

CSE 440:
Introduction to HCI



01: Introduction to HCI

March 26, 2024



Jesse J. Martinez | Avery Mack | Simona Liao

Surprise! Door Quiz

Say out loud what action you use
to open the door:

PUSH

PULL

Door Quiz ₁



Door Quiz ₂



Door Quiz ₃



Door Quiz ₄



Door Quiz ₅



Door Quiz ₆



Door Quiz 7



Door Quiz ₈



Door Quiz ₉



Door Quiz ₁₀



What's so Special About Computers? ₁

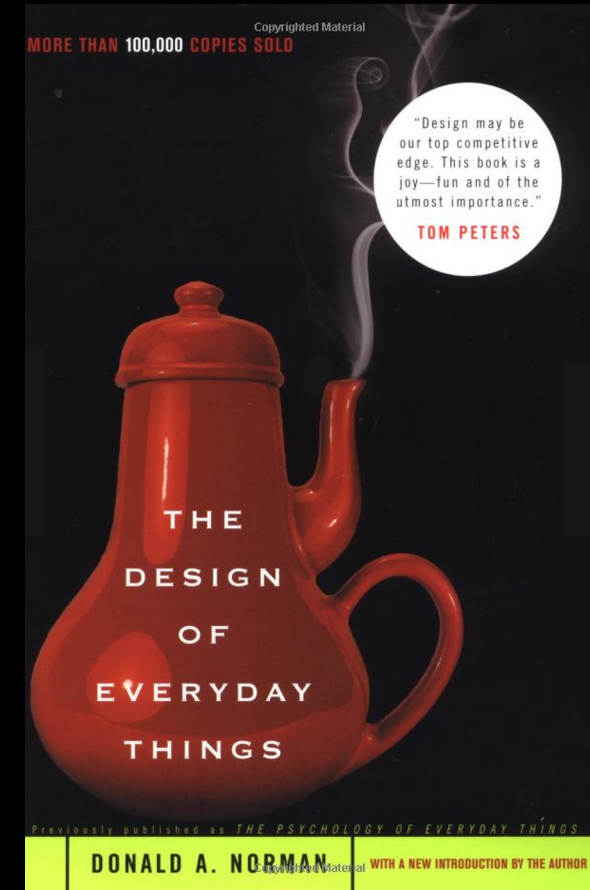
Nothing!

Computers can still have Good Designs and Bad Designs

We make push/pull decisions every day

We all encounter doors that do this badly

Additional Instructions don't solve the problem



Signs Do Not Help ₁



Signs Do Not Help ₂



Signs Do Not Help ₃



Signs Do Not Help ₄

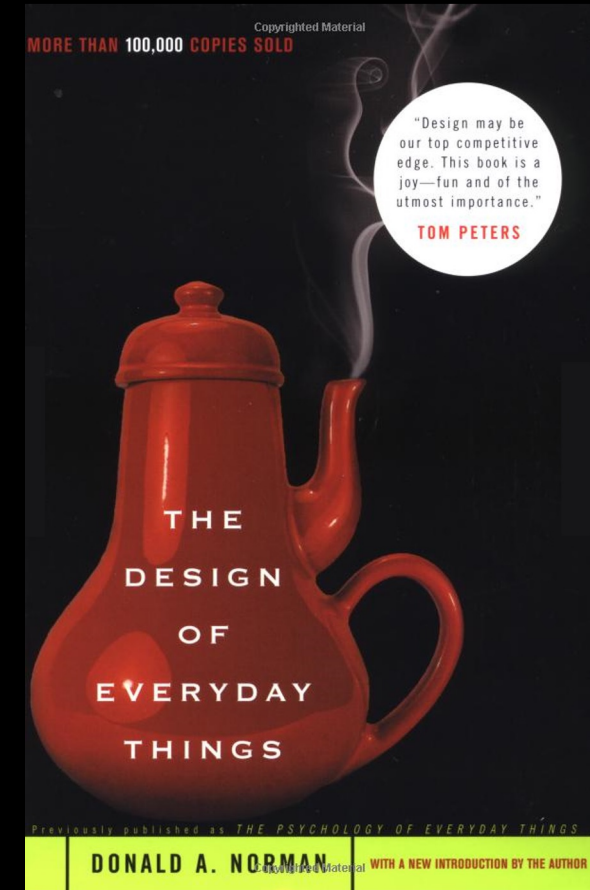


What's so Special About Computers? ₂

Things are poorly designed,
yet we often blame ourselves / “the user”

Absolutely everything we
encounter in the world
was designed

Pointing out bad design is
NOT a lazy excuse!



Iterative Human-Centered Design

This class is about **process**

This is not a course about “good” interfaces,
or even about computers (sometimes!)

