

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 01:
Introduction and
Personal Informatics

Tuesday / Thursday
12:00 to 1:20

James Fogarty
Kailey Chan
Dhruv Jain
Nigini Oliveira
Chris Seeds
Jihoon Suh

What Is This Course?



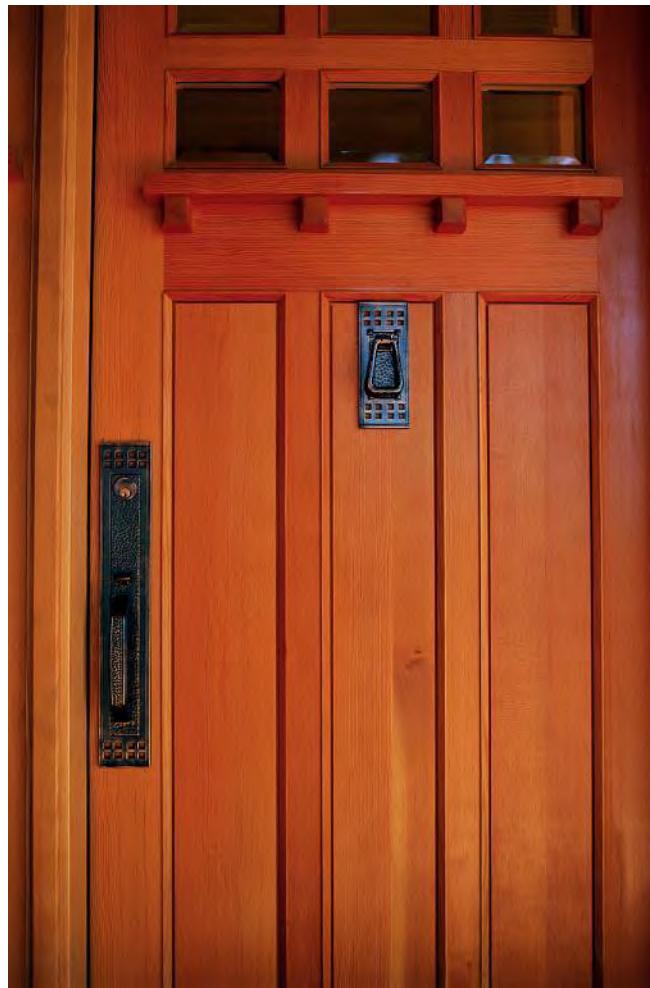
Time for a Door Quiz:

Say out loud what action you use to open the door

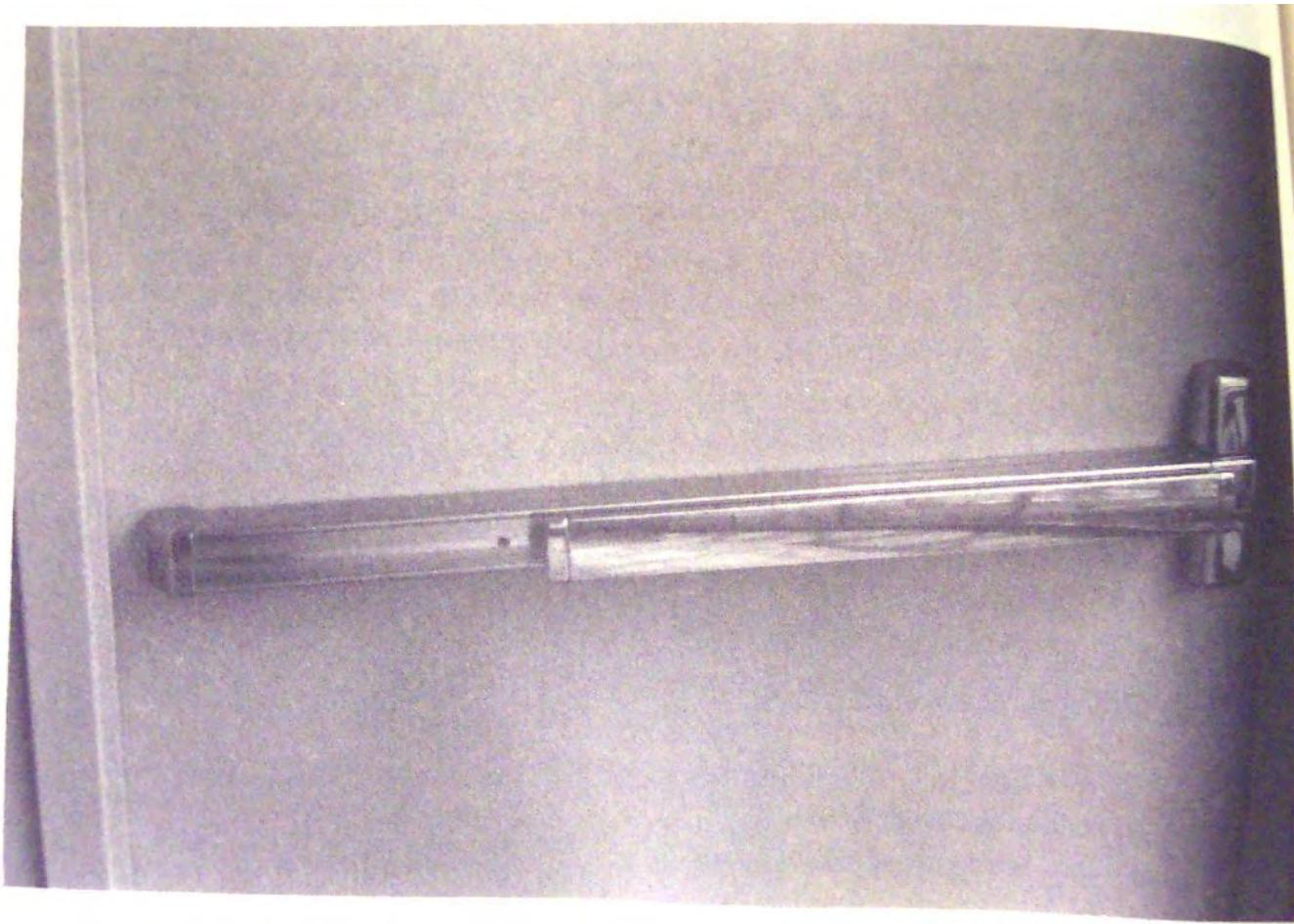
Push

Pull

Door Quiz



Door Quiz



Door Quiz



Door Quiz



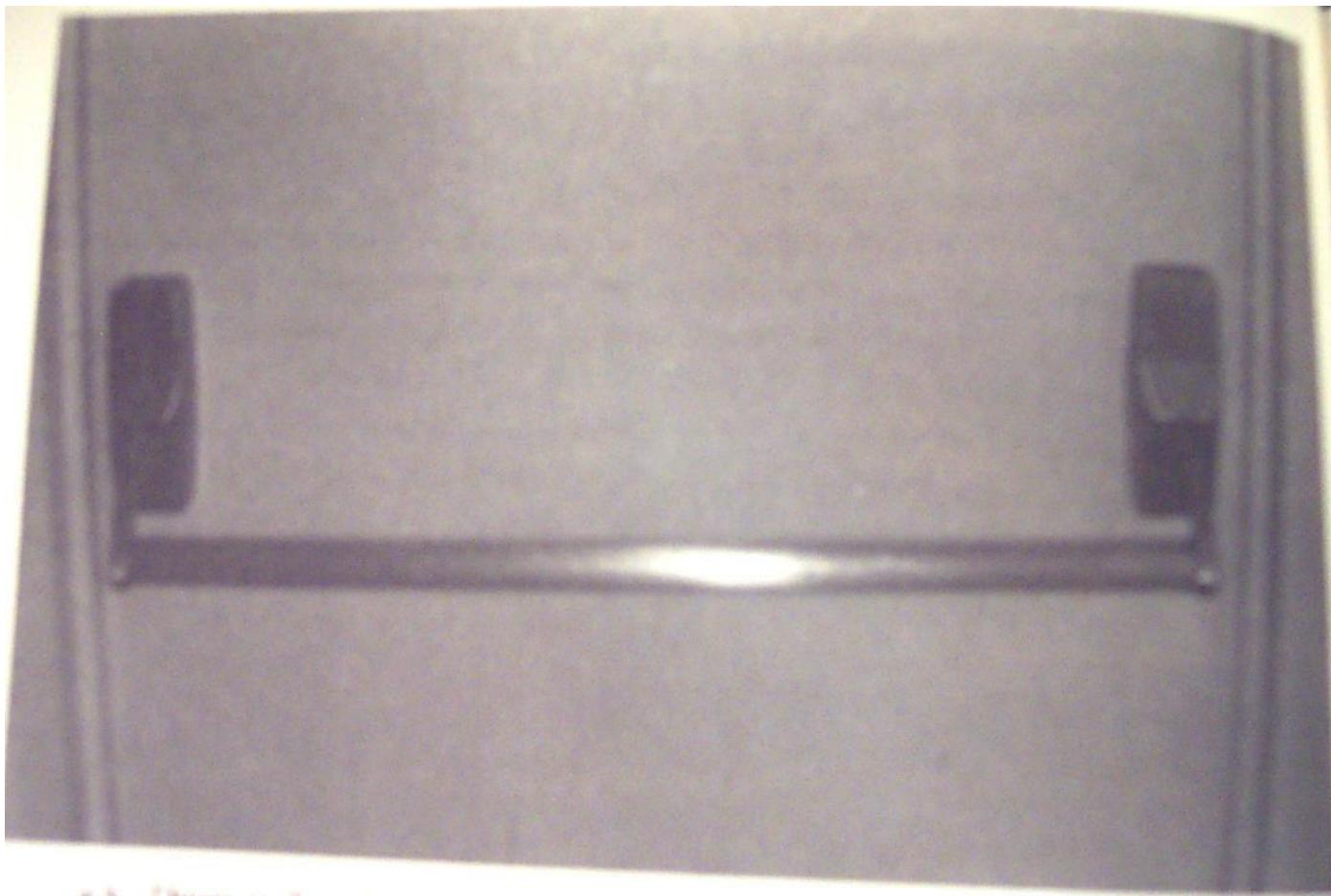
Door Quiz



Door Quiz



Door Quiz



Door Quiz



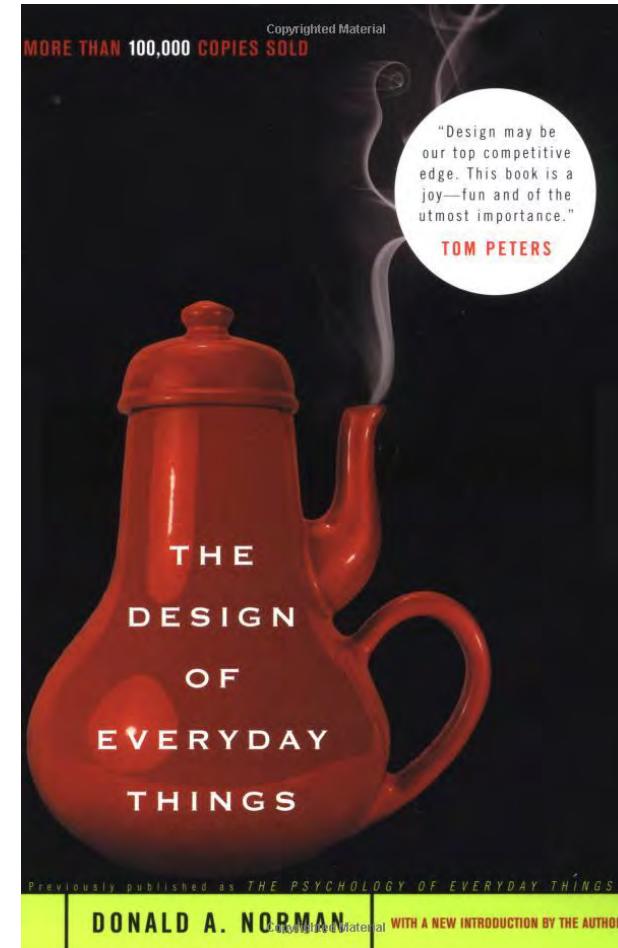
What is so Special about Computers?

