

# CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 01:  
Introduction and  
Personal Informatics

James Fogarty  
Eunice Jun  
David Wang  
Elisabeth Chin  
Ravi Karkar



Tuesday / Thursday  
10:30 to 11:50

# What Is This Course?



Time for a Door Quiz:

Say out loud what action you use to open the door

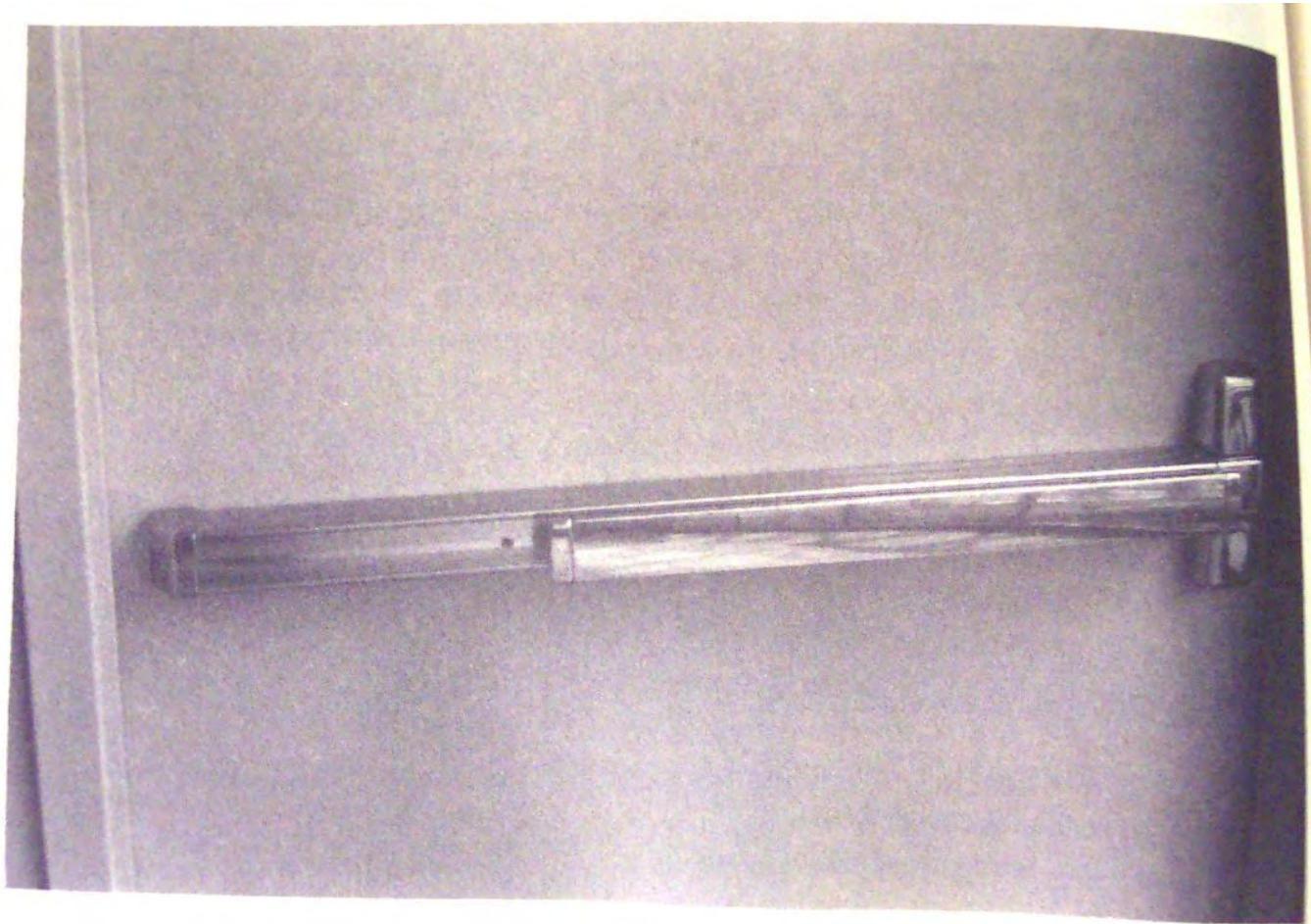
Push

Pull

# Door Quiz



# Door Quiz



# Door Quiz



# Door Quiz



# Door Quiz

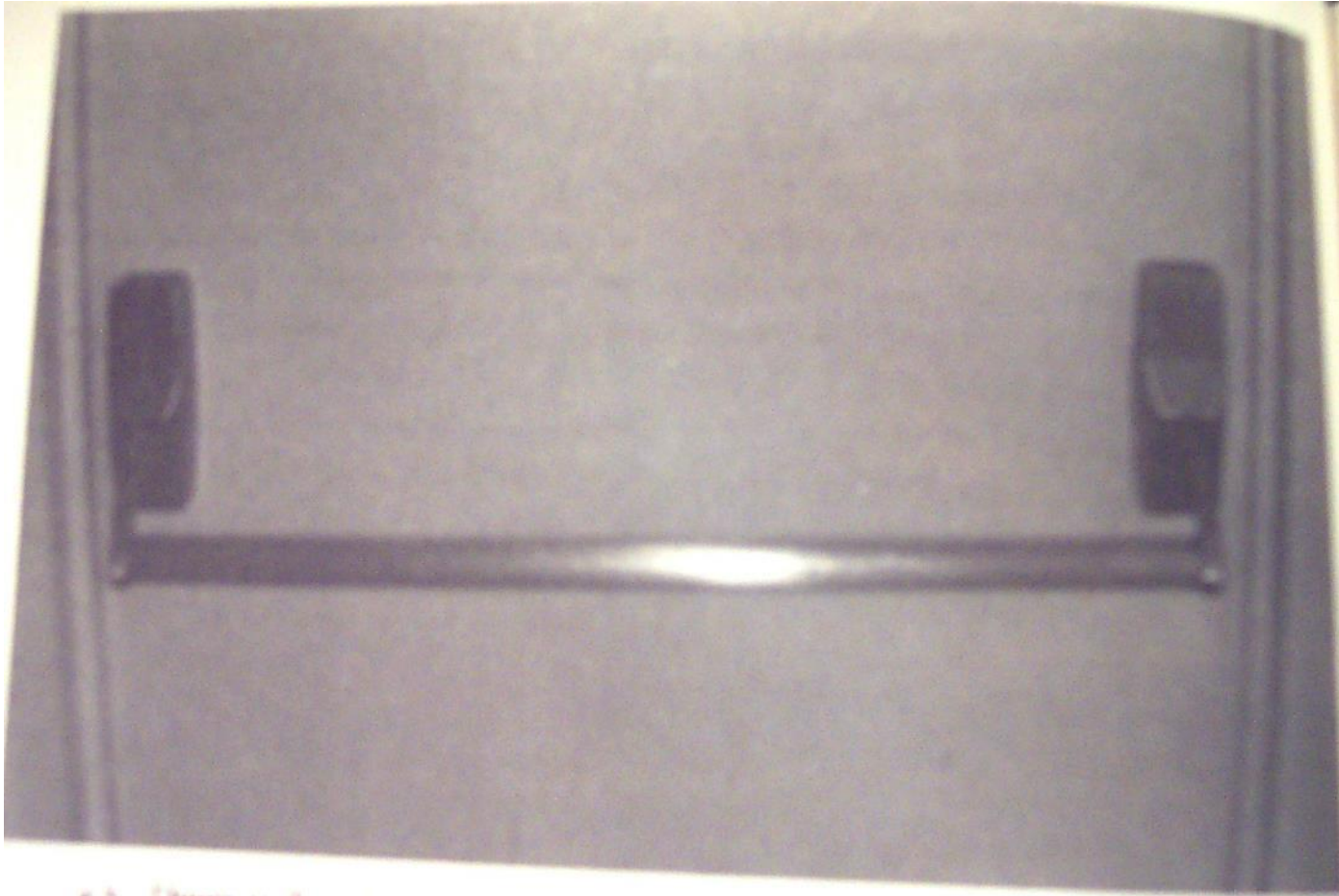


# Door Quiz





# Door Quiz



# Door Quiz



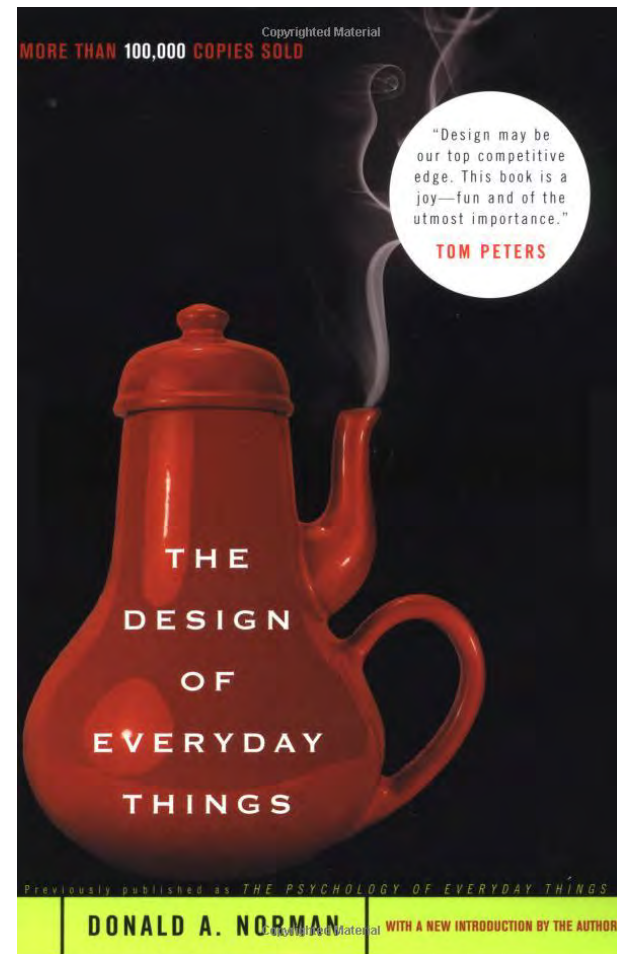
# What is so Special about Computers?