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

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

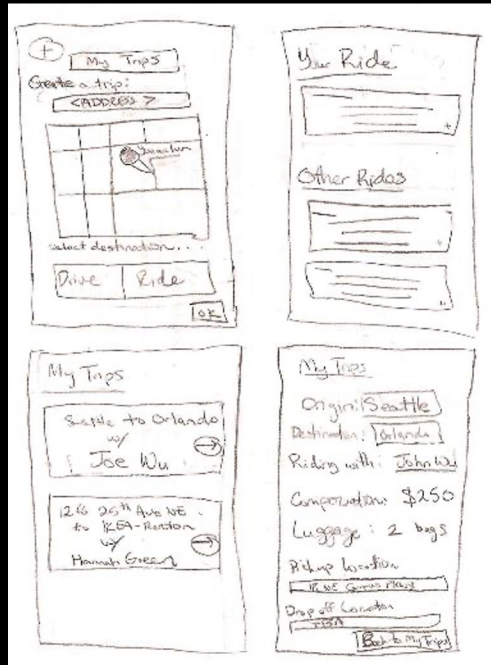
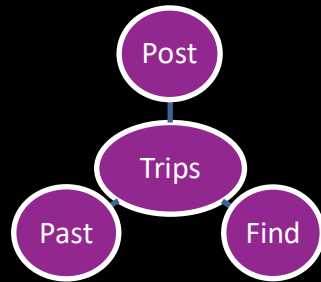


Consumester

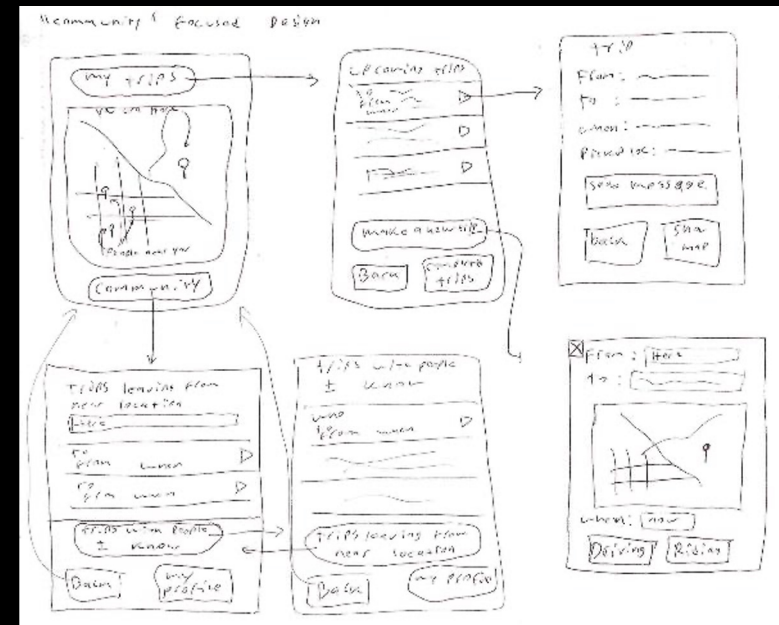
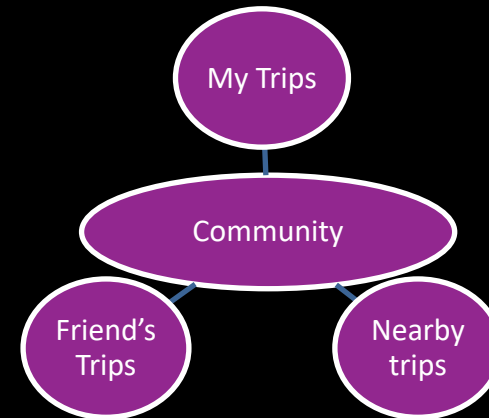