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?

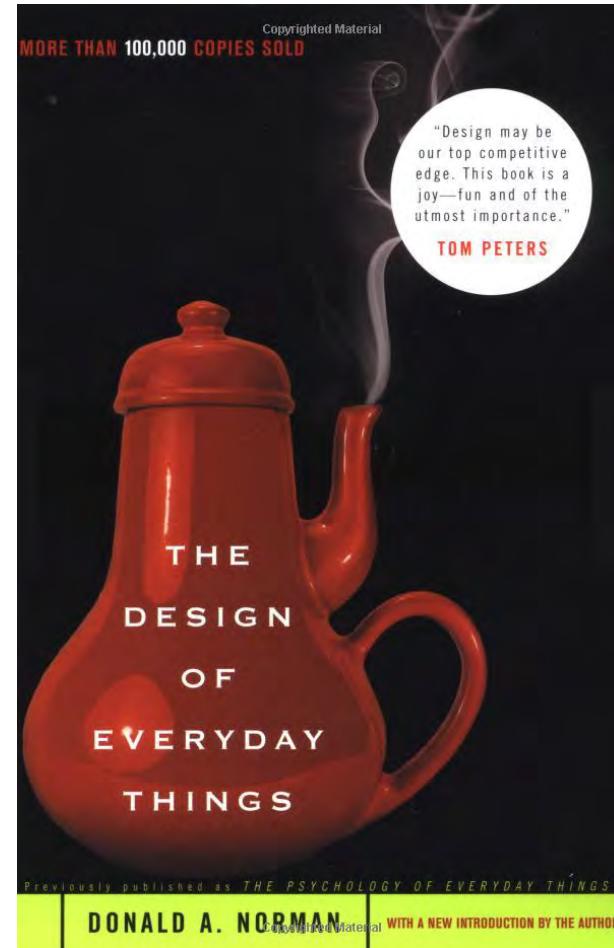
Yet we blame ourselves

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

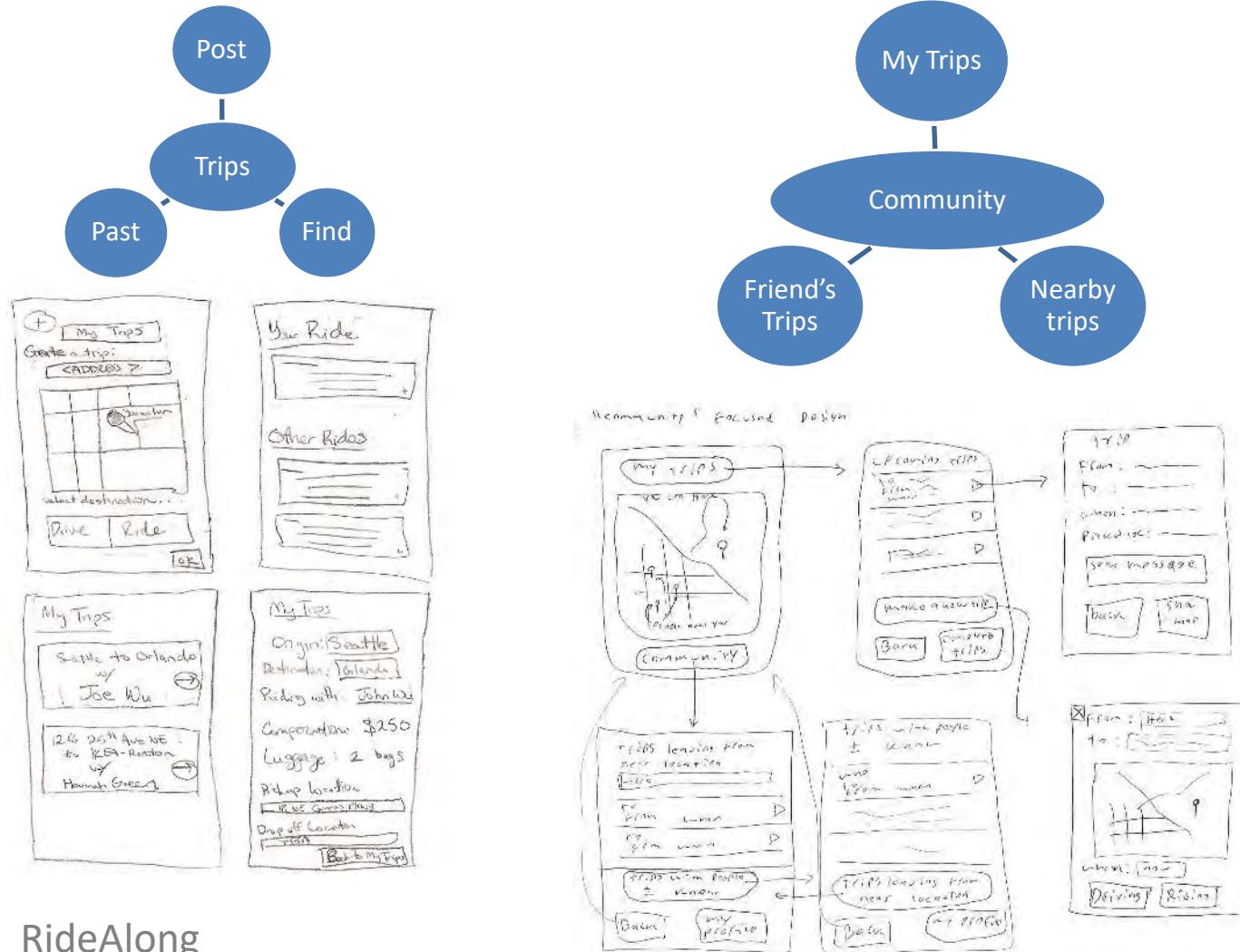


Consumester



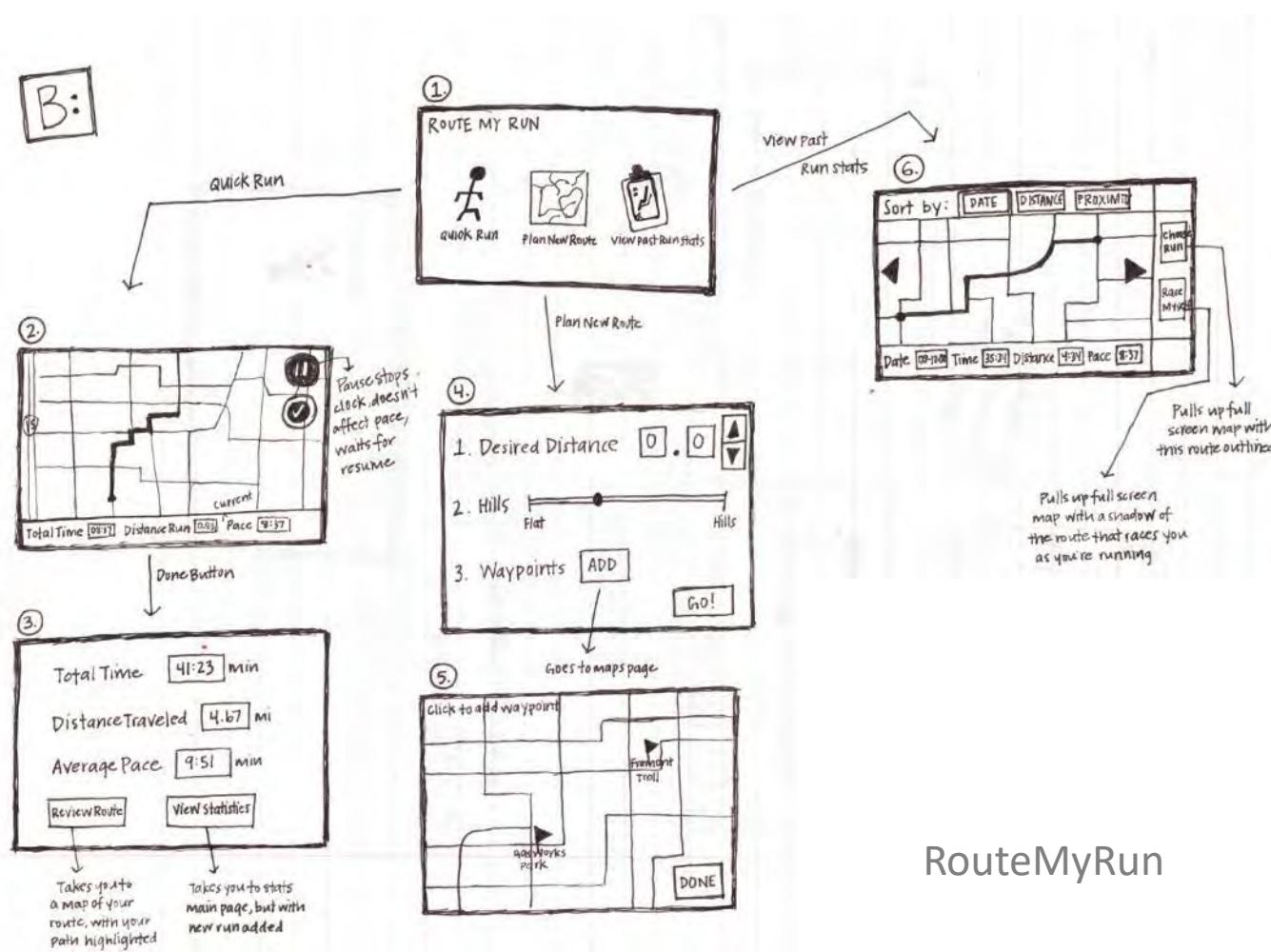
FoodWatch

Sketching & Storyboarding



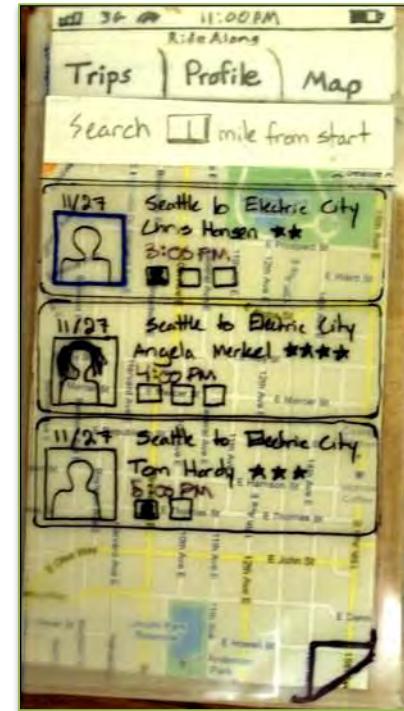
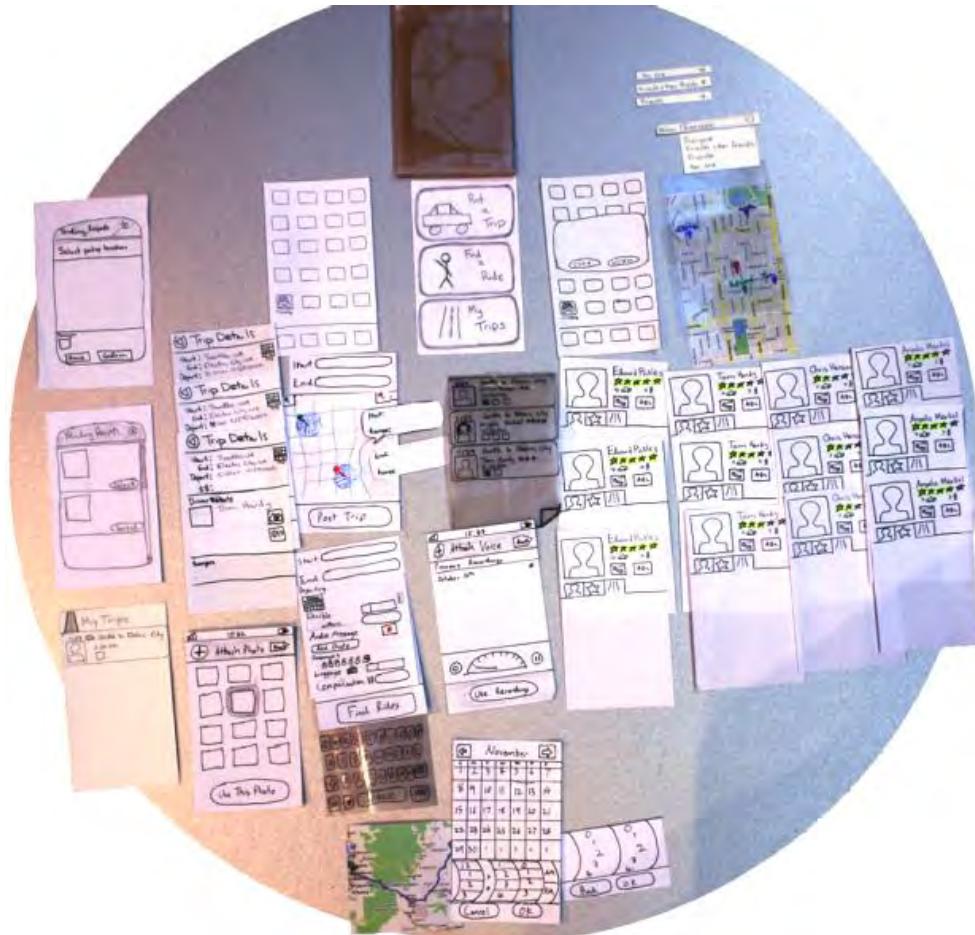
RideAlong

Sketching & Storyboarding



RouteMyRun

Low-Fidelity Prototyping & Testing



RideAlong

Digital Mockup



Balance

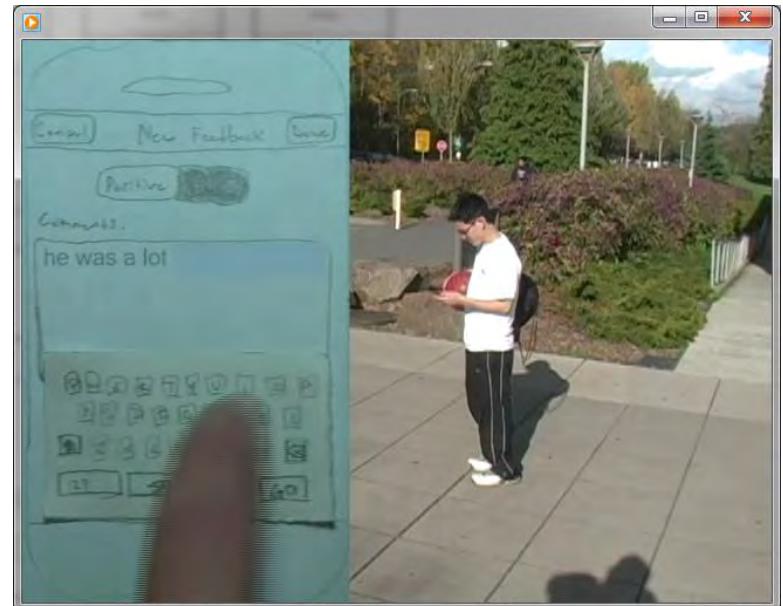


.calm

Video Prototypes

