.”

Wolf, 2009 Wired Magazine.
Quantified self conference

[Choe, Lee, Lee, Pratt, Kientz. CHI 2014.]
What do people track?

Top 5 items: activity, food, weight, sleep, and mood

[Choe, Lee, Lee, Pratt, Kientz. CHI 2014.]
What do people track?

- A Diabetic Experience with Self-Quantification
- Analyzing My Cancer Data
- Going Vegan in December
- Improving Skin Health
- Cognitive Performance
- 15 Weeks of Self-Tracking
- Diabetes, Exercise, and QS
- Experience Sampling of My Stress
- Hacking Your Subconscious Mind

[Choe, Lee, Lee, Pratt, Kientz. CHI 2014.]
# Motivations for tracking

<table>
<thead>
<tr>
<th>Motivations</th>
<th>Sub-categories</th>
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<tr>
<td>To improve health</td>
<td>To cure or manage a condition</td>
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<td>To achieve a goal</td>
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<td>To find triggers</td>
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<td>To answer a specific question</td>
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<td>To identify relationships</td>
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<td>To execute a treatment plan</td>
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<td>To make better health decisions</td>
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<td>To find balance</td>
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<td>To improve other aspects of life</td>
<td>To maximize work performance</td>
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<td>To be mindful</td>
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<td>To find new life experiences</td>
<td>To satisfy curiosity and have fun</td>
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<td>To explore new things</td>
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<td>To learn something interesting</td>
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[Choe, Lee, Lee, Pratt, Kientz. CHI 2014.]
This week

**Brainstorming**
Now, in class, generate 32 project ideas

**Assignment-1a**
Three project ideas
(problems, not solutions!)

**Assignment-1b**
Project proposal
(listen to the feedback!)

DUE: Wed night
DUE: Fri night
This week

**Assignment-1b**
Project proposal
(listen to the feedback!)

**Teaching staff**
Will post
selected projects

**Assignment-1c**
Project bid
(select your pick)

---

DUE: **Fri** night

DUE: **Saturday** noon

DUE: **Sun** night
Brainstorming

• No time today but next week we will learn about:

7 secrets to good brainstorming

6 ways to kill a brainstormer

Go for quantity
Encourage wild ideas
Refrain from critiquing

Tom Kelley from IDEO
Brainstorming

• Get into groups of 4
• Take a paper and fold it 4x8 and reopen it
• Write a project idea in each square
• Write down your names behind the paper
• Drop it on your way out
Reminders

• Drop immediately if you are not taking the class
• [Not registered?] Sign the overload sheet
• Fill out the section availability sheet
• Submit Assignment 1 a by tomorrow night!