Nothing! It is about good designs and bad designs

We make push/pull decisions many times per day

We all encounter doors that do this badly

We all see signs that do not change what we do



# Signs Do Not Help



# Signs Do Not Help



# What is so Special about Computers?

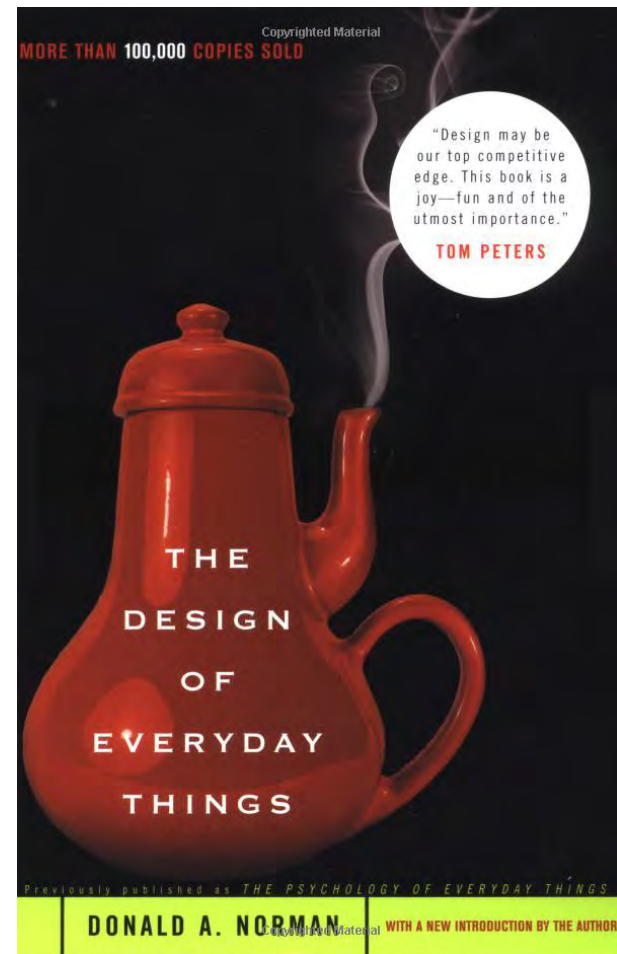
Yet we blame ourselves

Absolutely everything we  
encounter in the made  
world was designed

Too often poorly designed

Read this book

Be warned you cannot  
unread it, you become angry



# Iterative Human-Centered Design

This is a course about process

This is not a course about ‘good’ interfaces or rules that you should follow in design

Rapid iteration and exploration is the most important and effective tool for effective design

“Enlightened trial and error succeeds over the planning of the lone genius” – Peter Skillman, IDEO