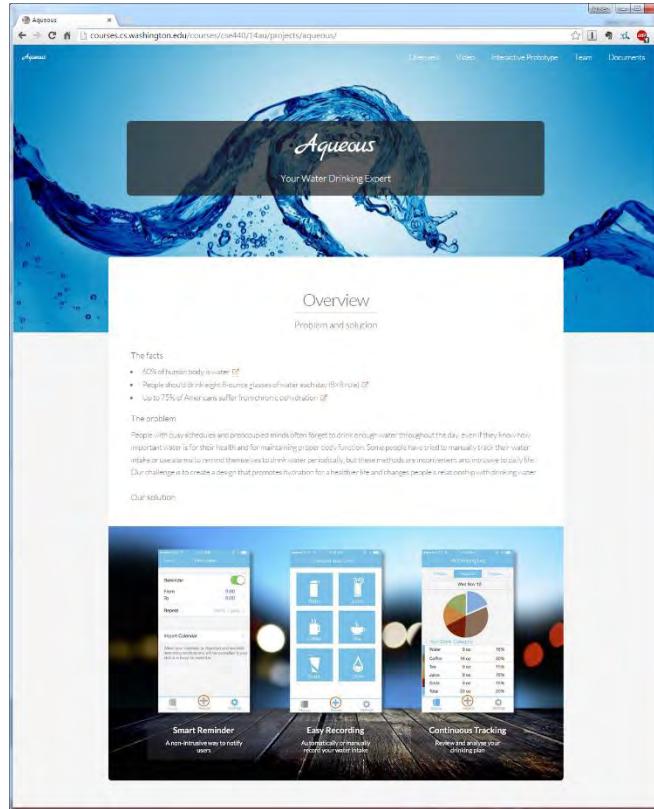


GetOut



PickUp

Learn by Example from Prior Projects



Autumn 2014 - Aqueous:

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

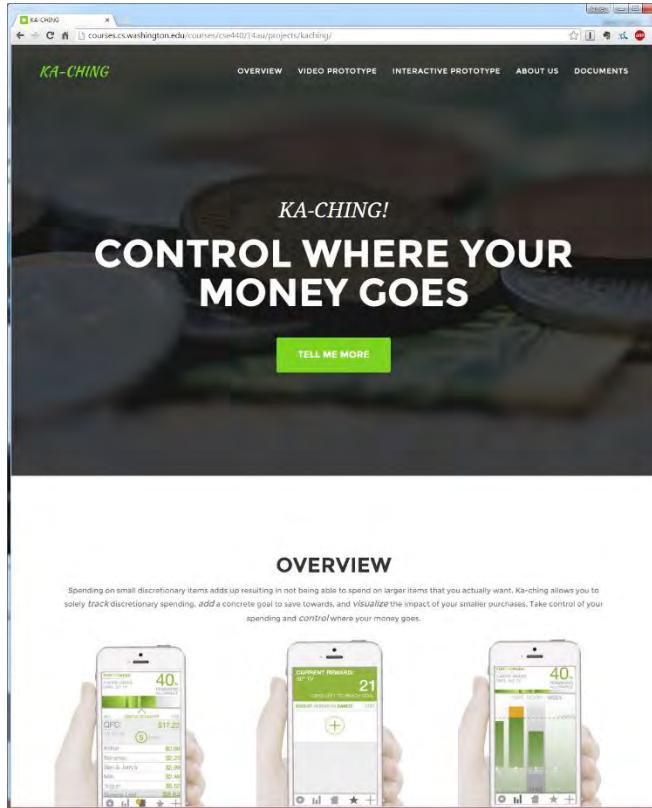
Learn by Example from Prior Projects



Autumn 2014 - IEP Connect:

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

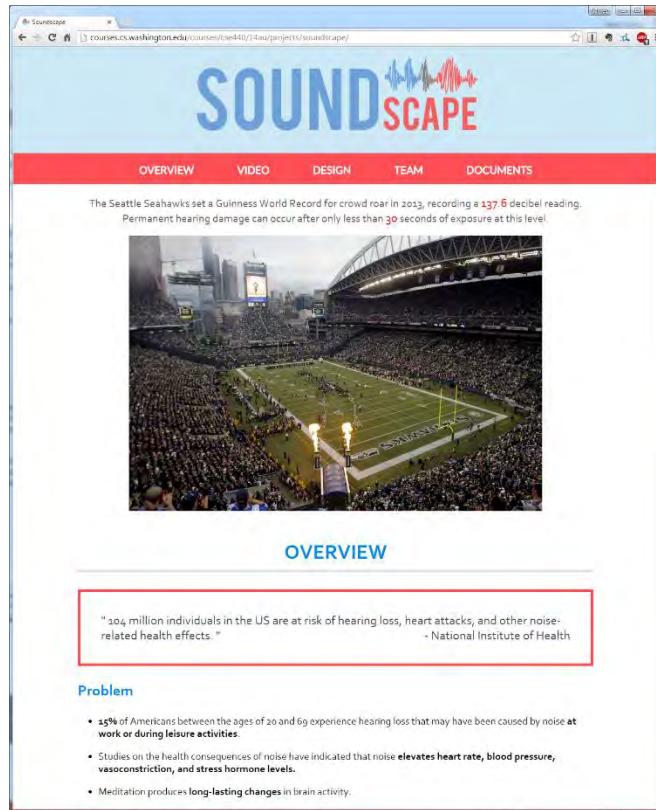
Learn by Example from Prior Projects



Autumn 2014 - Ka-Ching:

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

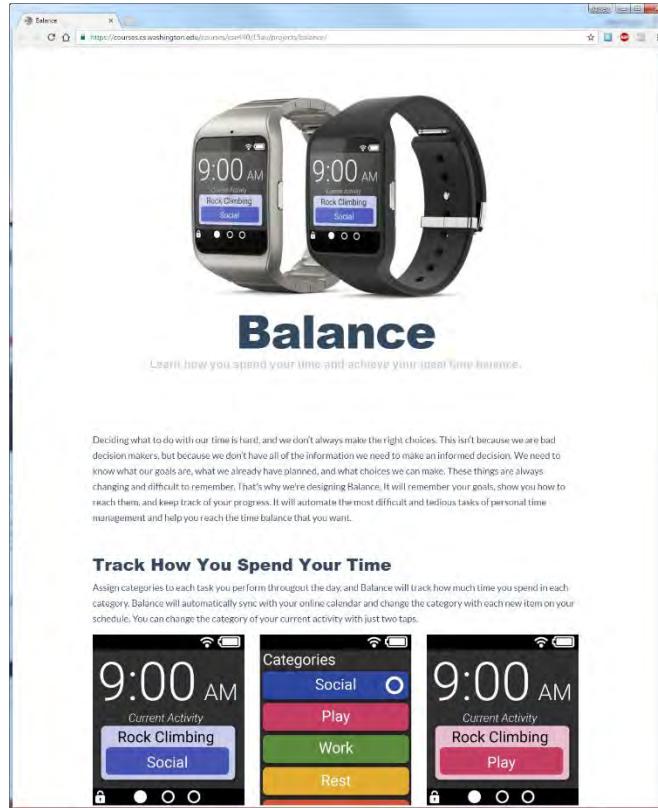
Learn by Example from Prior Projects



Autumn 2014 - Soundscape:

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

Learn by Example from Prior Projects



Autumn 2015 - Balance:

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

Learn by Example from Prior Projects



Autumn 2015 - Neat:

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

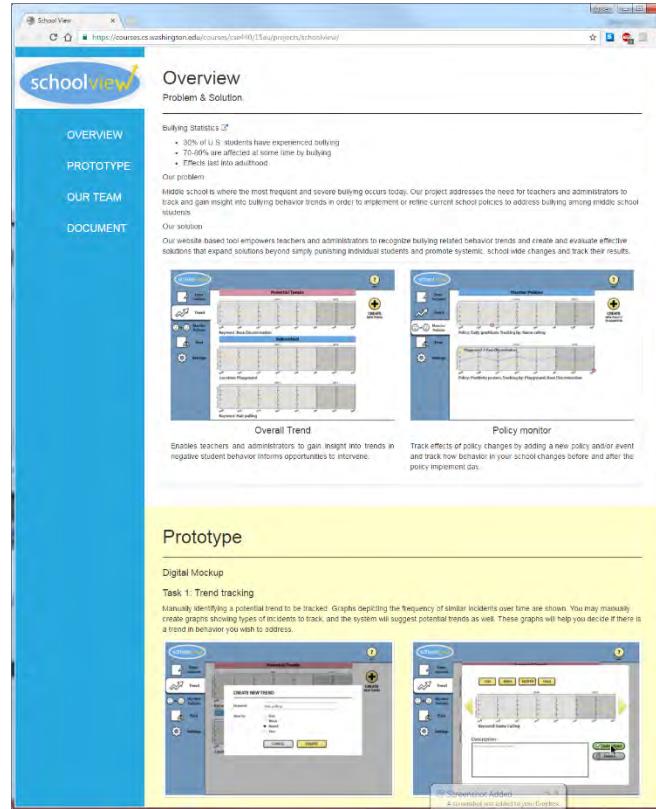
Learn by Example from Prior Projects



Autumn 2015 - Poliscope:

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

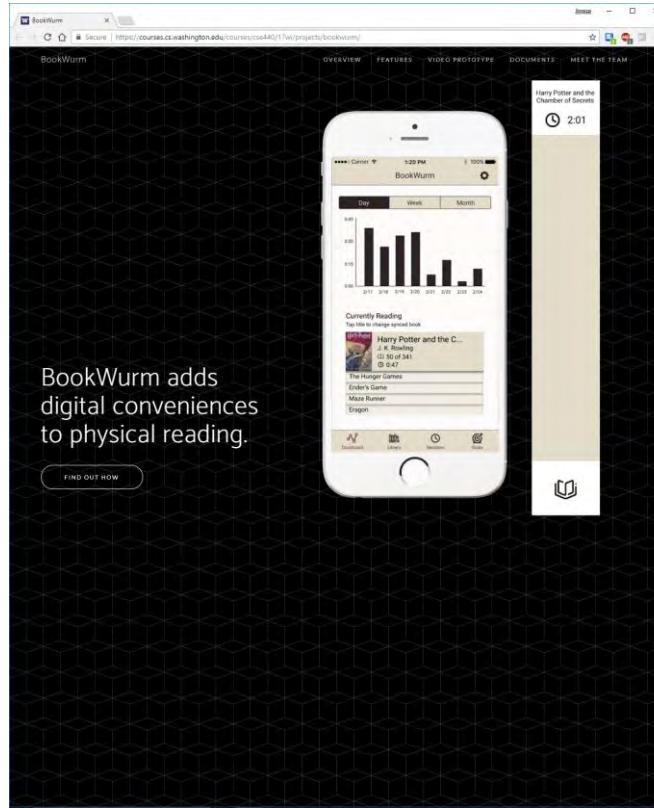
Learn by Example from Prior Projects



Autumn 2015 - School View:

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

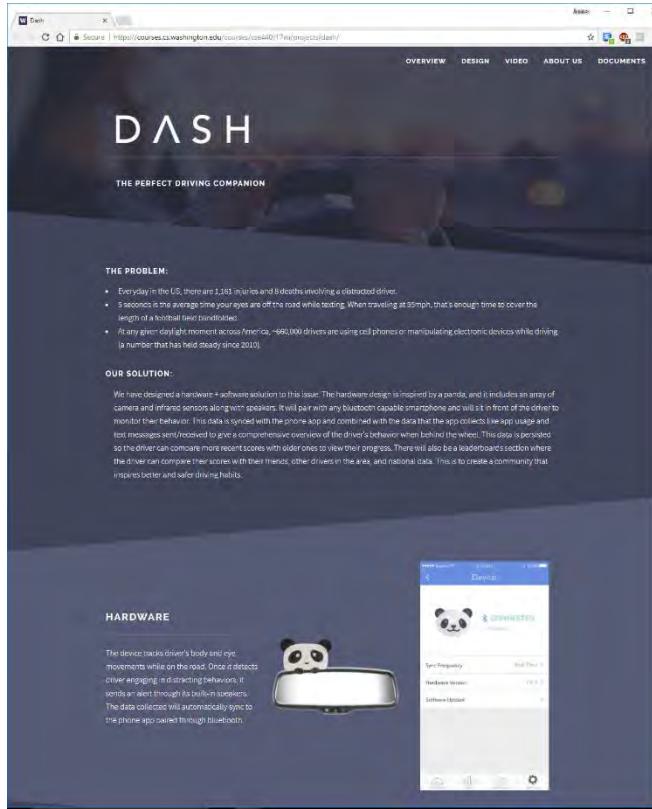
Learn by Example from Prior Projects



Winter 2017 - BookWurm:

<https://courses.cs.washington.edu/courses/cse440/17wi/projects/bookwurm/>

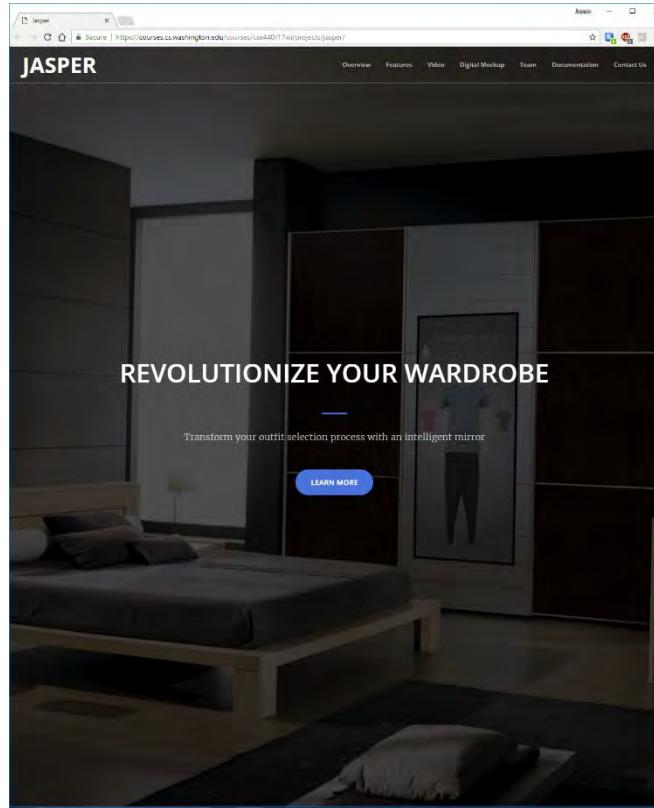
Learn by Example from Prior Projects



Winter 2017 - Dash:

<https://courses.cs.washington.edu/courses/cse440/17wi/projects/dash/>

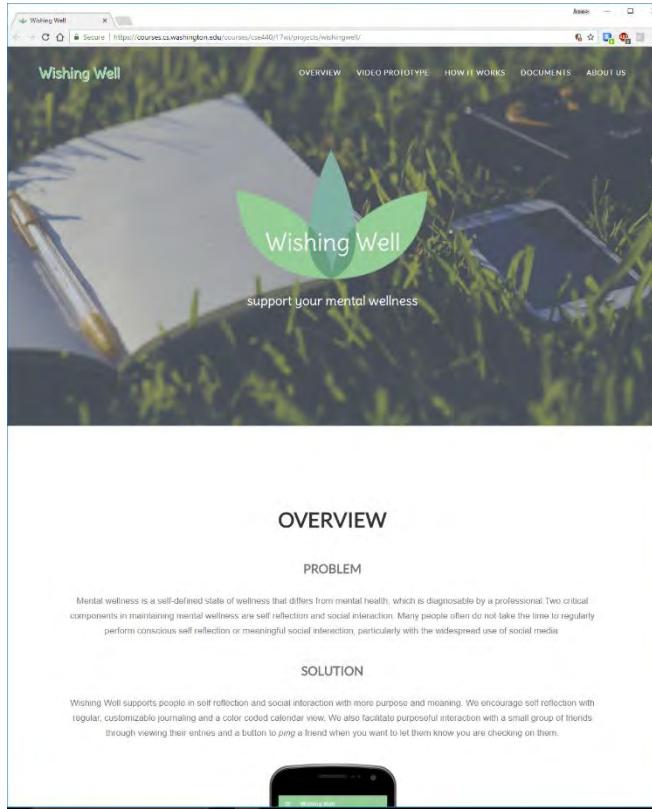
Learn by Example from Prior Projects



Winter 2017 - Jasper:

<https://courses.cs.washington.edu/courses/cse440/17wi/projects/jasper/>

Learn by Example from Prior Projects



Winter 2017 - Wishing Well:

<https://courses.cs.washington.edu/courses/cse440/17wi/projects/wishingwell/>

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

Tuesday milestones

Your team always has a milestone due

Class may include project time or activity

Seek feedback (e.g., via office hours)

Overview

HCI and the Project Sequence

Course Staff Introductions

Administrivia

Assignment 1: Project Proposal

Assignment 1a: Due Tonight

Assignment 1b: Due Monday Night

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

Professor, effective Autumn 2017

Brief Industrial Stints

IBM, 2000

IBM Research, 2003

Microsoft Research, 2007

Who We Are

Cross-Campus HCI

DUB

MHCID



Cross-Campus Digital Health

UW Medicine Digital Health Advisory Committee
UW Population Health Executive Committee

Teaching

CSE 440: Introduction to HCI

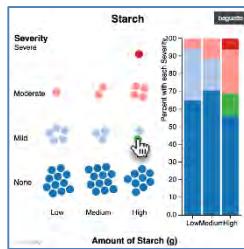
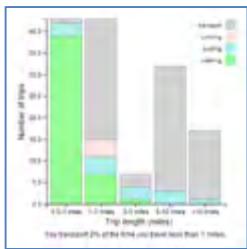
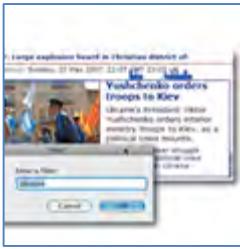
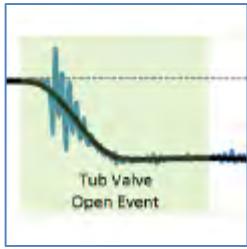
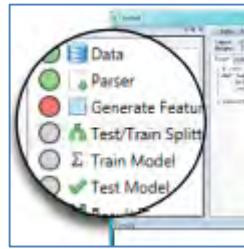
CSE 441: Advanced HCI