FoodWatch

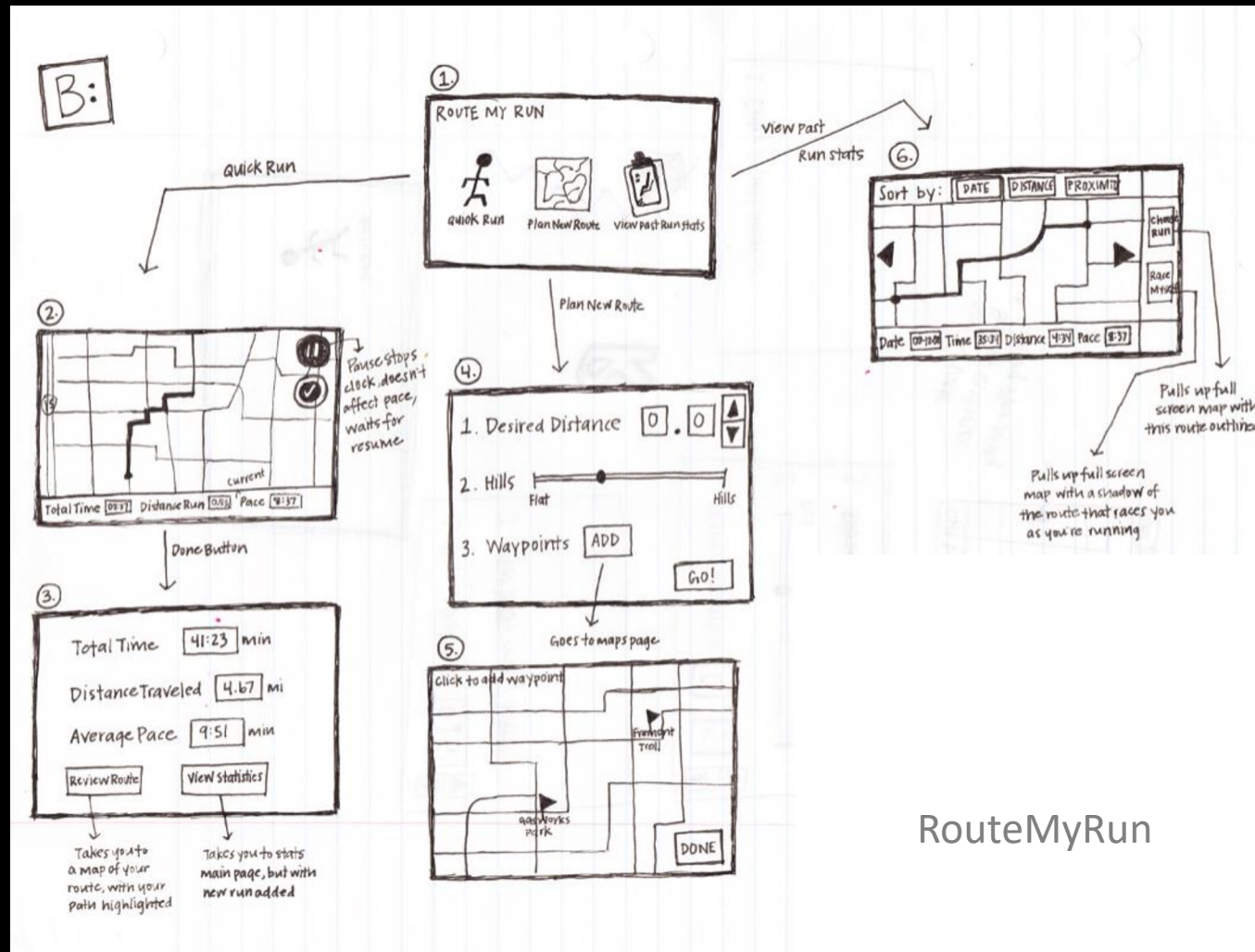
Sketching & Storyboarding 1



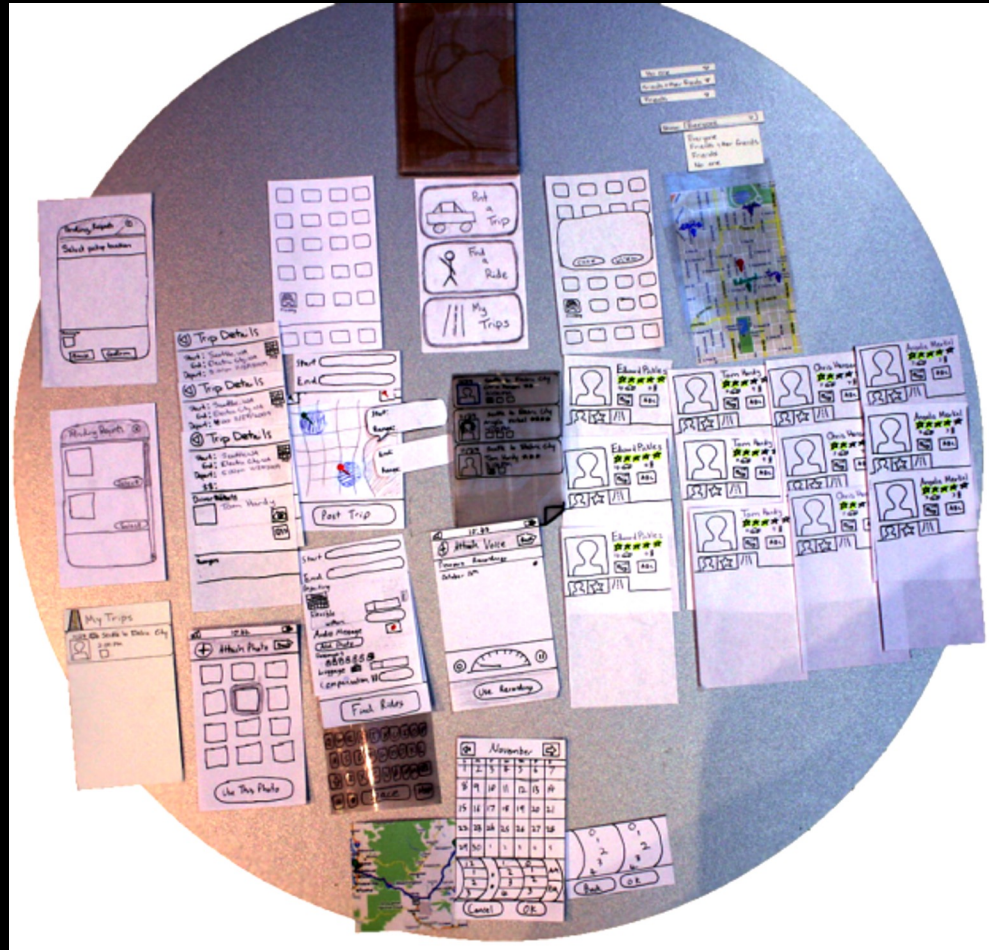
RideAlong



Sketching & Storyboarding 2



Low-Fidelity Prototyping & Testing



RideAlong

Digital Mockup



Balance

.calm



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 / Thursday milestones and activities