# Project Overview

The core of this course is a group project

Propose and do an intense end-to-end design

Getting the Right Design

Getting the Design Right

Communicating the Design

Not an implementation course



# Design Research & Task Analysis

Observe practices and understand needs

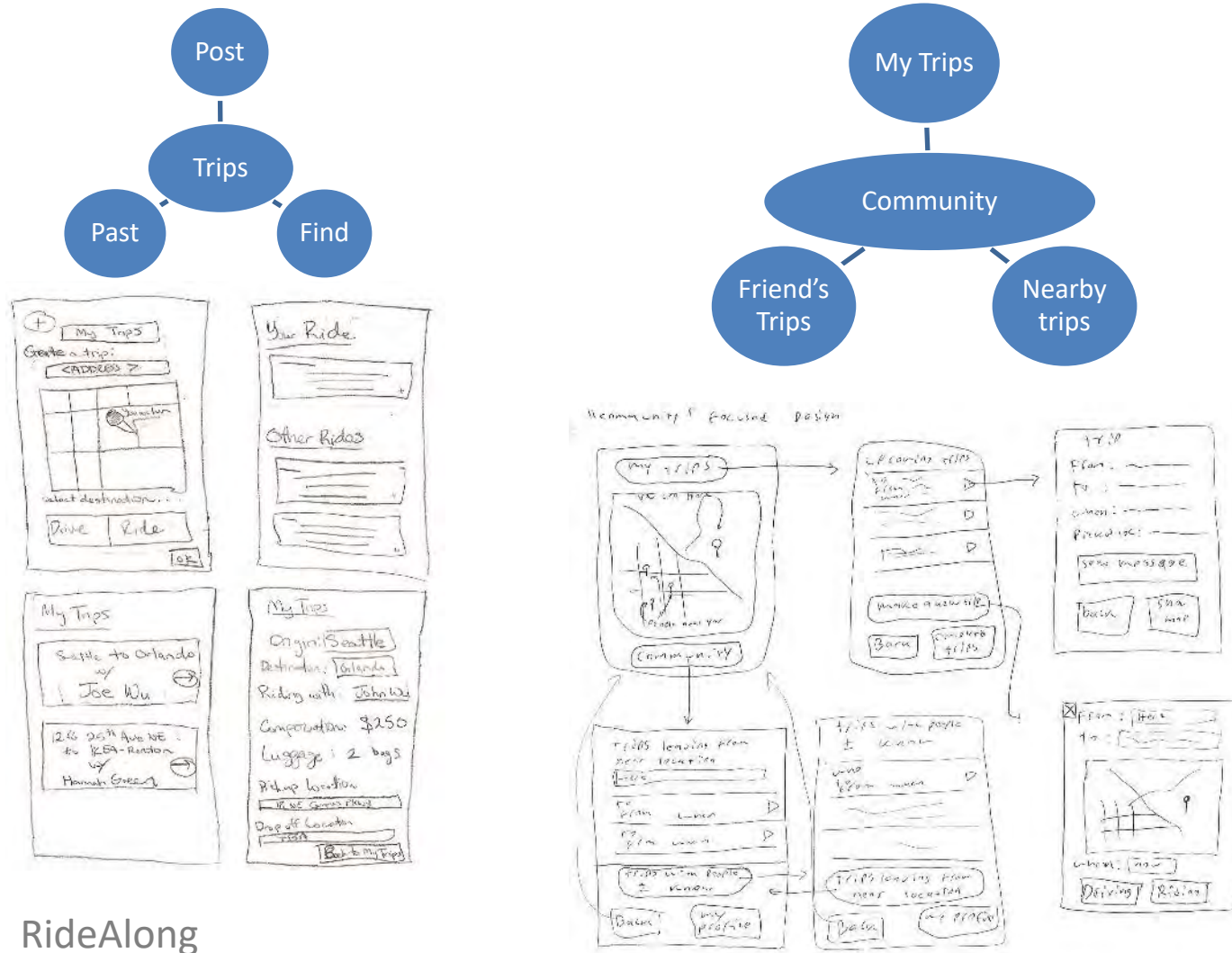


Consumester

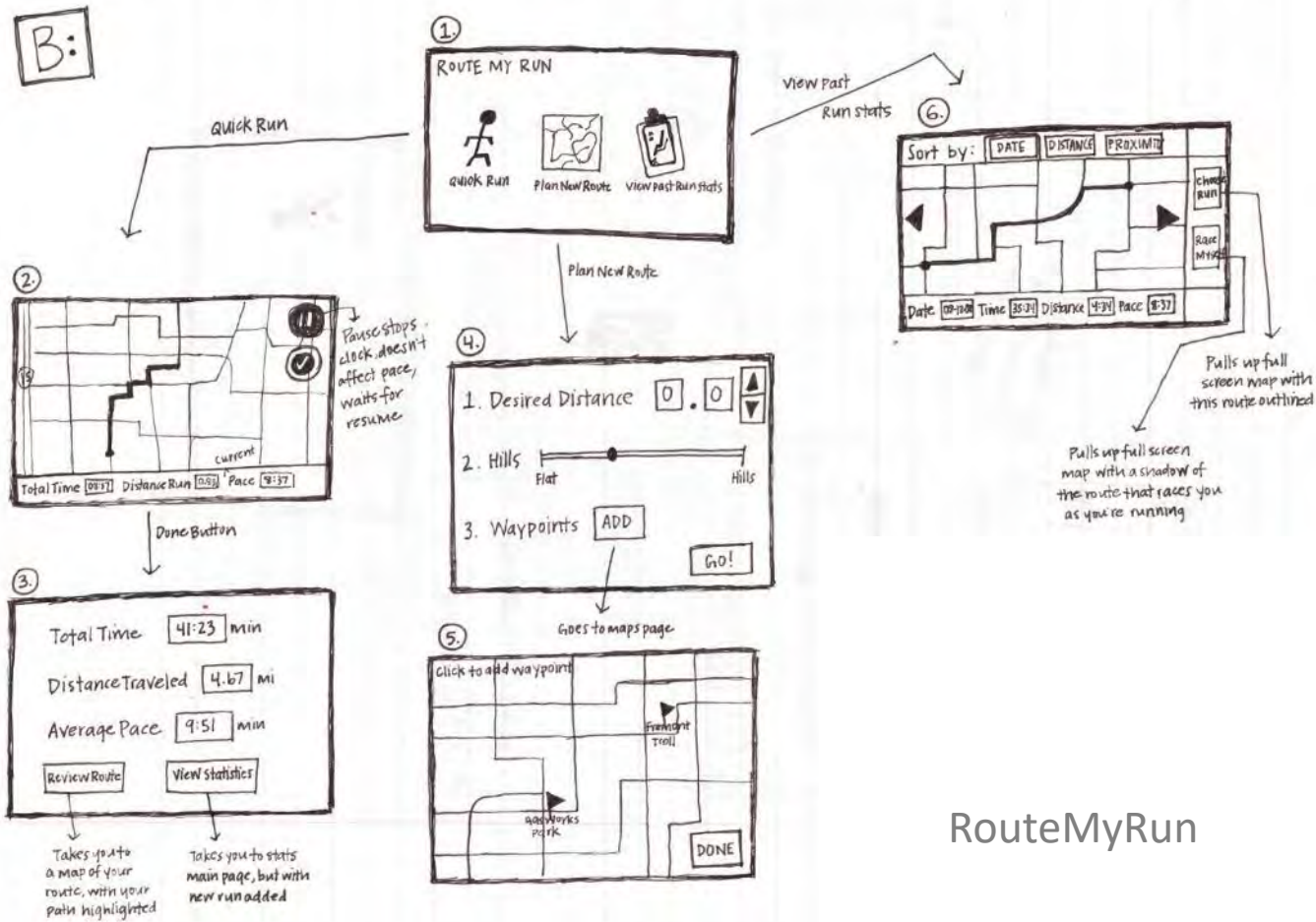


FoodWatch

# Sketching & Storyboarding

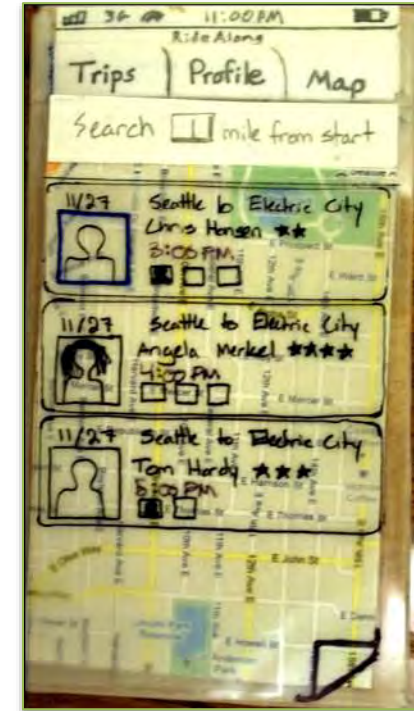


# Sketching & Storyboarding



RouteMyRun

# Low-Fidelity Prototyping & Testing



RideAlong

# Digital Mockup



Balance

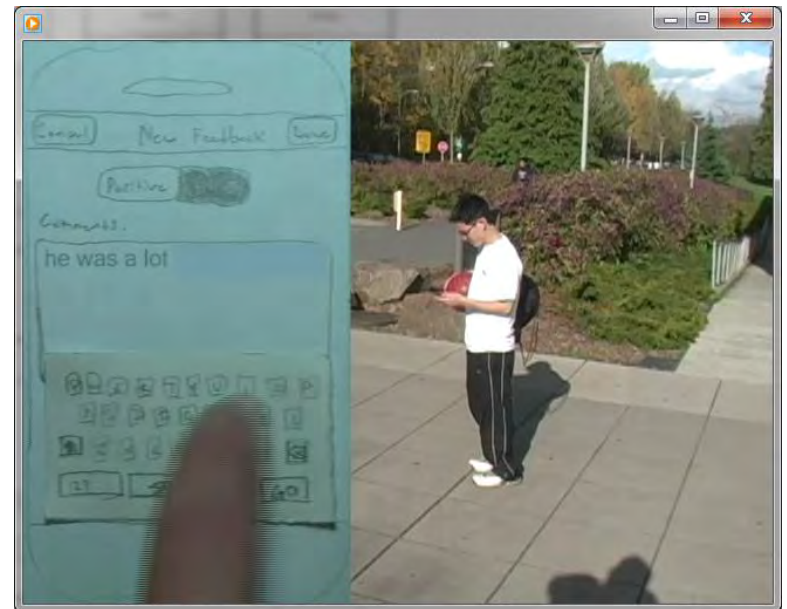
.calm



# Video Prototypes

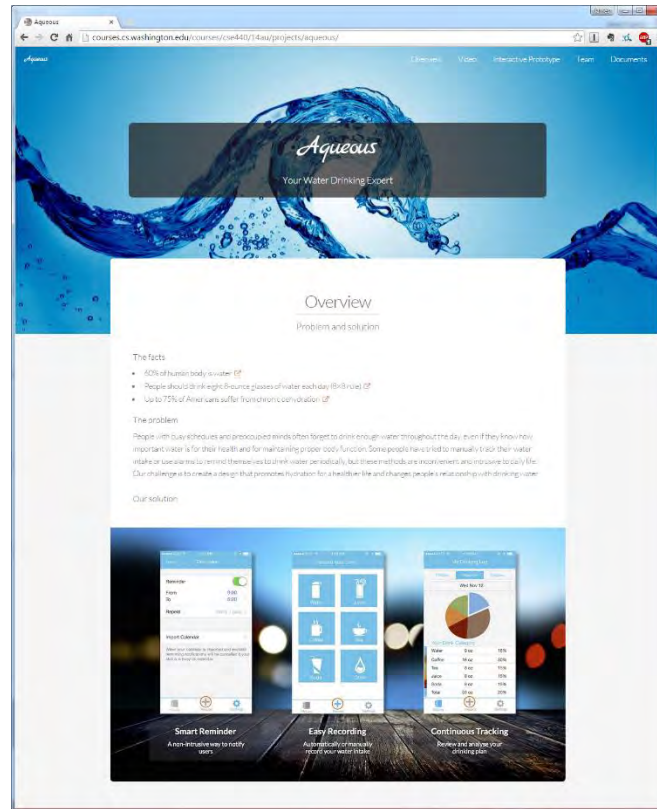


GetOut



PickUp

# Learn by Example from Prior Projects



Aqueous:

<https://courses.cs.washington.edu/courses/cse440/14au/projects/aqueous/>

# Learn by Example from Prior Projects

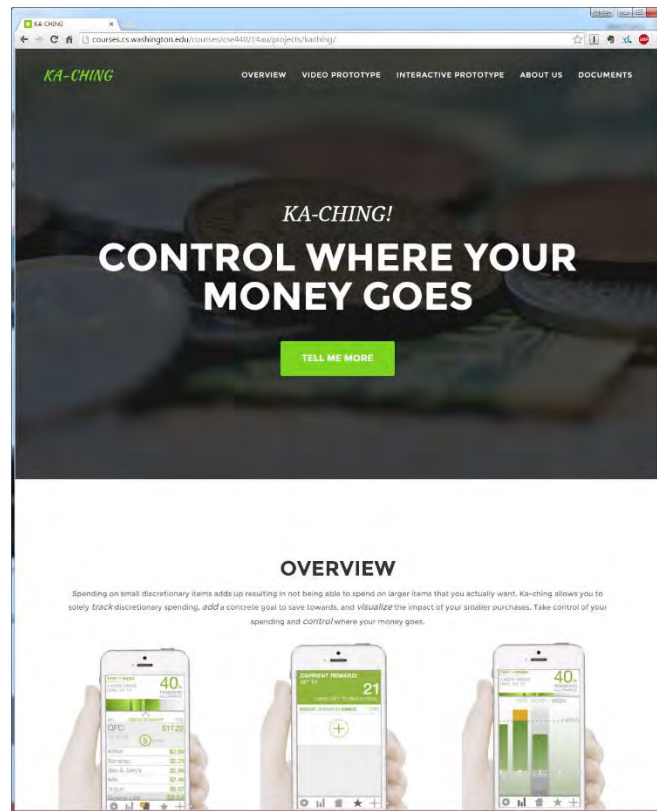


## IEP Connect:

<https://courses.cs.washington.edu/courses/cse440/14au/projects/iepconnect/>



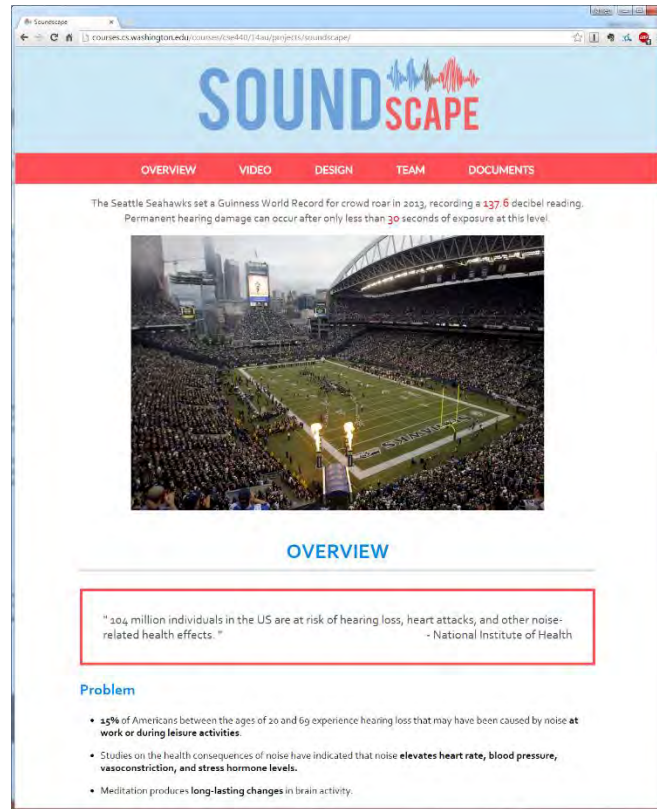
# Learn by Example from Prior Projects



Ka-Ching:

<https://courses.cs.washington.edu/courses/cse440/14au/projects/kaching/>

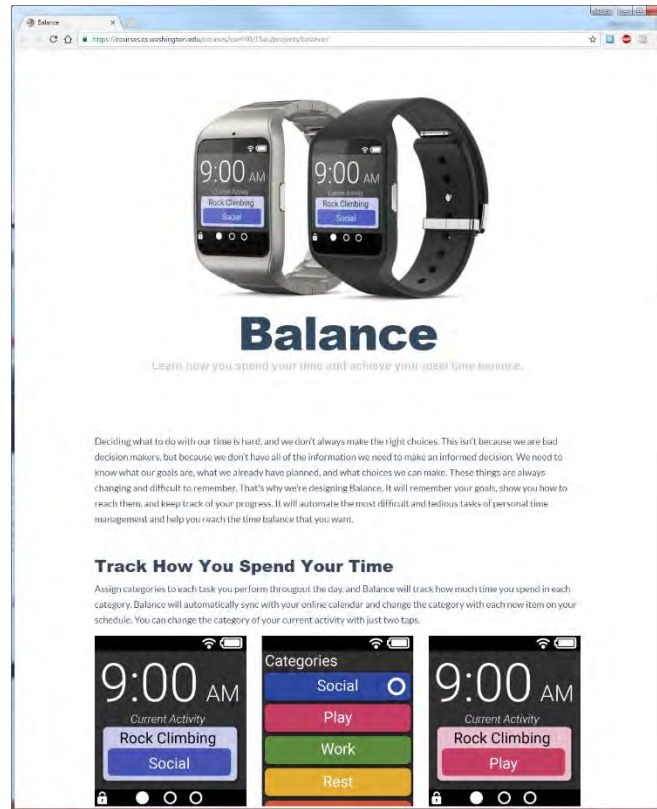
# Learn by Example from Prior Projects



Soundscape:

<https://courses.cs.washington.edu/courses/cse440/14au/projects/soundscape/>

# Learn by Example from Prior Projects



Balance:

<https://courses.cs.washington.edu/courses/cse440/15au/projects/balance/>

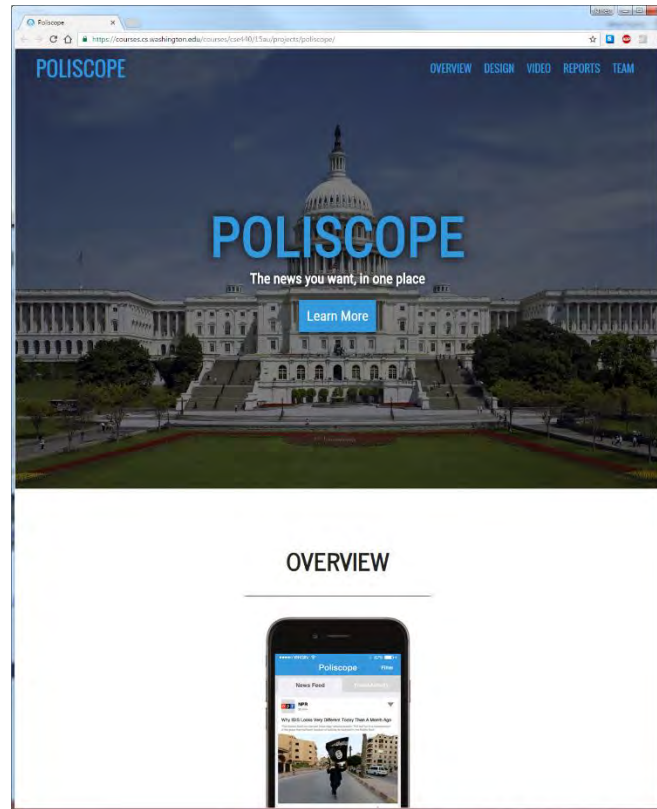
# Learn by Example from Prior Projects



Neat:

<https://courses.cs.washington.edu/courses/cse440/15au/projects/neat/>

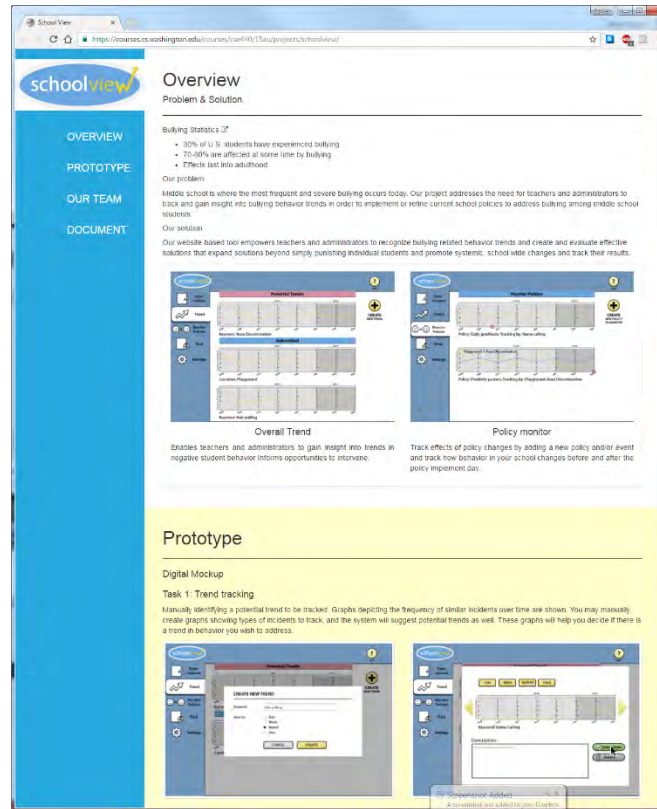
# Learn by Example from Prior Projects



Poliscope:

<https://courses.cs.washington.edu/courses/cse440/15au/projects/poliscope/>

# Learn by Example from Prior Projects



School View:

<https://courses.cs.washington.edu/courses/cse440/15au/projects/schoolview/>

# Studio Time in Section and Lecture

This course is designed around rapid feedback

Section is primarily studio time with the staff

Groups will be formed within section

Your team always brings a milestone to studio

Participation is a critical component of the course

Project time on Tuesdays

Your team always has a milestone due

Class will often include project time or activity

# Overview

HCI and the Project Sequence

Course Staff Introductions

Administrivia

Assignment 1: Project Proposal

Assignment 1a: Due for Friday

Assignment 1b: Due for Tuesday

Some Reflection

Self-Tracking and Relevant Background



# Who We Are

## James Fogarty

Prefer: James / He / Him

## Background

BS, Virginia Tech, 2000

PhD, Carnegie Mellon, 2006

Joined UW CSE, 2006



## Brief Industrial Stints

IBM, 2000

IBM Research, 2003

Microsoft Research, 2007

# Who We Are

## Cross-Campus HCI Efforts

DUB

MHCID

## Teaching

CSE 440: Introduction to HCI

CSE 441: Advanced HCI

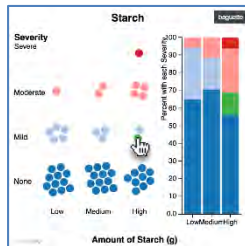
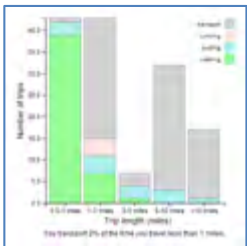
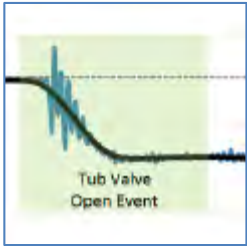
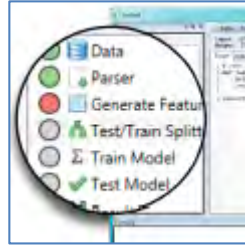
CSE 510: Advanced Topics in HCI

CSEP 510: Human-Computer Interaction

CSE 332: Data Structures



# Who We Are



Computing

You

# Who We Are

Eunice Jun

Prefer: Eunice / She / Her

Background:

BS, Cognitive Studies &  
Computer Science

Vanderbilt, 2016

Research:

Increasing engagement in multicultural online communities, including large-scale online experiments

Interests:

Hiking, learning new languages, ballet, getting lost



# Who We Are

## David Wang

Prefer: David / He / Him

## Background:

BS, Informatics (HCI)

UC Irvine, 2013

MS, HCDE

University of Washington, 2017

## Research:

Collapse informatics, ubiquitous computing

## Interests:

Outdoors, travel,  
making (ask me about the food truck harness)



# Who We Are

Elisabeth Chin

Prefer: Elisabeth / She / Her

Background

BS, Informatics: HCI  
University of Washington, 2017

Interests

Movies (watched 72 in 2016!),  
making fresh noodles,  
cross-cultural studies,  
all sorts of rock music



# Who We Are

## Ravi Karkar

Prefer: Ravi / He / Him

## Background

BE, Gujarat University, 2011

MS, Georgia Tech, 2012

MS, University of Washington, 2016



## Research

Designing and building tools to support people in their diagnostic self-tracking

## Interests:

Sleeping, getting 404s, hunting horcruxes

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# Staying in Touch

Web: <http://www.cs.washington.edu/440>

You are responsible for calendar

Canvas: I hate Canvas so much but  
we have to use it for some things

Email Us: [cse440-instr \[at\] cs.washington.edu](mailto:cse440-instr@cs.washington.edu)

Email: You are responsible for course email

Office Posted on Calendar

Hours: Also By Appointment

# GitHub Repository

The website, assignments, and other materials are being run from a GitHub repository

<https://github.com/uwcse440/web-cse440-wi17>

You will contribute when posting your projects

You can and should contribute if you see the opportunity



# Grading

We provide a grading scale, but it is subjective

Design is subjective, and so is this course

Wow us with your work, not with complaining

Entire project process is designed for feedback

Milestone grades mean you did the milestone

You still must act on feedback as part of continuing to refine and develop your project

A focus on “doing the work” and “getting feedback” means final grades are more “quality of result”

# Grading

Group Project: 65%

3% Assignment 1

21% Assignment 2: Getting the Right Design

Final Report 15%, Milestones 6%

14% Assignment 3: Getting the Design Right

Final Report 10%, Milestones 4%

15% Assignment 4: Communicating the Design

Website 5%, Video Prototype 5%, Poster 5%

12% Presentations

Getting the Right Design 5%,

Getting the Design Right 5%, Individual 2%

Exam: 25%

Individual Readings: 5%

Participation: 5%

# Submissions

Many assignments are due “night before class”

Canvas will operationalize this as 12:01am

A bit more slack, but definitely “before I wake up”

We need your submissions as part of our preparation for in-class feedback

“Day of class”, “just before class”, or “in class” are all unacceptable, risking zero credit

# “Now” vs “When You Need It” Content

This course has both, we will try to distinguish

Several assigned readings will be posted

- Intentionally minimal but critical

- May be on exam

- Small reading report assignment

Additional resources will be made available

- If you find others you want to share, email us

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# Project Proposal Schedule

Project Brainstorm Due for Friday

Brainstorming in Section Friday

Project Proposal Due Monday Night

Sponsored Projects Posted Tuesday

Project Bids Due Wednesday Night

Groups Assigned Thursday

Brainstorming in Section Friday



# Assignment 1a: Project Brainstorm

You have an assignment due for Friday:

<http://courses.cs.washington.edu/courses/cse440/17wi/assignments/assignment1/>

Propose 3 project domains, problems, goals:

These are starting points for brainstorming

Submit online:

This proves that you did your preparation

Submit via email if unable to access Canvas

Bring to section Friday:

You have a lot more brainstorming ahead of you

# Assignment 1b: Project Proposal

You have an assignment due for Tuesday:

<http://courses.cs.washington.edu/courses/cse440/17wi/assignments/assignment1/>

One page of text:

Problem and Motivation

Analyze the problem or idea (e.g., a scenario)

Submit online:

Sponsored Projects will be Posted for Bidding

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# Some Reflection

This will not be an easy course

Students have said this was their most intense course

You have two deadlines per week, every week

But I believe in everything that is included

This course challenges some aspects of what the CSE curriculum has taught you is important

It will be what you make it

# People Really Get It

“Very good class that every engineer should have to take. Good perspectives and made me think outside my comfort zone.”

“The focus on projects and fieldwork was very well suited to my learning style. I greatly enjoyed this format. The theory and techniques taught in class were directly applicable to the projects we were doing and were usually timed very well. That is, usually the topics presented in lecture were relevant to the current deliverable or the next deliverable.”

# People Really Get It

“I can't believe I'm saying this, but I found the lectures a huge part of what I learned in this course. They were useful and organized, and each one had a clear message and topic. The assignments were an excellent extension of these themes.”

“Fieldwork and iterative assignments really taught me how important the design process is.”

# Group Work is Hard Work

“the project placed groups in a realistic situation and forced us to work together effectively and practice relevant concepts/strategies”

“The group work was distracting because of the lack of unity and sense of purpose. We all had different priorities and purposes for taking the class and this made it really hard to be on the same page for the project which was the biggest part of this class.”

# Group Work is Hard Work

“Have groups do a team charter - outlining what they expect from one another as teammates. I took a project management course and when working in a group with individuals you've never worked with, the team charter may help break the ice easier when everyone can say what their expectations are.”

“... I think that working effectively as a team was the most challenging part of this class ...”



# And it is not for Everybody

What aspects of this class detracted from your learning?

Finding strangers in malls & coffee shops was a major hurdle

What suggestions do you have for improving the class?