CSE 510: Advanced Topics in HCI

CSEP 510: Human-Computer Interaction

CSE 332: Data Structures

Who We Are



Computing

You

Who We Are

Kailey Chan

Prefer: Kailey / She / Her

Background

BA, Psychology, UW, 2016

MS, HCDE, UW, 2018



Research

Social Psychology (Social-Identity, Social Media)

Contextual Interfaces

Interests:

Cooking, Traveling, DIY Crafts, Dogs

Who We Are

Dhruv Jain

Prefer: DJ / He / Him

Background

B.Tech, IIT Delhi, 2013

MS, MIT Media Lab, 2016

PhD, UW, 2017 - 



Research

Accessible Technologies

Augmented / Virtual Reality

Interests:

Scuba Diving (ah well...not anymore)

Who We Are

Nigini Oliveira

Prefer: Nigini / He / Him

Background

BS-MS, UFCG – Brazil, 2007

Entrepreneur/Lecturer, - 2012

PhD, UFCG (+UW), 2017



Research

Cross-Cultural Collaboration Design

Online Experimentation

Interests:

Literature, Bike Riding, Photography, Chatting, Coffee

Who We Are

Jihoon Suh

Prefer: Jihoon / He / Him

Background

BS, KAIST Industrial Design, 2016

MS, UW HCDE, 2018



Research

Spatial User Interfaces

Tangible Interaction

Interests:

Riding Boards (longboard, paddleboard, wakeboard)

Graffiti, Street Art (legal restrictions)

Who We Are

Christopher Seeds

Prefer: Chris / He / Him

Background:

BFA , Visual Communication Design,

Kent State University, 2010

Designer in Ohio & NYC, 2010–2016

MDes, UW SoA,AH,&D, 2018



Research:

Slow Design, Design + Storytelling

Interests:

Podcasts, My Boston Terrier, Concrete Things

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

Staying in Touch

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

You are responsible for calendar

Email Us: cse440-staff [at] cs.washington.edu

Email: You are responsible for course email list

Office Hours: Posted on Calendar
Also By Appointment

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

Panopto: I will probably mess it up at least once

Calendar Overview

W CSE 440 - Calendar https://courses.cs.washington.edu/courses/cse440/17au/calendar.html

CSE 440 - Introduction to HCI - Autumn 2017

Home Projects Calendar

Calendar

This page is still being migrated and developed. All content remains subject to change.

Sep 25	Sep 26	Sep 27	Sep 28	Sep 29
Nigini Away	Nigini Away	Nigini Away	Nigini Away Introduction, Project Overview, and Personal Informatics 12:30 - 1:20 PAA A110	Nigini Away, Kelley in All Sections Section 9:30 - 10:20 MGH 058 10:30 - 11:20 MGH 058 12:30 - 1:20 MOH 058 1:30 - 2:20 MGH 058
1a - Project Proposal (due Night Before Class)	Design of Everyday Things 12:00 - 1:20 PAA A110	1c - Project List (due Night Before Class)	1a - Project Brainstorm (due Night Before Section)	
Oct 2	Oct 3	Oct 4	Oct 5	Oct 6
Nigini Away	Nigini Away	Nigini Away	Nigini Away	Nigini Away
1b - Project Protocol (due Night Before Class)	Design of Everyday Things 12:00 - 1:20 PAA A110	1e - Project List (due Night Before Class)	Contechnical Inquiry, Design Research 12:00 - 1:20 PAA A110	Section 9:30 - 10:20 MGH 058 10:30 - 11:20 MOH 058 12:30 - 1:20 MGH 058 1:30 - 2:20 MGH 058
1d - Introduction Slides (due End of Day)	Kaley Office Hour 2:00 - 3:00	Kaley Office Hour 2:00 - 3:00	Dhruv Office Hour 1:30 - 2:30	
James Office Hour 3:30 - 4:30	CSE 220	CSE 220	CSE 021	2a - Project Iteration (done in Session)
CSE 632				
Oct 9	Oct 10	Oct 11	Oct 12	Oct 13
Ch - Design Research Plan (due Night Before Class)	Lecture 12:00 - 1:20 PAA A110	Kaley Office Hour 2:00 - 3:00	Lecture 12:00 - 1:20 PAA A110	Section 9:30 - 10:20 MGH 058 10:30 - 11:20 MOH 058 12:30 - 1:20 MGH 058 1:30 - 2:20 MGH 058
Nigini Office Hour 3:30 - 4:30	James Office Hour 3:30 - 4:30	CSE 220	2c - Design Research Check-In (due Night Before Section)	
CSE 021	CSE 632		Dhruv Office Hour 1:30 - 2:30	CSE 021
Oct 16	Oct 17	Oct 18	Oct 19	Oct 20
2d - Design Research Review (due Night Before Class)	Lecture 12:00 - 1:20 PAA A110	Kaley Office Hour 2:00 - 3:00	Lecture 12:00 - 1:20 PAA A110	Section 9:30 - 10:20 MGH 058 10:30 - 11:20 MOH 058 12:30 - 1:20 MGH 058 1:30 - 2:20 MGH 058
Nigini Office Hour 3:30 - 4:30	James Office Hour 3:30 - 4:30	CSE 220	2e - Team Review (due Night Before Section)	
CSE 021	CSE 632		Dhruv Office Hour 1:30 - 2:30	CSE 021
Oct 23	Oct 24	Oct 25	Oct 26	Oct 27
James Away @ CCS Symposium	James Away @ CCS Symposium	Kaley Office Hour 2:00 - 3:00	Lecture 12:00 - 1:20 PAA A110	Section 9:30 - 10:20 MGH 058 10:30 - 11:20 MOH 058 12:30 - 1:20 MGH 058 1:30 - 2:20 MGH 058
2f - Design Check-in (due Night Before Class)	Lecture 12:00 - 1:20 PAA A110	CSE 220	2g - Design Review (due Night Before Section)	
Nigini Office Hour 3:30 - 4:30			Dhruv Office Hour 1:30 - 2:30	CSE 021
CSE 021				
Oct 30	Oct 31	Nov 1	Nov 2	Nov 3
On - Getting the Right Design (due Night Before Class)	Lecture 12:00 - 1:20 PAA A110	2i - Feminism (due Night Before Class)	Presentations 12:00 - 1:20 PAA A110	Presentations 9:30 - 10:20 MGH 058 10:30 - 11:20 MOH 058 12:30 - 1:20 MGH 058 1:30 - 2:20 MGH 058
Nigini Office Hour 3:30 - 4:30	James Office Hour 3:30 - 4:30	Kaley Office Hour 2:00 - 3:00	Dhruv Office Hour 1:30 - 2:30	CSE 021
CSE 021	CSE 632	CSE 220		

GitHub Repository

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

<https://github.com/uwcse440/web-cse440-au17/>

You will contribute when posting your projects

You can otherwise 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 11:59pm

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

Do not use this to undermine team work

“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

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

Project Proposal Schedule

Project Brainstorm Due Tonight

Brainstorming in Section Friday

Project Proposal Due Monday Night

Sponsored Projects Posted Tuesday

Project Bids Due Wednesday Night

Groups Assigned Thursday

Group Brainstorming in Section Friday

Assignment 1a: Project Brainstorm

You have an assignment due tonight:

<https://courses.cs.washington.edu/courses/cse440/17au/assignments/assignment1/>

Propose 3 project domains, problems, goals:

These are starting points for brainstorming

Submit online:

This proves that you did your preparation

If unable to access Canvas, submit via email

Bring to section Friday:

You have a lot more brainstorming ahead of you

Assignment 1a: Project Brainstorm

CS 440 - Assignment 1

Due: Uploaded Thursday, September 28, 2017 (before section on Friday, September 29, 2017)

Friday's section will focus on brainstorming potential project directions. You will get started on thinking, and help seed this brainstorming, with some individual ideas.

Propose three starting points for brainstorming domains, problems, and goals that might be supported via self-tracking.

By domain, we mean an aspect of life. Domains that are already common in self-tracking include:

- finances (e.g., tracking investments, spending)
- wellness (e.g., tracking physical activity, sleep, weight)
- health (e.g., tracking for post-surgical pain management, allergies or other personal triggers, major weight loss)
- mood (e.g., tracking mood, identifying depressive symptoms)

Be sure to focus on problems and goals, not potential design solutions. One way to help yourself identify a hierarchy of problems and goals is to ask "why?". For example:

- Why is a person using Mint?
- Why is a person tracking their spending?
- Why do they want to know how much they spend on leisure activities?
- Why do they have a goal of saving for a major purchase?

Each idea should be a single sentence, identifying the domain and the problem or goal. At most one of your ideas may come from any of the domains above. Your other two ideas should be from domains not in this list, in order to broaden the brainstorm. Ensure the ideas are significantly different, not small variations on the same idea.

Submission

Ensure your name and section are at the top of your submission.

No more than one page of text in PDF format. Submit via Canvas here:
<https://canvas.washington.edu/courses/1173784/assignments/3902306>

If you are still attempting to add, or otherwise unable to access the submission system, submit via the instructor email address.

In section, be prepared to contribute your initial ideas as part of a larger brainstorm.

Grading

This milestone will be graded on a scale of **3 points**.

- 1 point for each unique proposed idea (i.e., do not submit small variations on the same idea).

1b: Project Proposal

Due: Uploaded Monday, October 2, 2017

Propose and analyze a problem that could form the basis of a design project for this class.

In one paragraph, describe the design problem and motivation. This description should convince the reader that this is a difficult and interesting problem, worth spending a quarter considering. State what the problem is and why it is a problem, or describe a new idea and why it will enhance an existing application or practice.

In another paragraph, analyze the problem or idea to give more background and context. Do not just focus on the negative aspects of the current situation, but also identify some positive aspects that may be beneficial to retain. A few salient examples from existing systems or practices could be used to support those claims. If appropriate, you may conduct this analysis by describing a scenario that illustrates how someone might encounter and resolve the problem.

Ensure your report is appropriately clear and easy to read. This includes:

- text should be clear and concise
- use section headings as appropriate
- include images in the body of the write-up with appropriate figure numbers and captions
- refer to the figures in the body of your text
- check for typos, spelling, and grammar errors

Be sure your presentation looks good:

- choose appropriate colors, fonts, and styles
- make liberal use of whitespace

Samples from Prior Offerings

Samples from prior offerings include:

- Winter 2017 - Proposal that ultimately became BookWurm: [1b_bookwurm.pdf](#)
- Winter 2017 - Proposal that ultimately became Dash: [1b_dash.pdf](#)
- Winter 2017 - Proposal that ultimately became Jasper: [1b_jasper.pdf](#)
- Winter 2017 - Proposal that ultimately became Wishing Well: [1b_wishingwell.pdf](#)
- Autumn 2015 - Proposal that ultimately became Balance: [1b_balance.pdf](#)
- Autumn 2015 - Proposal that ultimately became Neat!: [1b_neat.pdf](#)
- Autumn 2015 - Proposal that ultimately became Poliscopic: [1b_poliscopic.pdf](#)
- Autumn 2015 - Proposal that ultimately became School View: [1b_schoolview.pdf](#)
- Autumn 2014 - Proposal that ultimately became Aqueous: [1b_aqueous.pdf](#)
- Autumn 2014 - Proposal that ultimately became IEP Connect: [1b_iepconnect.pdf](#)
- Autumn 2014 - Proposal that ultimately became Ka Ching: [1b_kaching.pdf](#)

Assignment 1b: Project Proposal

You have an assignment due Monday night:

<https://courses.cs.washington.edu/courses/cse440/17au/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

Assignment 1b: Project Proposal

CSE 440 - Assignment 1b

1b: Project Proposal

Due: Uploaded Monday, October 2, 2017

Propose and analyze a problem that could form the basis of a design project for this class.