- Your team basically always has a milestone due

- Class may include activities or project time

Overview

HCI and the Project Sequence

Course Staff Introductions

Administrivia

Assignment 0

Assignment 1: Project Proposal

Assignment 1a: Due Thursday

Assignment 1b: With Groups, Due Wednesday

Some Reflection

Project Theme Reveal!! & Some Relevant Background

Who We Are

Jesse Martinez

Prefer: Jesse / He / They

Education

BS in Computer Science @ Uchicago

MS in CSE @ UW

Soon: PhD in CSE @ UW

Other Lives

Computational Artist

Professional Game & Puzzle Designer

Game Accessibility Consultant

Interests

Jack of all Crafts; Board & Video Gaming; Hacking; Spoiling my Cats



Who We Are

Research

Current:

- Game Accessibility
- Access Hacking
- Applying Game Design in other HCI Domains

Past Lives:

- “All-purpose HCI”
- Usable Security
- Transmedia Game Design



Who We Are

Simona Liao

Prefer: Simona / She / They

Background

Computer Sci & Gender, Women, Sexuality Studies
during undergrad
BS/MS student now!

Research Experience

HCI, Social Futures Lab w/ Prof. Amy Zhang
Safety Design in Social VR Games

Interests

Movies, Games, Anime, Food, Plants

Super Nintendo World!!



Who We Are

(Kelly) Avery Mack

Prefer: Avery / They / Them

Background

Computer Sci at UIUC (go corn!)

Research Experience

Accessibility w/ Dr. Jen Mankoff,
defending my thesis April 29!

Interests

Graduating, dancing, anime (Simona
we should talk 🙄), my cat, games



Your Turn

Find somebody you do not already know

Take 1 minute each
to introduce yourselves

Name, year, major

Favorite hobbies
or interesting fact

Goal for this class



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Project Theme Reveal!! & Some 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 Require an email beforehand
Canvas:	I hate Canvas so much but we have to use it for some things
Ed:	Only monitored during Lecture Also for your group formation
Panopto:	I will probably mess it up at least once

Website Overview

CSE 440: Introduction to HCI

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24sp

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CSE 440: Introduction to HCI

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Course Description

This course provides an introduction to human-computer interaction and the design process. Students will learn methods and skills for designing and prototyping interactive systems. The course covers a design process from the initial formulation of a design problem to creation of digital prototypes. Importantly, this class does not involve coding and instead, fully focuses on the design process.

The class structure is a mix of lectures, hands-on activities, and design critiques by peers and course staff. The course is overwhelmingly organized around a group project, in which students:

- Ideate and propose design problems
- Study existing design practices and challenges
- Explore potential design opportunities and tradeoffs
- Evaluate and iterate upon a design to improve it
- Communicate the problem and resulting design

Learning Objectives

- Process-focused perspective on interaction design
- Design research methods and skills
- Task-focused scenario development, sketching, and storyboarding
- Rapid prototyping and iteration
- Critical perspective on design solutions

Basic Information

Calendar Overview

CSE 440: Introduction to HCI

Home

Schedule

Assignments

Projects

24sp

Schedule

[Subscribe to this calendar \(google, iCal, etc.\)](#)

March				
Monday	Tuesday	Wednesday	Thursday	Friday
25	10:00-11:20 Lecture OUG 136 <i>Intro & Overview</i>	14:00-15:00 Simona's OH CSE2 151	0 - Intro Slide 1a - Individual Brainstorm 10:00-11:20 Lecture OUG 136 <i>Design Diamond</i> 13:00-14:00 Avery's OH CSE2 153	Section <i>Brainstorming</i>
April				
Monday	Tuesday	Wednesday	Thursday	Friday
01	10:00-11:20 Lecture OUG 136 <i>The Design of Everyday Things I Inclusive & Exclusive Design</i>	1b - Group Proposals 14:00-15:00 Simona's OH CSE2 151	1b_rev - Group Proposals 10:00-11:20 Lecture OUG 136 <i>Intro to Critique</i> 13:00-14:00 Avery's OH CSE2 153	Section <i>Crit: Project Proposals</i>
1c - Finalized Proposal	2a - Project Ideation 10:00-11:20 Lecture OUG 136 <i>Design Research</i>	14:00-15:00 Simona's OH CSE2 151	2b - Design Research Plan 10:00-11:20 Lecture OUG 136 <i>The Design of Everyday Things II The Limitations of Everyday Things</i> 13:00-14:00 Avery's OH CSE2 153	Section <i>Crit: Design Research Plans</i>
2c - Design Research Check-in	10:00-11:20 Lecture OUG 136 <i>Task Analysis</i>	14:00-15:00 Simona's OH CSE2 151	2d - Design Research Review 10:00-11:20 Lecture OUG 136 <i>Models and Human Performance</i> 13:00-14:00 Avery's OH	Section <i>Developing Tasks</i>

Submissions

Many assignments are due day before class

Canvas will often operationalize this as 3pm, sometimes 8pm

A bit more slack, email if a small extension is needed

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

Do not use this to undermine self-care or team work:
plan ahead, start early, work together effectively

Grading

We provide a grading scale, but it is somewhat subjective

Design is subjective, and so is this course

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 have more “quality of result”

Grading

Core Content

3.7 of final grade

Project: 65%

Assignment 1 – 5%

Assignment 2 – 25%

Assignment 3 – 20%

Assignment 4 – 15%

Exam: 25%

Participation: 10%

Grading

Core Content *3.7 of final grade*

Project: 65%

Assignment 1 – 5%

Assignment 2 – 25%

Assignment 3 – 20%

Assignment 4 – 15%

Exam: 25%

Participation: 10%

Remaining 0.3:

*Deeper Engagement
with Course Concepts*

The EXP System

Point-based system, designed by a team of 440 Instructors

“EXP” = { EXtension / EXcellence / EXperience / EXtra ... } Points

Goal: support diverse modes of doing
“deeper engagement” with course content

“EXP”? Really?