Don't exclude the two most available sources of people - friends & university students

# Adding and Dropping

## Attempting to Add

Say something to me after class

Will email today, attempt to finalize quickly

Must enforce a hard enrollment cap

## Considering Dropping

Do so before we assign teams, and tell us

## Section switch availability

We may need help in balancing sections

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# Thousands of Health Monitoring Apps

Top Paid iPhone Apps

Paid Free Top Grossing

|  |   |  |   |  |   |   |   |   |  |   |
|--|---|--|---|--|---|---|---|---|--|---|
| <br>1. Run with Map My Run+ - GPS...<br>Health & Fitness<br>\$0.99      | <br>2. 2.7 Minute Workout...<br>Health & Fitness<br>\$1.99             | <br>3. CARROT FIT - Talking Weight...<br>Health & Fitness<br>\$1.99   | <br>4. Running for Weight Loss PR...<br>Health & Fitness<br>\$3.99 | <br>5. Sleep Cycle alarm clock<br>Health & Fitness<br>\$0.99      | <br>6. Smart Alarm Clock: sleep...<br>Health & Fitness<br>\$1.99    | <br>7. Map My Ride+ - GPS Cycling...<br>Health & Fitness<br>\$0.99 | <br>8. Fitness for women: worko...<br>Health & Fitness<br>\$2.99 | <br>9. 7 Minute Workout - Quic...<br>Health & Fitness<br>\$0.99    | <br>10. Map My Fitness+ ...<br>Health & Fitness<br>\$0.99           | <br>11. Couch...<br>Health & Fitness<br>\$1.99                     |
| <br>13. Fitness Buddy : 1700+ Exercise...<br>Health & Fitness<br>\$1.99 | <br>14. Tone It Up<br>Health & Fitness<br>\$0.99                       | <br>15. 5K Runner: 0 to 5K run train...<br>Health & Fitness<br>\$2.99 | <br>16. Yoga.com Studio: 300 Pos...<br>Health & Fitness<br>\$4.99  | <br>17. Moves<br>Health & Fitness<br>\$2.99                       | <br>19. Period Tracker Deluxe<br>Health & Fitness<br>\$1.99         | <br>19. Yoga Studio<br>Health & Fitness<br>\$2.99                  | <br>20. White Noise<br>Health & Fitness<br>\$1.99                | <br>21. Ultra Fitness<br>Health & Fitness<br>\$0.99                | <br>22. Sleep Pillow Sounds: white...<br>Health & Fitness<br>\$1.99 | <br>23. All-in Fitness by Sportoo...<br>Health & Fitness<br>\$2.99 |
| <br>25. Instant Heart Rate - Heart Rat...<br>Health & Fitness<br>\$1.99 | <br>26. Paleo Central<br>Health & Fitness<br>\$0.99                    | <br>27. Calorie Counter PRO b...<br>Health & Fitness<br>\$3.99        | <br>28. The Wonder Weeks<br>Health & Fitness<br>\$2.99             | <br>29. Log For P90X3 Workout<br>Health & Fitness<br>\$0.99       | <br>30. Simply Being - Guided...<br>Health & Fitness<br>\$0.99      | <br>31. myWOD - All-in-One WOD Lo...<br>Health & Fitness<br>\$1.99 | <br>32. P90X<br>Health & Fitness<br>\$2.99                       | <br>33. Runtastic PRO GPS Running...<br>Health & Fitness<br>\$4.99 | <br>34. Points Calculator for...<br>Health & Fitness<br>\$2.99      | <br>36. 30 Day Challenges<br>Health & Fitness<br>\$2.99            |
| <br>37. The Fast Metabolism Die...<br>Health & Fitness<br>\$2.99        | <br>38. 10K Runner: 0 to 5K to 10K ru...<br>Health & Fitness<br>\$3.99 | <br>39. Sleep Times- Alarm Clock an...<br>Health & Fitness<br>\$1.99  | <br>40. Full Term - Labor...<br>Health & Fitness<br>\$0.99         | <br>41. Tabata Pro - Tabata Timer<br>Health & Fitness<br>\$2.99   | <br>42. Diet & Food Tracker ...<br>Health & Fitness<br>\$3.99       | <br>43. Seconds Pro - Interval Timer<br>Health & Fitness<br>\$4.99 | <br>44. Sleep Machine<br>Health & Fitness<br>\$1.99              | <br>45. Relax Melodies...<br>Health & Fitness<br>\$2.99            | <br>46. 7-Minute Workout (High...<br>Health & Fitness<br>\$1.99     | <br>47. Ultimate Value Diary<br>Health & Fitness<br>\$2.99         |
| <br>49. buddhify 2<br>Health & Fitness<br>\$1.99                      | <br>50. Instant Fitness : 600+ ...<br>Health & Fitness<br>\$0.99     | <br>51. Sworkit Pro<br>Health & Fitness<br>\$0.99                   | <br>52. Pocket Yoga<br>Health & Fitness<br>\$2.99                | <br>53. BabyBump Pregnancy Pro...<br>Health & Fitness<br>\$1.99 | <br>54. Situps 0 to 200: Sit Ups...<br>Health & Fitness<br>\$0.99 | <br>55. LIVESTRONG.C...<br>Health & Fitness<br>\$0.99            | <br>56. Insight Timer Deluxe ...<br>Health & Fitness<br>\$0.99 | <br>57. Daily Workouts<br>Health & Fitness<br>\$0.99             | <br>58. Boot Camp Challenge<br>Health & Fitness<br>\$0.99         | <br>59. Pts. Plus<br>Health & Fitness<br>\$1.99                  |

# Activity and Medical Sensing Devices



Thermometer



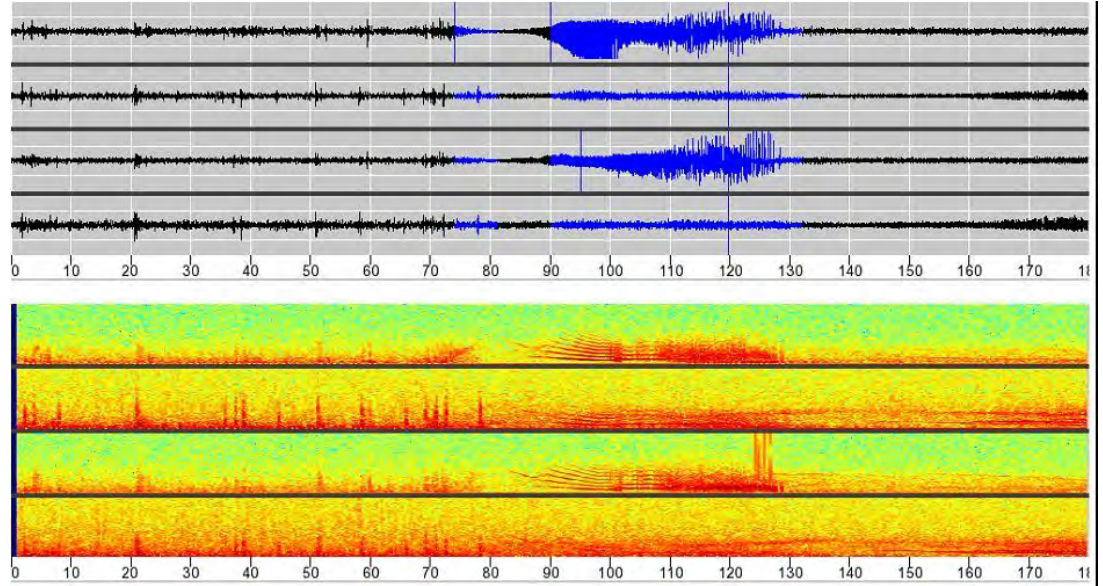
Heart rate monitor



Blood glucose meter

Blood pressure monitor

# Medical Implants



NeuroPace

# Sustainability Tracking



Kill A Watt



Belkin  
WeMo Water



Automatic

# Location and Activity



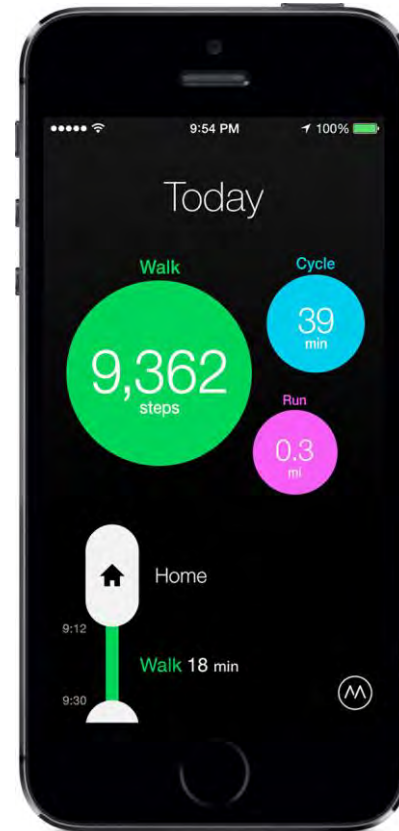
FitBit



Garmin



FitBark



Moves

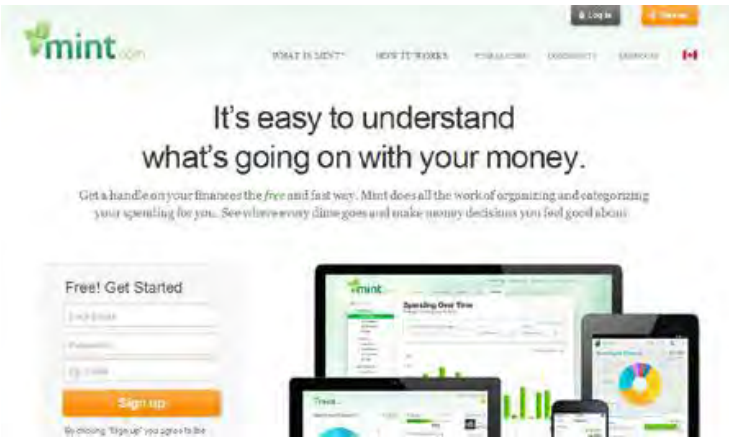


# Time Tracking



RescueTime

# Finances



Mint



You Need a Budget

# Background in Personal Informatics

## Some Definitions

What is the Point?

What is the Problem?



Chester, T. (2013). *The Sunday Times*.  
“You Are Just a Number”

# What is Personal Informatics

“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**.”