In one paragraph, describe the design problem and motivation. This description should convince the reader that this is a difficult and interesting problem, worth spending a quarter considering. State what the problem is and why it is a problem, or describe a new idea and why it will enhance an existing application or practice.

In another paragraph, analyze the problem or idea to give more background and context. Do not just focus on the negative aspects of the current situation, but also identify some positive aspects that may be beneficial to retain. A few salient examples from existing systems or practices could be used to support those claims. If appropriate, you may conduct this analysis by describing a scenario that illustrates how someone might encounter and resolve the problem.

Ensure your report is appropriately clear and easy to read. This includes:

- text should be clear and concise
- use section headings as appropriate
- include images in the body of the write-up with appropriate figure numbers and captions
- refer to the figures in the body of your text
- check for typos, spelling, and grammar errors

Be sure your presentation looks good:

- choose appropriate colors, fonts, and styles
- make liberal use of whitespace

Samples from Prior Offerings

Samples from prior offerings include:

- Winter 2017 - Proposal that ultimately became BookWurm: 1b_bookwurm.pdf
- Winter 2017 - Proposal that ultimately became Dash: 1b_dash.pdf
- Winter 2017 - Proposal that ultimately became Jasper: 1b_jasper.pdf
- Winter 2017 - Proposal that ultimately became Wishing Well: 1b_wishingwell.pdf
- Autumn 2015 - Proposal that ultimately became Balance: 1b_balance.pdf
- Autumn 2015 - Proposal that ultimately became Neat: 1b_neat.pdf
- Autumn 2015 - Proposal that ultimately became Poliscope: 1b_poliscope.pdf
- Autumn 2015 - Proposal that ultimately became School View: 1b_schoolview.pdf
- Autumn 2014 - Proposal that ultimately became Aqueous: 1b_aqueous.pdf
- Autumn 2014 - Proposal that ultimately became IEP Connect: 1b_iepconnect.pdf
- Autumn 2014 - Proposal that ultimately became KaChing: 1b_kaching.pdf
- Autumn 2014 - Proposal that ultimately became SoundScape: 1b_soundscape.pdf

Note that details of assignments may have changed since prior offerings, so their reports may not map to the current project. Also note these samples are intended to illustrate a variety of approaches, none of which is intended to be ideal or exemplary. Be sure to understand and carefully consider project requirements and feedback from the course staff in the context of your own work.

Submission

Ensure your name and section are at the top of your submission.

No more than one page of text in PDF format.

Images do not count against your page limit, and are therefore effectively free. You should embed images throughout your PDF, keeping them near the text that references them. The limit applies to the approximate amount of text you would have if all images were removed.

Submit via Canvas here:

<https://canvas.uw.edu/courses/1173784/assignments/3902388>

Grading

This proposal will be graded on a scale of **10 points**:

- 1. Problem and Motivation** (3 points)
- 2. Analysis of Problem** (3 points)
- 3. Novelty and Creativity** (2 points)
- 4. Report Clarity and Presentation** (2 points)

1c: Project Bid

Due: Submitted Wednesday, October 4, 2017

Review the sponsored projects and course staff comments regarding those projects:

[Link to be added](#)

You will submit a bid on projects and potential partners. Course staff will use your bids to assign projects and groups.

Submission

Submit your bid on projects and potential partners here:

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

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

Must talk 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

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

Thousands of Health Monitoring Apps



Activity and Medical Sensing Devices



Thermometer



Blood glucose meter

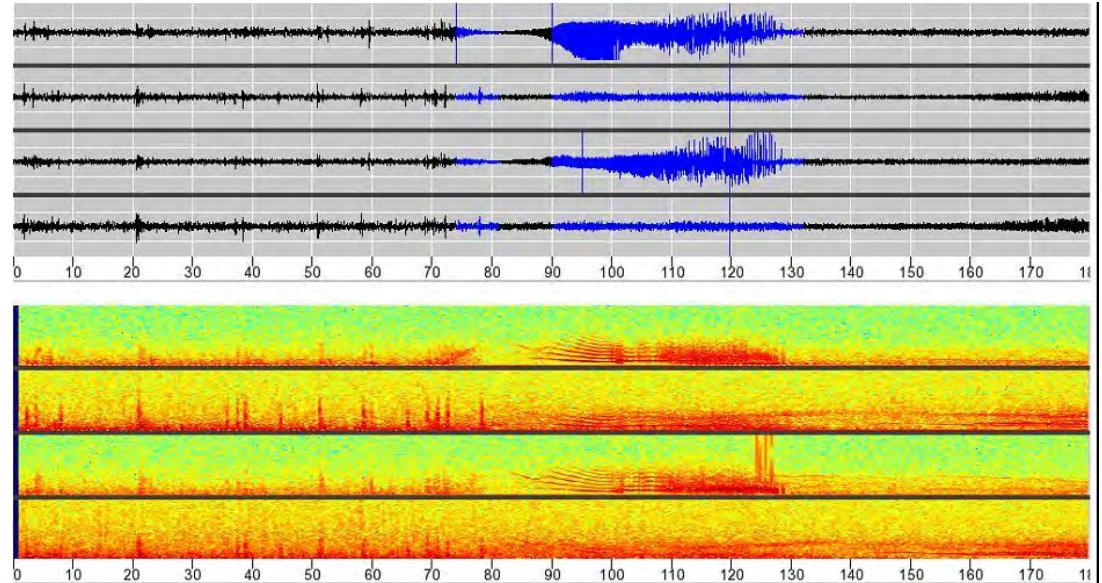


Blood pressure monitor



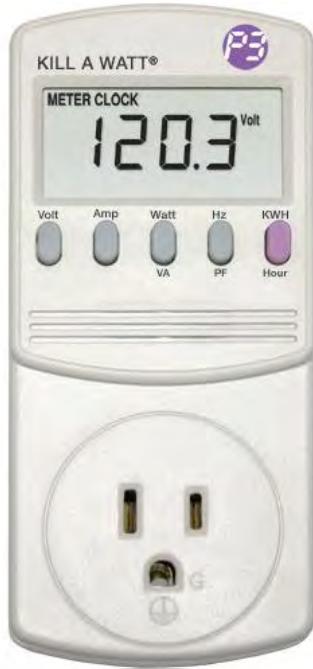
Heart rate monitor

Medical Implants



NeuroPace

Sustainability Tracking



Kill A Watt



Belkin
WeMo Water



Automatic

Location and Activity



FitBit



Garmin

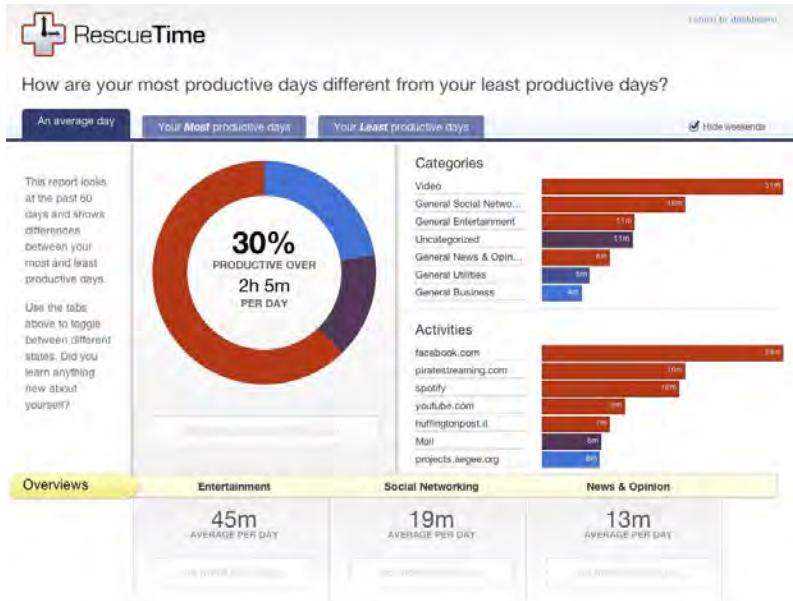


FitBark



Moves

Time Tracking



RescueTime

Finances

The Mint.com website homepage features the Mint logo at the top left. Navigation links include "WHAT IS MINT?", "HOW IT WORKS", "PRIVACY", "COMMUNITY", "ADVERTISE", and "LOG IN". A "Sign up" button is prominently displayed. The main headline reads, "It's easy to understand what's going on with your money." Below it, a sub-headline states, "Get a handle on your finances the free and fast way. Mint does all the work of organizing and categorizing your spending for you... See where every dime goes and make money decisions you feel good about." A "Free! Get Started" sign-up form is shown on the left, and a grid of four devices (laptop, tablet, smartphone, and desktop) displays the Mint interface.

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**.”

Li I., Dey A., Forlizzi J. *CHI 2010.*
“A Stage-Based Model of Personal Informatics Systems”

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.
DRINK NOT TO ELEVATION.**

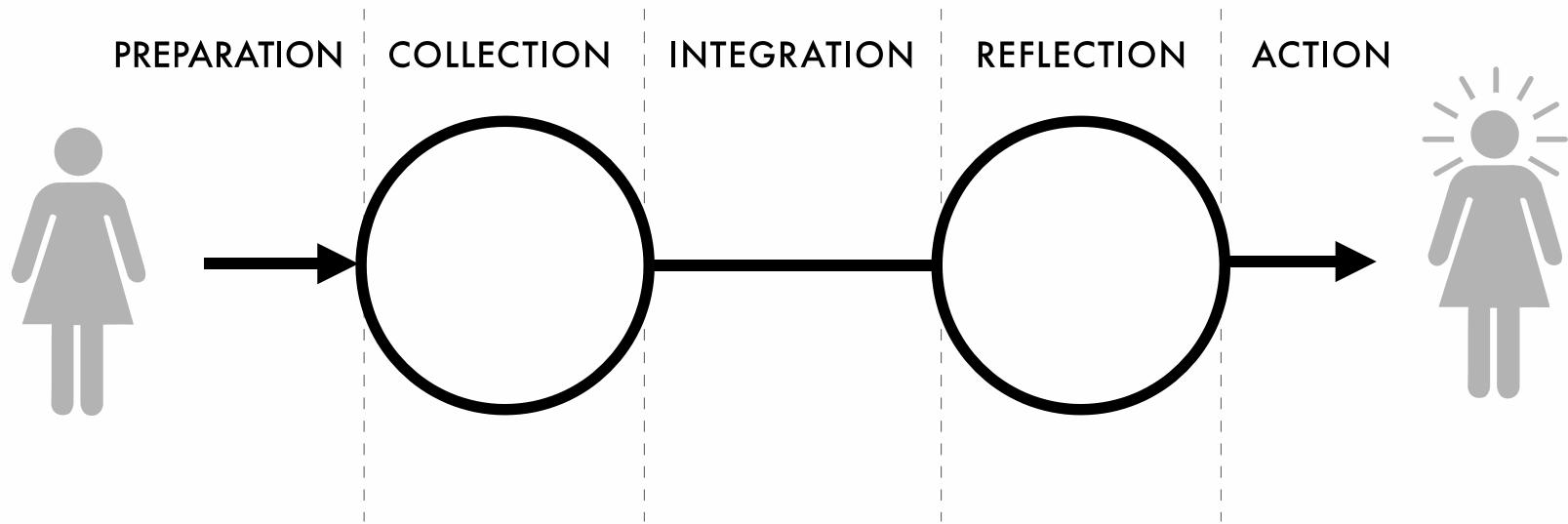
	S.	M.	T.	W.	T.	F.	S.
T.							
S.	*	*		*		*	
O.	**	*	*		*	*	*
R.			*			*	
F.		*			*		
I.			*				
S.							
J.							
M.							
C.							
T.							
C.							
H.							