A design metaphor:

- A fixed amount of tasks/work
- Additive / Earned
- Plenty of ways to earn them– pick the methods most interesting to you



Ways to get EXP

As part of the project sequence:

EXceptional Milestones:

For groups with an exceptionally good / thoughtful / creative milestone
Earned “along the way” – don’t need to do additional assignments

EXtension Objectives:

Additional tasks you can do on your assignments
Clearly structured: do X, get EXP

Ways to get EXP

Independently:

EXtra “Weeklies”:

Rant of the Week – Find bad design in the wild & tell us about it!

Redesign of the Week – Reflect on a prior submission

EXternal Engagement:

Earned by demonstrating engagement with course concepts OUTSIDE of class

Up to you to find these opportunities!

Grading

Core Content

3.7 of final grade

Project: 65%

Assignment 1 – 5%

Assignment 2 – 25%

Assignment 3 – 20%

Assignment 4 – 15%

Exam: 25%

Participation: 10%

EXP

Up to 0.4 of final grade

Conversion Rate:

5EXP = +0.1 to final grade

(Capped at +0.4 for 20EXP)

Section Assignments & Project Groups

Groups of 4 all in the same section

If you have specific people you want to work with,
they **must** in the same section as you!

There is no flexibility on group size
or on the same-section rule

Switching Sections

Sections are strictly capped at 16 students

Informal section switching must maintain balance

Swaps will be “off the books”

Please submit the Section Sorting Google Form ASAP

Even if you don't care which section you're in
this is extremely useful for helping us balance

Emails will go out finalizing Section Assignment EOD Thursday.
Sections are then LOCKED (no more swapping!)

Adding and Dropping

Attempting to Add

This class is small & full!

Hard cap at 32 students due to project sequence

CSE Policy: non-majors cannot add after Day 1; there will be no adds today :(

Considering Dropping?

Do so ASAP, before teams form

Please tell us if you are considering

Overview

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Assignment 1b: With Groups, Due Monday

Some Reflection

Project Theme Reveal!! & Some Relevant Background

Assignment 0

Assignment 0: Introduction Slide

Overview

Submit an informal slide that will help us as we get to know you:

- Picture
- Name (e.g., preferred, formal, pronouns)
- Academics (e.g., majors, minors, career goals)
- Year (e.g., 1,2,3,4,5,6,...)
- Background, Interesting Fact, or "What I did on my ..."

Please keep it clean, and understand that your classmates may at some point see this slide.

For example, your slide might be similar to our introduction slides in the first lecture.

Submission

Due: Thursday, January 4, 8:00pm

One page in PDF format. Submit via Canvas here: [CANVAS LINK TBD](#)

Grading

This assignment will be graded on a scale of **0 points**.

Assignment 1: Project Proposal

CSE 440: Introduction to HCI

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Assignment 1: Getting the Right Idea (Project Proposal)

1a: Individual Brainstorm

Due: Thursday March 28, 8:00pm



1b: Group Proposals

Due: Wednesday April 3, 8:00pm

Revision Due: Thursday April 4, 8:00pm



1c: Finalized Proposal

Due: Monday April 8, 3:00pm



Project Proposal Schedule

Individual Brainstorm Due Thursday

More Brainstorming in Section Friday

3 Group Proposals Due Monday (4/1)

Critique in Class on Tuesday

Revise and Resubmit on Thursday

Critique in Section Next Friday

Finalized Proposal Due Following Monday (4/8)

Assignment 1a: Project Brainstorm

You have an assignment due Thursday:

<https://courses.cs.washington.edu/courses/cse440/24sp/assignments/assignment1.html>

Propose 3 “problem spaces” for a project:

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 more brainstorming ahead of you

Assignment 1b: Group Proposals

You have a Group assignment due Monday:

<https://courses.cs.washington.edu/courses/cse440/24sp/assignments/assignment1.html>

Three distinct one-paragraph proposals:

- Problem and Motivation

- Not a specific solution (i.e., that's the project)

Use brainstorming Friday to start on groups

- Ed is also available for messaging in sections

Critique on Tuesday, revisions due Thursday

More critique on Friday, then finalized for Monday

Assignment 1c: Finalized Proposal

Due the following Monday (4/8):

<https://courses.cs.washington.edu/courses/cse440/24sp/assignments/assignment1.html>

One-page proposals of project focus for quarter

- Problem and Motivation

- Analysis of opportunity to be compelling.

- Not a specific solution (i.e., that's the project)

Advice on Project Proposals

Need a problem where a design is relevant

Need to fit in course project structure

- Need access to relevant people

- Need something you can design

Some topics initially appeal,
but ultimately do not support
strong differentiation and learning

- No proposals for projects focused
on home grocery tracking or planning

Friday's Section

Arrive on time, it's a busy section

Sections are held in MGH 058

Staff will lead you through some brainstorming

Your 1a submissions as a starting point,
then additional ideas based on those

Time at end to find each other for groups

Best groups come from shared project interest,
but also be mindful of practical constraints

Bringing Artifacts to Class

Made explicit in 1a Submission:

In Class

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

Bring a printed copy of your submission, or otherwise have it readily available (e.g., as a photo on your phone).