# What is 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 G. (2009). *Wired Magazine*.

“Know Thyself: Tracking Every Facet of Life, from Sleep to Mood to Pain, 24/7/365”

# What is the Point?



Gnothi seauton  
“Know thyself”

# Leonardo da Vinci

## Leonardo da Vinci

Odometers on the left

Pedometer on the right

To track troop activities



# Benjamin Franklin



Temperance

Silence

Order

Resolution

Frugality

Industry

Sincerity

Justice

Moderation

Cleanliness

Tranquility

Chastity

Humility



# Benjamin Franklin



| TEMPERANCE.                                     |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|
| EAT NOT TO DULLNESS.<br>DRINK NOT TO ELEVATION. |    |    |    |    |    |    |    |
|   | S. | M. | T. | W. | T. | F. | S. |
| T.  |    |    |    |    |    |    |    |
| S.  | *  | *  |    | *  |    | *  |    |
| O.  | ** | *  | *  |    | *  | *  | *  |
| R.  |    |    | *  |    |    | *  |    |
| F.  |    | *  |    |    | *  |    |    |
| L.  |    |    | *  |    |    |    |    |
| S.  |    |    |    |    |    |    |    |
| J.  |    |    |    |    |    |    |    |
| M.  |    |    |    |    |    |    |    |
| C.  |    |    |    |    |    |    |    |
| T.  |    |    |    |    |    |    |    |
| C.  |    |    |    |    |    |    |    |
| H.  |    |    |    |    |    |    |    |

# Manpokei



交通巡査  
11260歩=6.7<sup>キ</sup>(8時間)



さん(20) 東京、有楽町のビヤホール  
客席は約五百、大抵二十人前後でサシで席を  
満員にすれば、ちよつと立まる程もない

ビヤホールのウェイトレス  
12550歩=5.5<sup>キ</sup>(8時間)

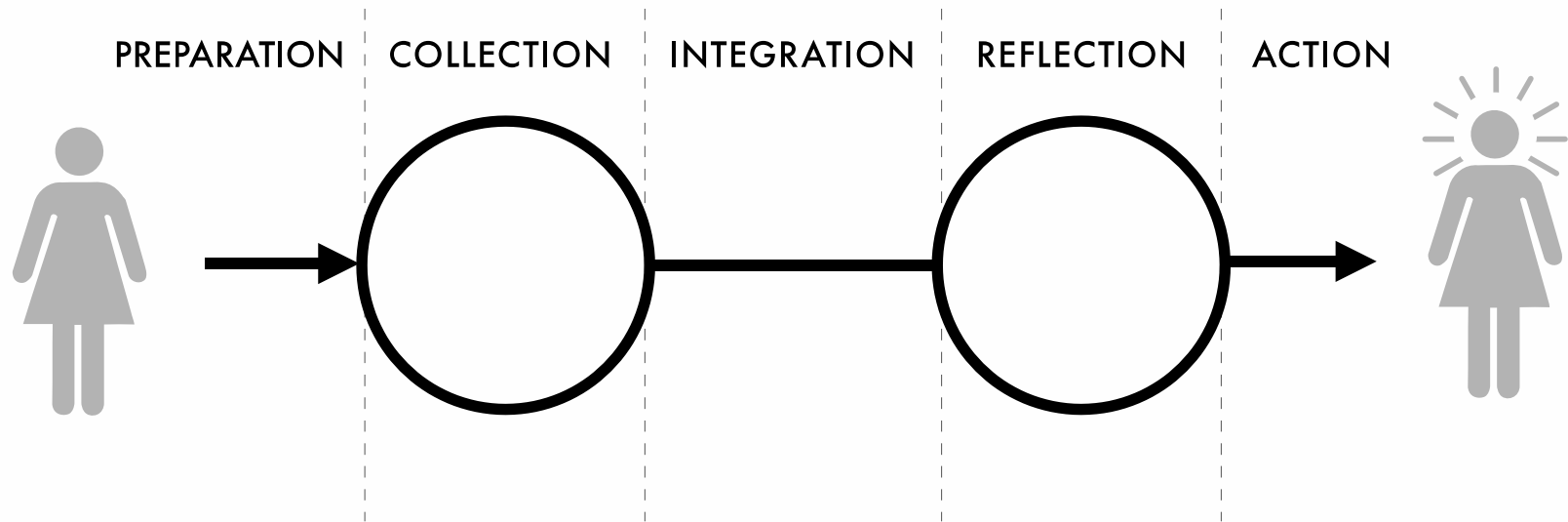


さん(22) 東京—大  
阪の幹線を二往復、タバコや飲み  
物のサービスで機内を動き回る  
乗客は少なく寒だったという

エアホステス  
9000歩=4.1<sup>キ</sup>(6時間半)