Manpokei



万歩計

Five-Stage Model of Personal Informatics



Li I., Dey A., Forlizzi J. *CHI 2010.*
“A Stage-Based Model of Personal Informatics Systems”

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

Li I., Dey A., Forlizzi J. *CHI 2010.*
“A Stage-Based Model of Personal Informatics Systems”

Preparation



Li I., Dey A., Forlizzi J. *CHI 2010.*
“A Stage-Based Model of Personal Informatics Systems”

Preparation



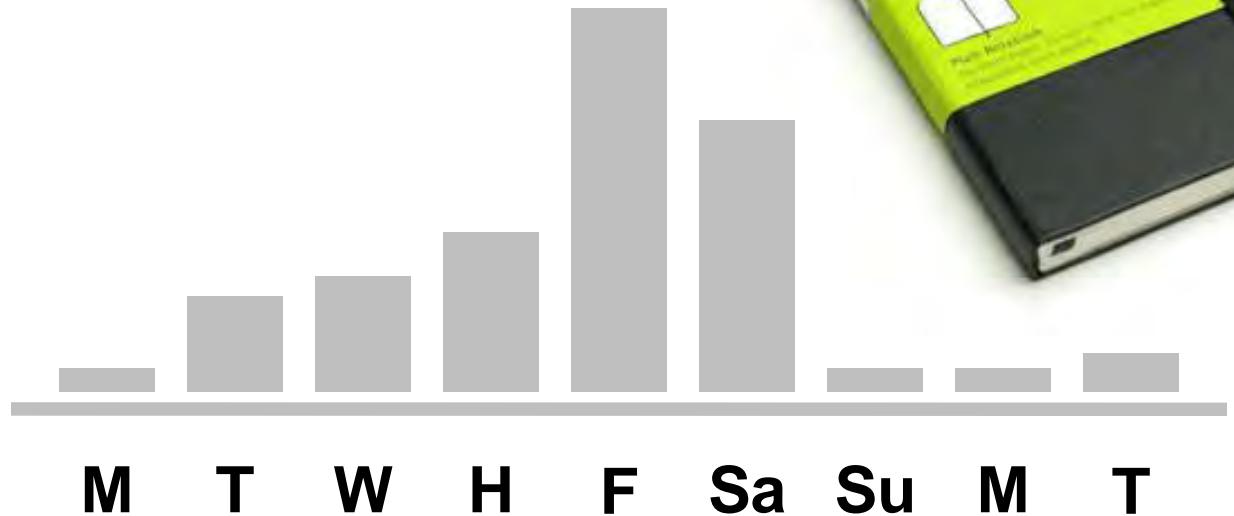
Li I., Dey A., Forlizzi J. *CHI 2010.*
“A Stage-Based Model of Personal Informatics Systems”

Collection



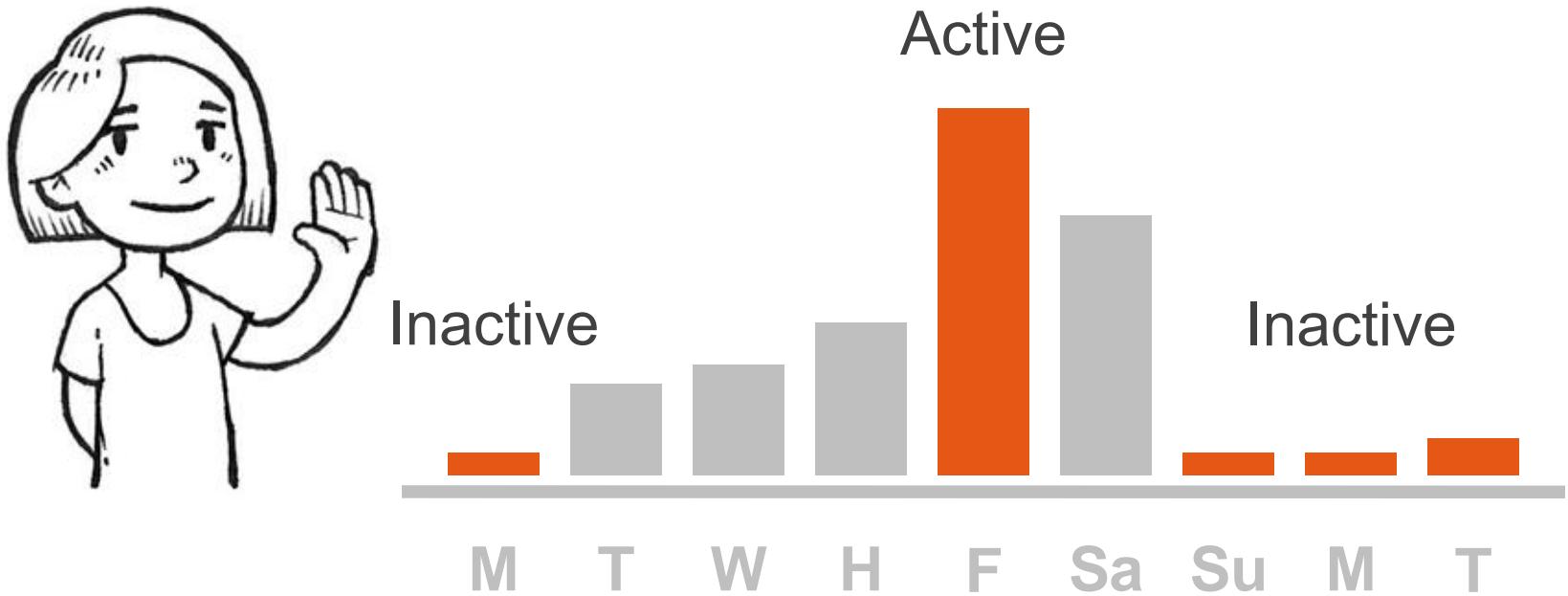
Li I., Dey A., Forlizzi J. *CHI 2010.*
“A Stage-Based Model of Personal Informatics Systems”

Integration



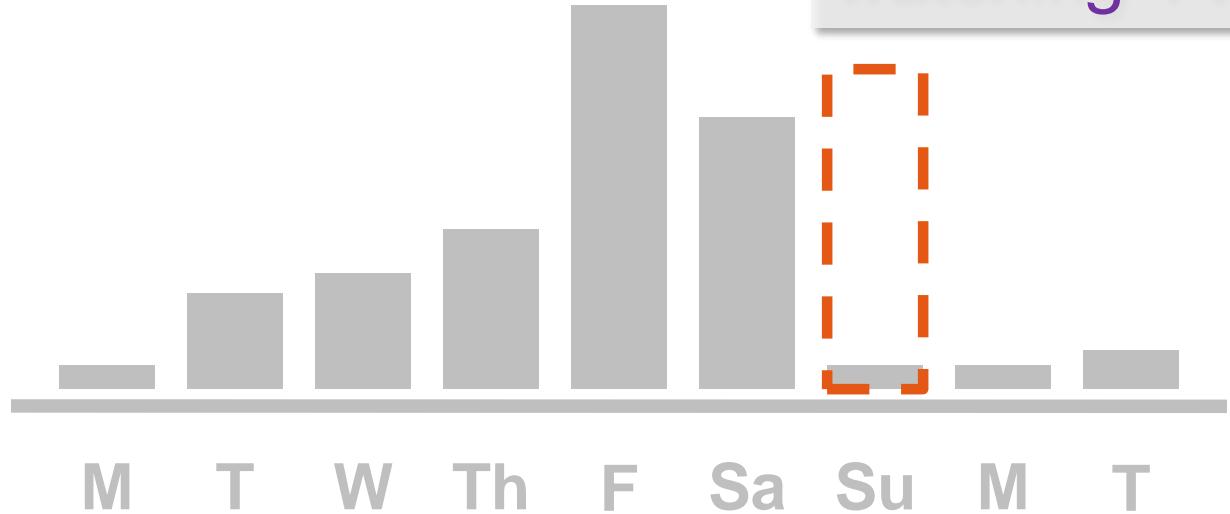
Li I., Dey A., Forlizzi J. *CHI 2010.*
“A Stage-Based Model of Personal Informatics Systems”

Reflection



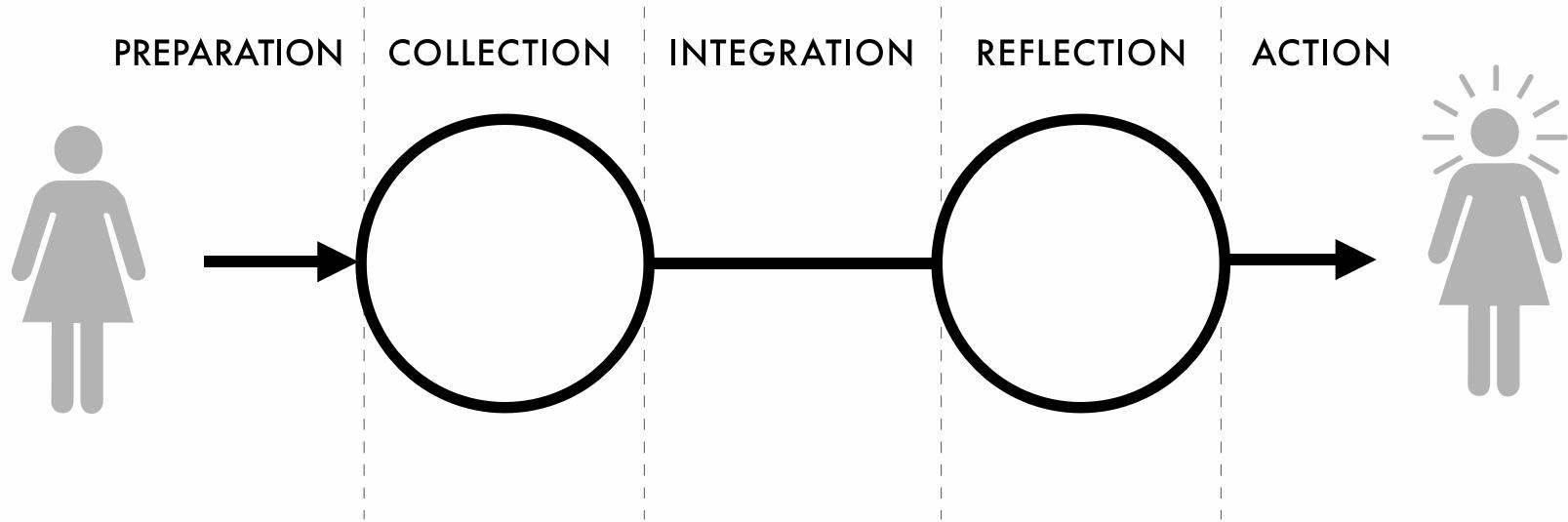
Li I., Dey A., Forlizzi J. *CHI 2010.*
“A Stage-Based Model of Personal Informatics Systems”

Action



Walk in park
instead of
watching TV

Five-Stage Model of Personal Informatics



Li I., Dey A., Forlizzi J. *CHI 2010.*
“A Stage-Based Model of Personal Informatics Systems”

What is the Problem?