Bringing Artifacts to Class

Made explicit in 1b Submission:

In Class

Be prepared to discuss your three proposed problems.

*Bring several printed copies of your submission,
so you can easily share them with peers for critique.*

Missing Section

There will not be a full-section Zoom

You are welcome to video call in via a friend

Be sure to engage with Ed and/or existing group connections

Critical to stay engaged with project proposal processes

Early Flexibility in Project Groups

Groups will be of size 3 or size 4

Friday's section will encourage you to start to find groups

There will be TENTATIVE groups formed by end of Section Friday

Wednesday: group submission of Assignment 1b

Tuesday and Friday critique pairings will be within section

You can still decide to change groups

But cannot leave / create an unworkable group size

Groups are finalized with Assignment 1c

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Some Reflection

This will not be an easy course

Students have said this was their most intense course

You typically have two deadlines per 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

Different personas for whom this course is designed

“Now” vs “When You Need It” Content

This course has both, we will try to distinguish

No mandatory readings

Additional resources will be made available

If you find others you want to share, email us

Emphasis on language and theory

can be surprising to some students in the exam

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

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Your Project Topic:

Designing for Inclusion:

How can we make existing systems & activities more inclusive & approachable to new audiences?

Your Project Topic:

Designing for Inclusion:

How can we make existing systems & activities more inclusive & approachable to new audiences?

How do designs currently *exclude* certain audiences? How do we amend that?

How can we make it easier for a *new or inexperienced user* to engage for the first time?

“System”?

Look, words are limited

A “System” in this class can be:

- A specific technology

 - (A computer, an app, a wearable, a tangible...)

- A technology + its *context*

 - A *library* computer, a *calendar* app, a smartwatch *used at the gym*,
an Alexa *in an older adult’s home*...

- A sociotechnical system

 - Simply put: A context where people interact with technology

 - Can be a physical place (“*library*”), social context (“*student community*”),
a process-oriented context (“*studying*”)...

 - Can be specific (“*Ode*”) or generic (“*a library*”)

Intro to Inclusive Design

The Goal: make sure everyone can use the System.

Sounds easy enough, right?

How Designs Exclude

Most Systems are designed with an “intended mode of use”

Designs exclude when:

Someone *can't* use it that way



How Designs Exclude

Most Systems are designed with an “intended mode of use”

Designs exclude when:

- Someone *can't* use it that way

- Someone would be more comfortable using it a *different* way



How Designs Exclude

Most Systems are designed with an “intended mode of use”

Designs exclude when:

- Someone *can't* use it that way

- Someone would be more comfortable using it a *different* way

- It becomes *harder for some people* to use it that way



Intro to Inclusive Design

The Goal: make sure everyone can use the system.

~~*Sounds easy enough, right?*~~

Yeah... no.

But there's got to be some way to make a system work for everyone, right???

Universal Design?

Why don't we just design systems that work for everybody?

The “Curb-Cut Effect” is great—
but not always achievable



Intro to Inclusive Design

The Goal: make sure everyone can use the system.

~~*Sounds easy enough, right?*~~

Yeah... no.

~~*But there's got to be some way to make a system work for everyone, right???*~~

MOST systems end up excluding *someone*.

We like to believe people “tried their best,” but...

Navigating Imperfect Systems

If most systems are broken,
then how does anyone do
anything??

Hacking: everybody does it!



Hacking & Adapting

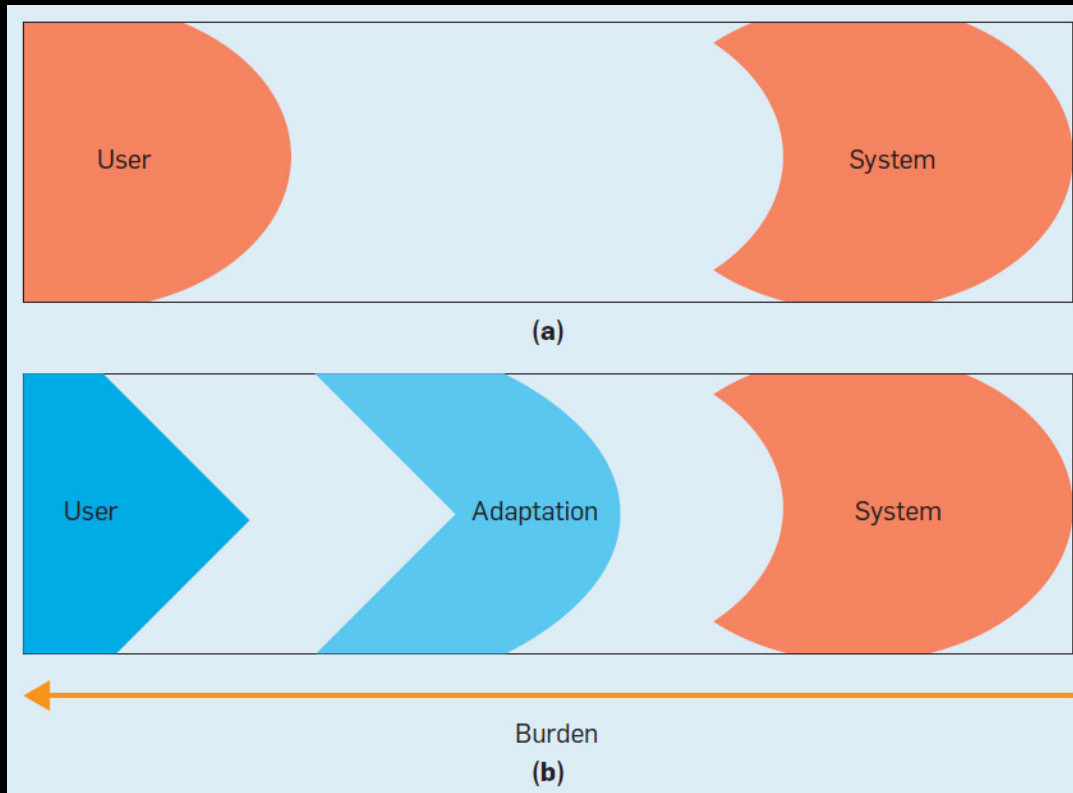
Different styles of hacking & adapting:

Adapting Expectations – Changing what we expect the interaction to look like
“grin and bear it” / “it’s just not for me”

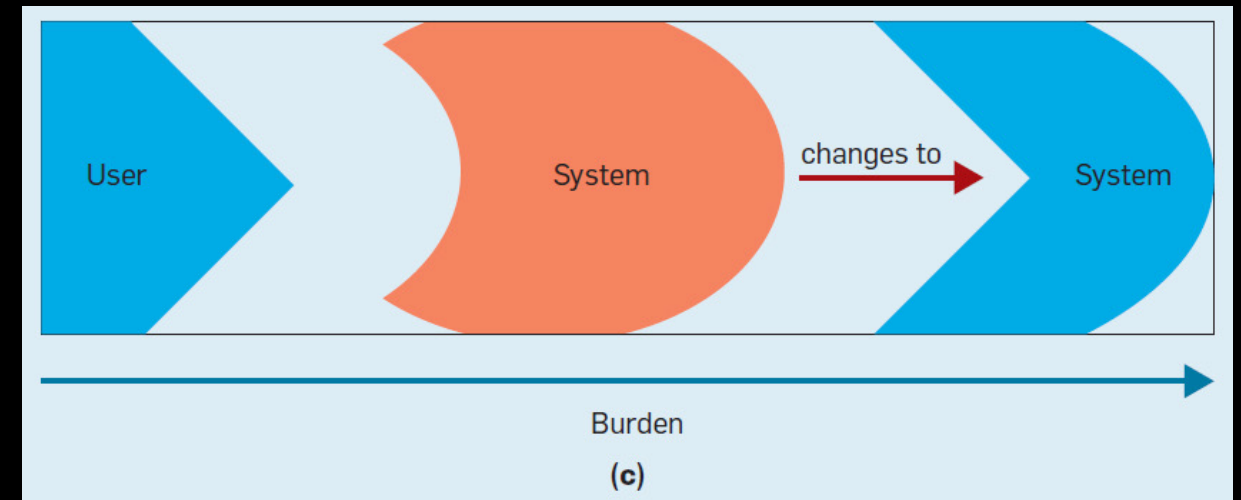
Adapting how we Interact – Using other channels / workarounds
Access Tech (AT) / Proxies / (so much more)

Hacking the System – Modifying the *System* to expect something different
Digital: Mods / Physical: Hot Glue

Ability-Based Design



Current "Standard" Paradigm



Proposed ABD Paradigm

Wobbrock et al., "Ability-Based Design". CACM 2018.

Ways to Approach This Topic:

System-First:

Pick a system (or activity or community or...) that you are passionate about.

What groups have *a harder time* engaging with this design?

Look at parts of this design: what *assumptions* do they make about their users?

Who do they exclude?

Ways to Approach This Topic:

System-First:

Pick a system (or activity or community or...) that you are passionate about.

What groups have *a harder time* engaging with this design?

Look at parts of this design: what *assumptions* do they make about their users?

Who do they exclude?

Population-First:

Pick a population that you know well and are passionate about supporting.

What systems are this population **excluded** from?

What are attributes of this population that **differ from “default” assumptions** often made about users? Where do these differences manifest in systems?

Think about **assets** of this population: what systems fail to leverage these assets?