万歩計

# Five-Stage Model of Personal Informatics



# Five-Stage Model of Personal Informatics

Alice



20 years old

Has a family history  
of heart disease

Wants to be more active

Does not know how,  
because she is busy

# Preparation



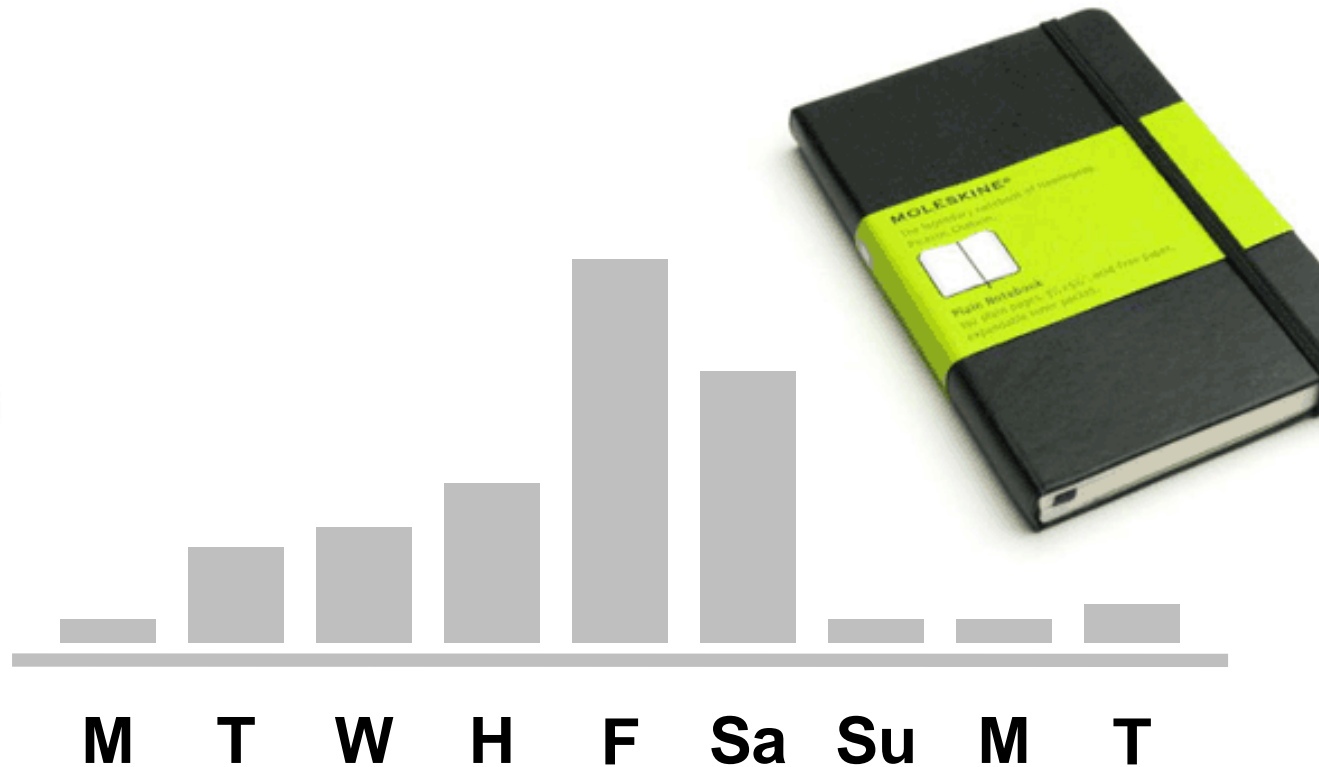
# Preparation



# Collection

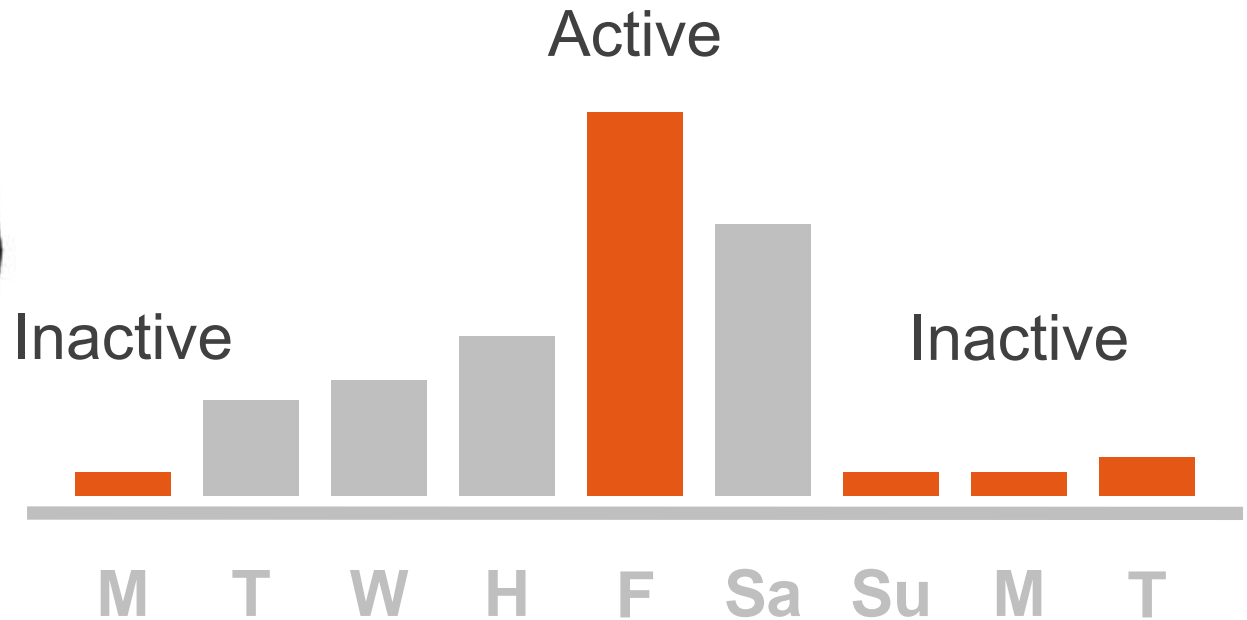


# Integration





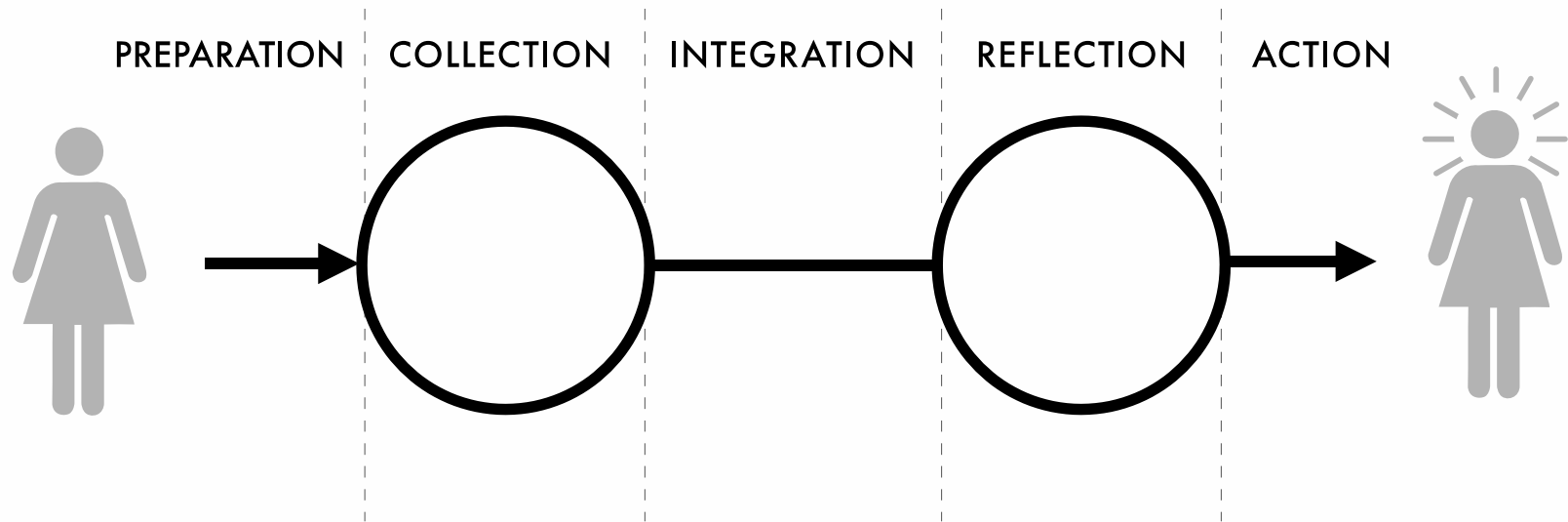
# Reflection



# Action



# Five-Stage Model of Personal Informatics



# What is the Problem?

Examining serious self-trackers, as they represent the early adopters

The screenshot shows a blog post on the Quantified Self website. The header includes the 'QS Quantified Self' logo with the tagline 'self knowledge through numbers', a search bar, and navigation links for 'ABOUT', 'VIDEOS', and 'FORUMS'. The main article is titled 'Mark Moschel on Tracking and Dunking', posted on January 30, 2014, by Ernesto Ramirez. The text describes how Mark Moschel, a basketball fan, decided to learn to dunk a basketball and how he used self-tracking for this goal. Below the text is a video player showing Mark Moschel speaking at a podium. The video player includes a play button, a progress bar at 11:24, and 'HD' and 'vimeo' logos. Below the video are social sharing options for Twitter, Facebook, Google+, Tumblr, LinkedIn, and Email. The post is tagged with 'basketball', 'dunking', 'qstip', and 'strength'. On the right side of the page, there is a sidebar with a banner for the 'Quantified Self Europe Conference' (May 10-11, 2014, Amsterdam), a 'Make a Sparktweet' button, and a list of 'QS Meetup Groups' for various cities including Toronto, Vancouver, Montreal, Ottawa, London, and San Diego.

# Quantified Self Talk Format

**What I Learned**

- What a good nights sleep looks like and what affects that for me

Your sleep pattern ■ asleep ■ active

zzzz

**YOUR SLEEP EFFICIENCY**  
97%

11pm 12am 1am 2am 3am 4am

Time to fall asleep  
Times awakened  
5

You were in bed for  
8hrs 27min

Actual sleep time  
8hrs 1min

VS.

1. What I did

2. How I did it

3. What I learned

Analyzed 52 videos

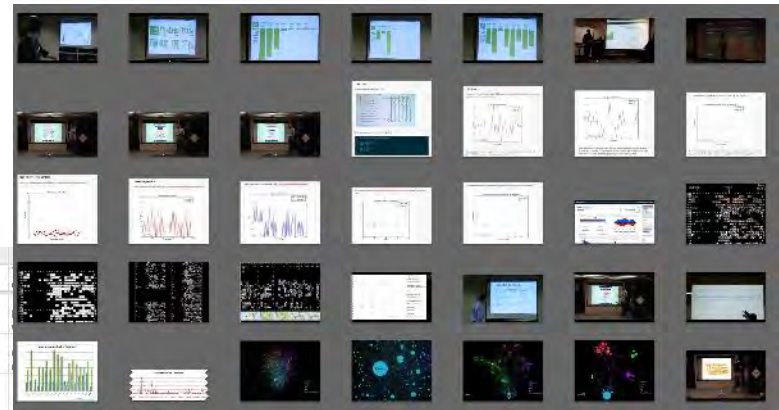
# Analysis



## Themes

|   | C             | D      | E                          | F  | G  | H   |   |            |                |                |
|---|---------------|--------|----------------------------|--|--|---|---|------------|----------------|----------------|
| 1 | City          | Gender | Working in a tech company? | Background                                       | Data type  |   |   |            |                |                |
| 2 | San Francisco | Male   | Microsoft                  | Data analytics                                   | Activity, Food, Sleep, Weight, Body fat, mood  |   |   |            |                |                |
| 3 | San Francisco | Male   | startup                    | Data analytics, financial modeling, tech startup | Glucose  |   |   |            |                |                |
| 4 |               |        |                            |  | Exercise, Food, Supplements, Medicine, biomedical data, body fat, weight, blood pressure | heart rate monitor, pen and paper, Excel  | cancer  | 6 years    | Commercial     |                |
| 5 | London        | Male   | no                         | electronics engineer                             | interface designer, VP of product, web development                                       | Weight, Food, Sleep, Productivity   | scale, Fitbit, RescueTime (productivity measuring tool) | 2 years    | Commercial     |                |
| 6 | Seattle       | Male   | startup                    |  | software engineer, network engineer, robotics, software, product development             | rowing strokes, distance rowed, time rowed, calories  | arduino, spreadsheet                                    | overweight | 5 months       |                |
| 7 | London        | Male   | startup                    |  | mechanical engineer  | proximity to cars, location   | smartphone, sonar                                       | 1 year     | user-generated |                |
| 8 | San Francisco | Male   | startup                    |  | mechanical engineer  | heart rate, food, fitness, cognitive performance, anxiety, media consumption, sleep, location, finance, biomedical data, reading, glucose | custom heart rate monitor                               |            |                | user-generated |
| 9 | Beirut        | Female |                            |  |  |   |   |            |                |                |
|   | Toronto       | Male   | Rogers                     |  | programmer, performance manager, big data  |   |   |            | 20 years       |                |

## Visualizations



## Profiles

# What do they 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

Self-tracking  
is more than  
just buying  
a FitBit

Choe E.K., Lee N.B., Lee B., Pratt W., Kientz J.A. CHI 2014.

“Understanding Quantified Selfers’ Practices in Collecting and Exploring Personal Data”

# Motivations for Tracking

| Motivations                      | Sub-categories                    |
|----------------------------------|-----------------------------------|
| To improve health                | To cure or manage a condition     |
|                                  | To achieve a goal                 |
|                                  | To find triggers                  |
|                                  | To answer a specific question     |
|                                  | To identify relationships         |
|                                  | To execute a treatment plan       |
|                                  | To make better health decisions   |
|                                  | To find balance                   |
| To improve other aspects of life | To maximize work performance      |
|                                  | To be mindful                     |
| To find new life experiences     | To satisfy curiosity and have fun |
|                                  | To explore new things             |
|                                  | To learn something interesting    |

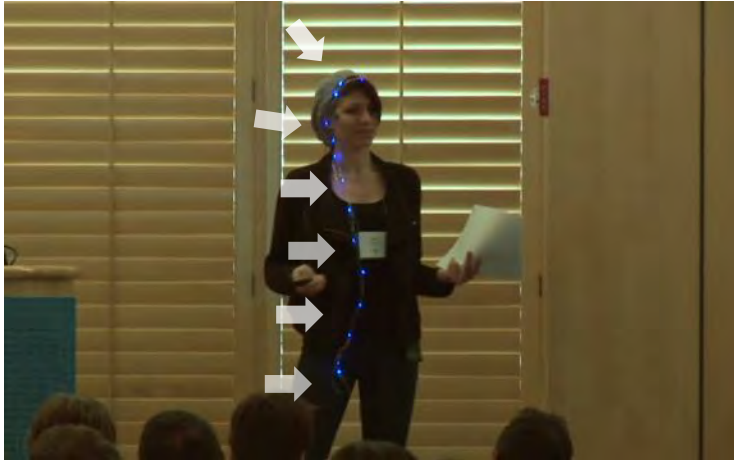


# Data Collection and Exploration Tools

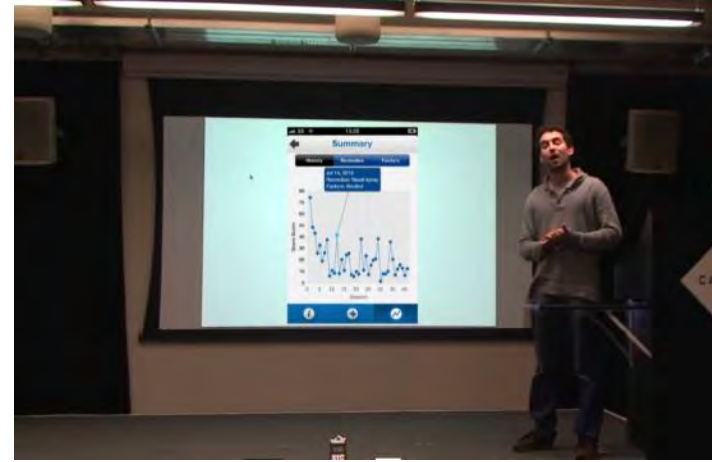
| Data Collection Tool | % (#)    |
|----------------------|----------|
| Commercial hardware  | 56% (29) |
| Spreadsheet          | 40% (21) |
| Custom software      | 21% (11) |
| Pen and paper        | 21% (11) |
| Commercial software  | 19% (10) |
| Commercial website   | 10% (5)  |
| Camera               | 6% (3)   |
| Open-source platform | 6% (3)   |
| Custom hardware      | 4% (2)   |
| Other                | 10% (5)  |

| Data Exploration Tool | % (#)    |
|-----------------------|----------|
| Spreadsheet           | 44% (23) |
| Custom software       | 35% (18) |
| Commercial website    | 27% (14) |
| Commercial software   | 12% (6)  |
| Open-source platform  | 8% (4)   |
| Statistical software  | 4% (2)   |
| Pen and paper         | 2% (1)   |