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

The screenshot shows the Quantified Self website. At the top, there's a logo with 'QS' and the text 'Quantified Self' with the tagline 'self knowledge through numbers'. Below the logo are links for 'ABOUT', 'VIDEOS', and 'FORUMS'. A search bar is on the right. The main content area features a video thumbnail of Mark Moschel speaking. The video player shows a play button, a timestamp of '11:24', and 'HD' and 'vimeo' buttons. Below the video, there's a 'Share this:' section with links to Twitter, Facebook, Google+, Tumblr, LinkedIn, and Email. To the right of the video, there's a sidebar for the 'Quantified Self Europe Conference' in Amsterdam, dated May 10-11, 2014. It also includes sections for 'Make a Sparktweet' and 'QS Meetup Groups' with links to various locations like Toronto, Vancouver, Montreal, Ottawa, London, and San Diego.

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”

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 asleep 5 Times awakened You were in bed 8hrs 27min

Your sleep pattern asleep active

11pm 12am 1am 2am 3am 4am 5am 6am 7am 8am

Actual sleep time 8hrs 5min You were in bed 11pm 12am 1am 2am 3am 4am 5am 6am 7am 8am

1. What I did

2. How I did it

3. What I learned

Analyzed 52 videos

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”

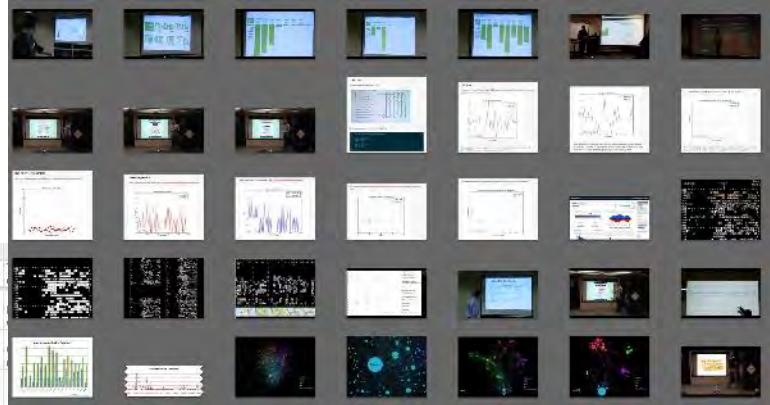
Analysis



Themes

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

Visualizations



Profiles

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”

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

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



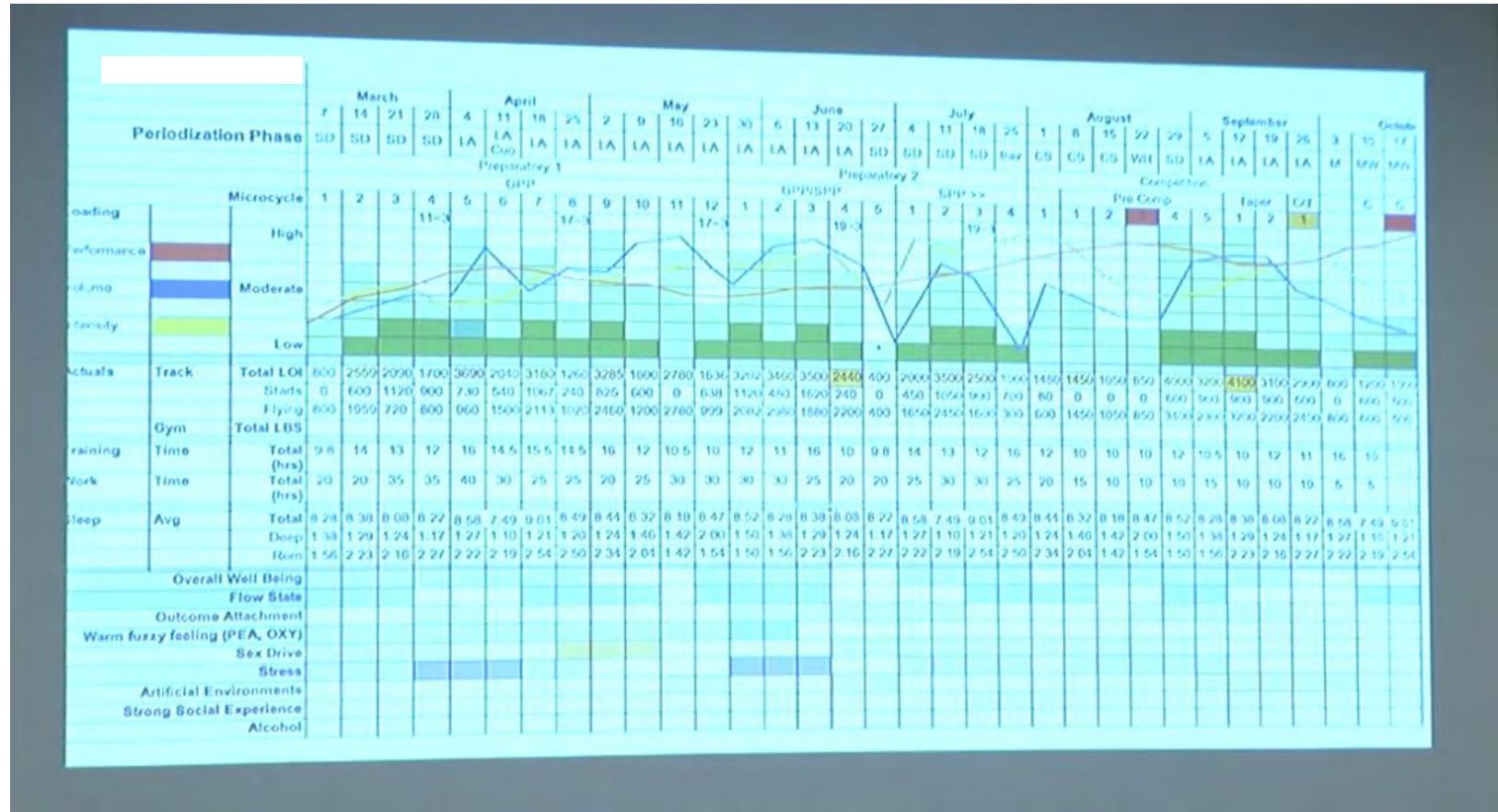
Captures smile via wearable sensing
Provides real-time feedback



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

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”

Not Tracking Triggers and Context

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

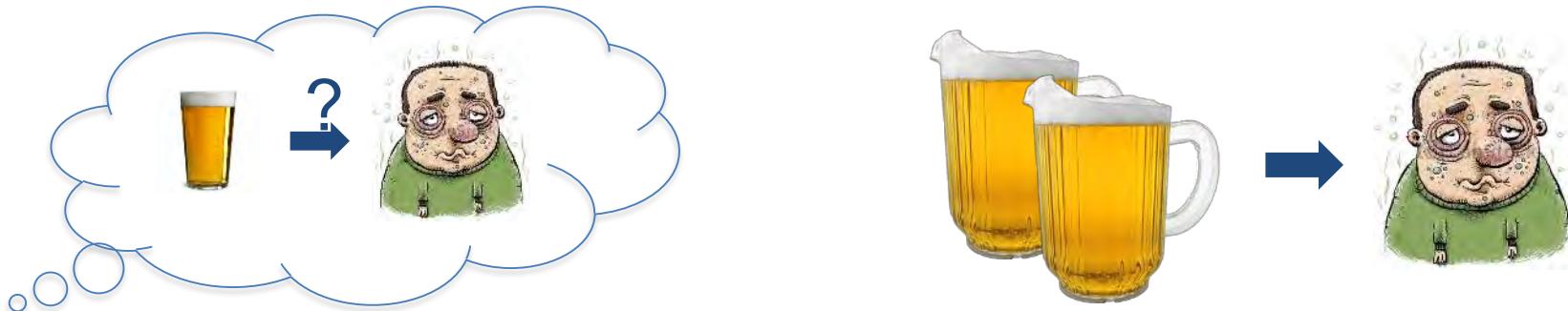
People lack clues on what to track

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

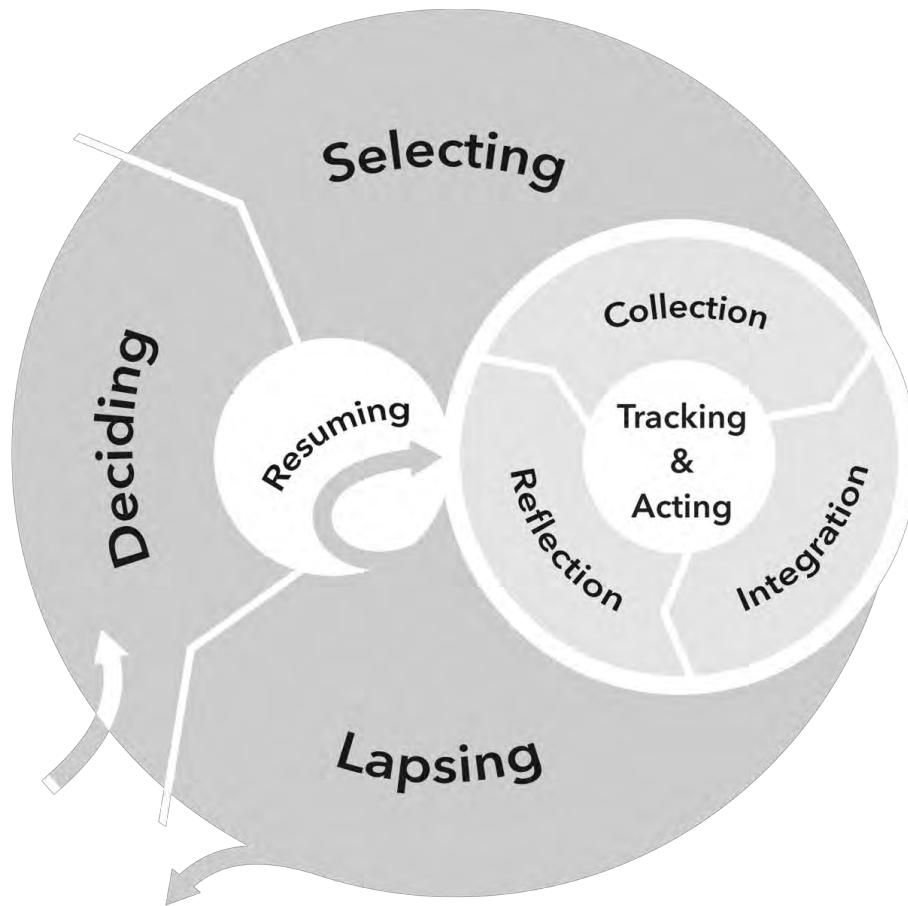
Judgment and choosing not to journal

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, are
frustrated by failure

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:

Many forms:

wearable sensors, phone and watch applications,
appliances and artifacts in the environment, hybrid

Many social contexts:

co-located relationships, remote relationships,
communities organizing, seeking help from peers,
seeking help from experts

New forms of interaction:

conversational interfaces, tangible interfaces,
ubiquitous computing interfaces

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-staff [at] cs.washington.edu

Attempting to Add

Submit this form to me:

<http://tiny.cc/UWCSE440>

I will coordinate with
CSE advising about majors

Be sure that you and I
have communicated
before you leave today



CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 01:
Introduction and
Personal Informatics

Tuesday / Thursday
12:00 to 1:20

James Fogarty
Kailey Chan
Dhruv Jain
Nigini Oliveira
Chris Seeds
Jihoon Suh