# Building Custom Tools



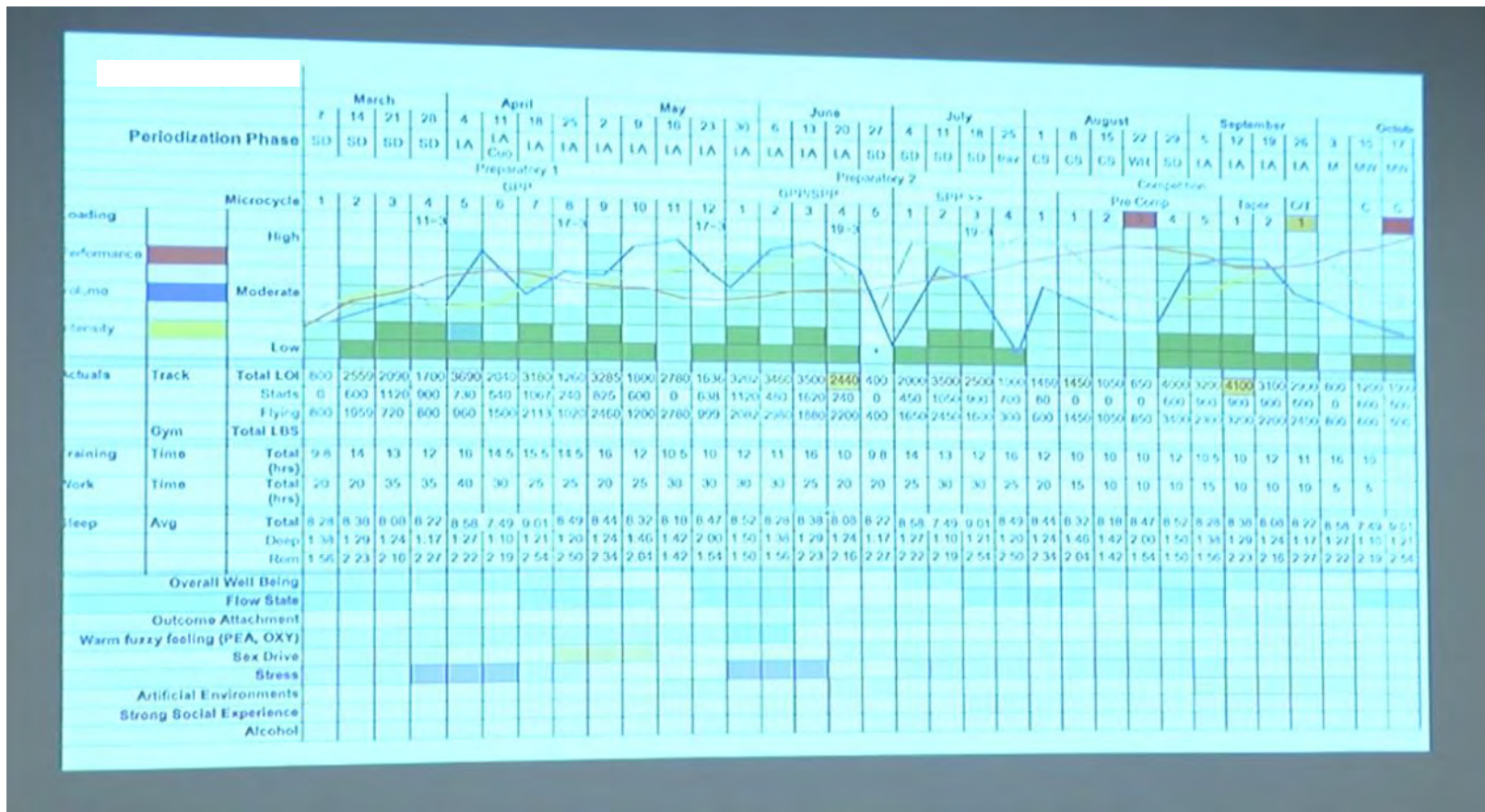
Captures smile via wearable sensing  
Provides real-time feedback



Captures snoring via mobile app  
Provides data visualization

Choe E.K., Lee N.B., Lee B., Pratt W., Kientz J.A. CHI 2014.  
“Understanding Quantified Selfers’ Practices in Collecting and Exploring Personal Data”

# Custom Visualizations



Choe E.K., Lee N.B., Lee B., Pratt W., Kientz J.A. CHI 2014.

“Understanding Quantified Selfers’ Practices in Collecting and Exploring Personal Data”

# Why are they Building Custom Tools?

Desirable features are not supported

Collect and reflect on the data using a single tool

Perform self-experimentation

Barriers to success

Tracking too many things

Not tracking triggers and context

Lacking scientific rigor

# Tracking Too Many Things

“I can honestly say that I’ve made the classic **newbie self-tracking mistake** which is that I track everything. I didn't know exactly what to track, so I tracked caffeine, dairy, wheat, sugar, nuts, fruit, vegetables, meat, chicken, fish, alcohol supplements...”

People burn out on self-tracking

# Not Tracking Triggers and Context

“I was trying to track all these symptoms and I was completely ignoring the cause...”

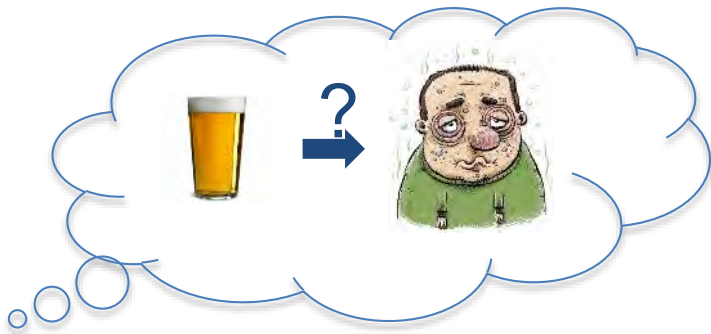
People lack clues on what to track

Missing information on how to improve outcome

They track the wrong information

# Lacking Scientific Rigor

Conduct self-experimentations without control or without addressing confounding factors



And they conduct flawed experiments

# Barriers and Negative Nudges



*“It was too time consuming and tedious. I also did not know what to enter if I ate out, so I often did not enter data and that compounded. I also felt embarrassed to do it in front of friends so I stopped.”*

## Negative Nudges:

Contrasting difficulty of entry

Judgment and choosing not to journal

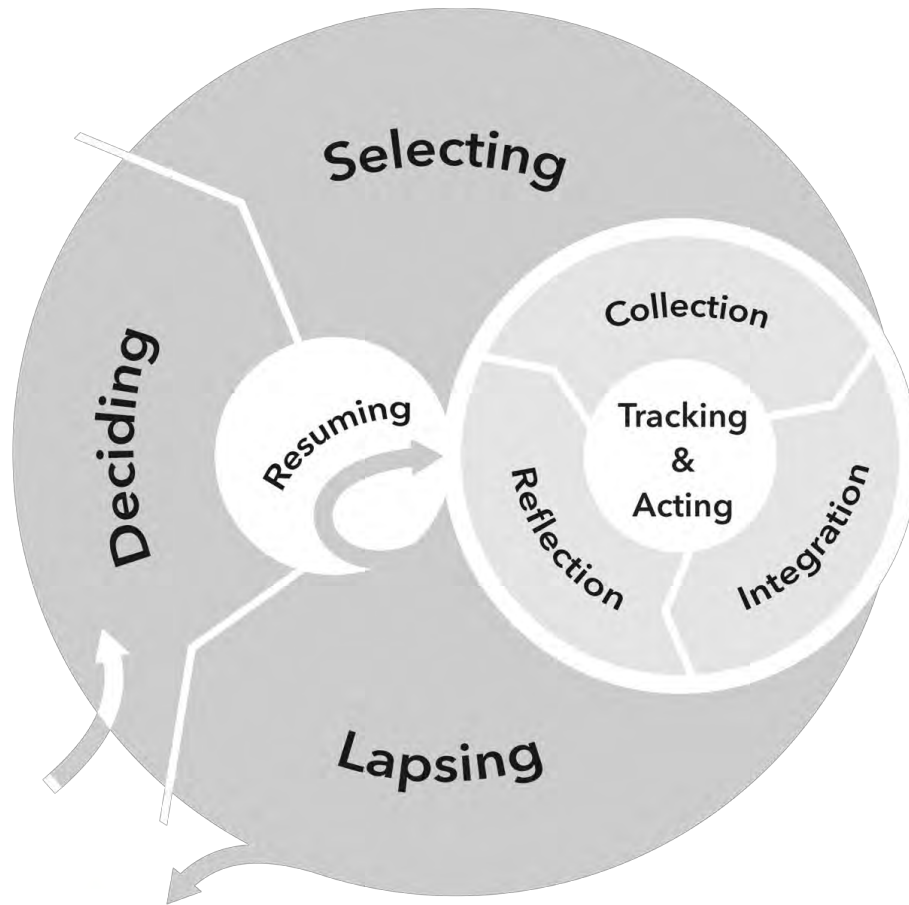
Stigma and journaling

Lack or decline in social support

Felicia Cordeiro, Daniel A. Epstein, Edison Thomas, Elizabeth Bales, Arvind K. Kagannathan, Gregory D. Abowd, James Fogarty. CHI 2015. Barriers and Negative Nudges: Exploring Challenges in Food Journaling



# A Model of Lived Informatics



Extends 5-stage model to surface additional opportunities and challenges in lifecycle

Returning to a tool (e.g., short/long lapse)

Changing tools (e.g., due to burden)

Changing goals (e.g., due to discovery)

# Your Challenge

People invest tremendous effort for little value

Do better, help people achieve their goals, solve real problems

Go beyond the data fetish

Understand the problems people face

Find the role for interactive technology



# Your Challenge

Explore **tracking beyond the self:**

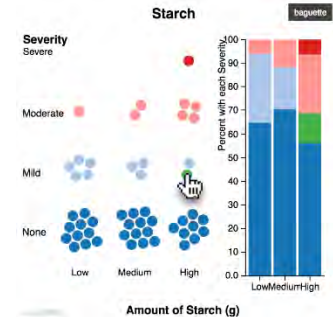
co-located relationships

remote relationships

communities organizing

people seeking help from peers

people seeking help from experts



Any problem where multiple people collect data, or where multiple people engage in gaining value from data, introduces additional opportunities and challenges in designing for effective interaction with personal data

# Some Reflection

We have high expectations

We want you to do cool stuff

But we are also enthusiastic and we listen

Email us, point out opportunities, ask questions

If you are not onboard, please drop now

Please email us so that we know a spot opened

cse440-instr [at] cs.washington.edu

# CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 01:  
Introduction and  
Personal Informatics

James Fogarty  
Eunice Jun  
David Wang  
Elisabeth Chin  
Ravi Karkar



Tuesday / Thursday  
10:30 to 11:50