BEWARE: The [Disability] Dongle



BEWARE: The [Disability] Dongle

Good (-ish)
Intentions

+

Lack of
Understanding

=



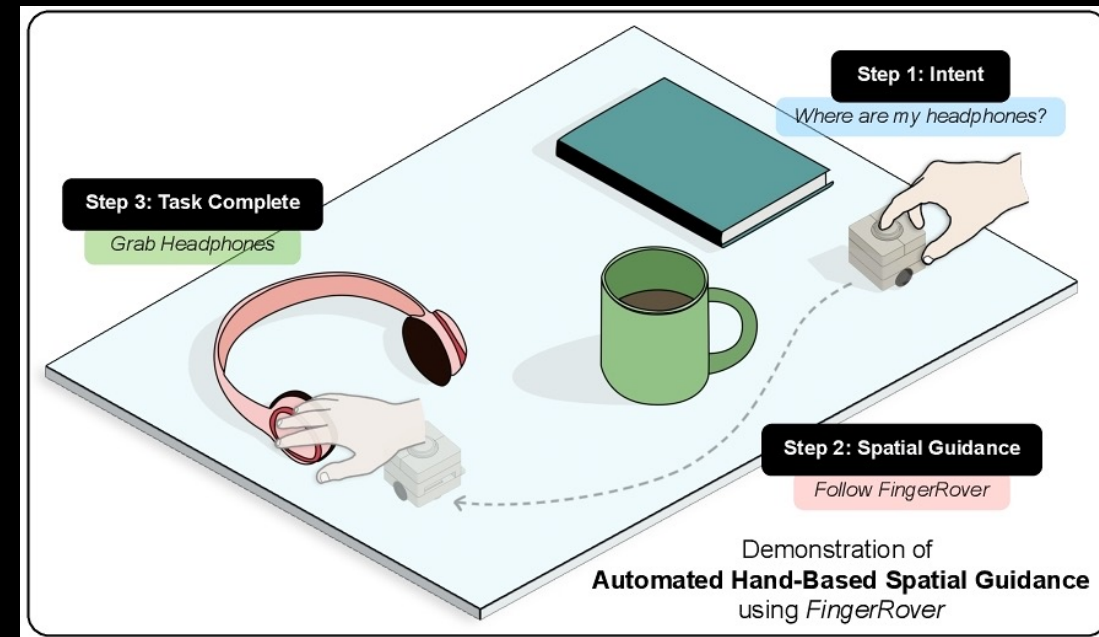
BEWARE: The [Disability] Dongle

Good (-ish)
Intentions

+

Lack of
Understanding

=



Rahman et al., *Take My Hand: Automated Hand-Based Spatial Guidance for the Visually Impaired*. CHI '23

BEWARE: The [Disability] Dongle

Good (-ish) Intentions + Lack of Understanding =



BEWARE: “Be Normal” Designs

If the challenge is that certain audiences navigate the world differently...

...the answer is almost never to try to
“make the audience behave “normally””



nytimes.com
Google Glass May Have an Afterlife as a Device to Teach Autis...
Privacy concerns caused the computerized eyewear to fail with the general public. But researchers believe it could help autisti...

 **Laura**
@MissTwinPeaks82 · [Follow](#)

Why not focus on getting non-autistic people to accept differences in social communication rather than forcing autistics to conform? Eye contact can be painful and difficult and isn't a necessity for communication or for recognising emotions.

BEWARE: “Be Normal” Designs

If the challenge is that certain audiences navigate the world differently...

...the answer is almost never to try to
“make the audience behave “normally””

Change the system, not your audience!



nytimes.com
Google Glass May Have an Afterlife as a Device to Teach Autis...
Privacy concerns caused the computerized eyewear to fail with the general public. But researchers believe it could help autisti...

 **Laura**
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Assignment 1a: Individual Brainstorm

Propose 3 “Problem Spaces”

Each problem space must include:

- What’s the context? (Activity / System / Tool, etc)
- Who’s the audience?
- What’s the problem?

Example:

Critique is an important part of the artistic process.

However, artists who are introverted or have social anxiety can have a hard time getting feedback from others.

Assignment 1a: Individual Brainstorm

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Assignment 1a: Individual Brainstorm

Propose 3 “Problem Spaces”

Each problem space must include:

- What’s the context? (Activity / System / Tool, etc)
- Who’s the audience?
- What’s the problem?

Across your 3 ideas:

At least 2 different contexts

At least 2 different audiences

Ways to Approach This Topic:

System-First:

Pick a system (or activity or community or...) that you are passionate about.

What groups have *a harder time* engaging with this design?

Look at parts of this design: what *assumptions* do they make about their users?

Who do they exclude?

Population-First:

Pick a population that you know well and are passionate about supporting.

What systems are this population *excluded* from?

What are attributes of this population that *differ from “default” assumptions* often made about users? Where do these differences manifest in systems?

Think about *assets* of this population: what systems fail to leverage these assets?

Brainstorming Ideas

Activity	
Audience 1	Problem Space 1
Audience 2	Problem Space 2
Audience 3	Problem Space 3

Brainstorming Ideas

	Activity/System 1	Activity/System 2	Activity/System 3
Audience	Problem Space 1	Problem Space 2	Problem Space 3

Brainstorming Ideas

	Activity/System 1	Activity/System 2	Activity/System 3
Audience 1	Problem Space!		
Audience 2		Problem Space!	
Audience 3			Problem Space!

Brainstorming Ideas

	Activity/System 1	Activity/System 2	Activity/System 3
Audience 1	Problem Space!	?	?
Audience 2	?	Problem Space!	?
Audience 3	?	?	Problem Space!

Are these all
actual problems?

*(This is all you
need to do to get
an EXP for 1a!)*

Jesse's Tips

I've seen so many 440 projects...

The best ones:

- Are related to a topic you're actually interested in

- Explore a problem people are familiar with

- Leverage students' own expertise

- AIM to do something unusual / exciting / surprising

Reasons to Care:

- This is the most complete design you will develop in a CSE course

- There are so many artifacts you create along the way to put in a portfolio

- You can actually turn these designs into lasting project

CSE 440:
Introduction to HCI



01: Introduction to HCI

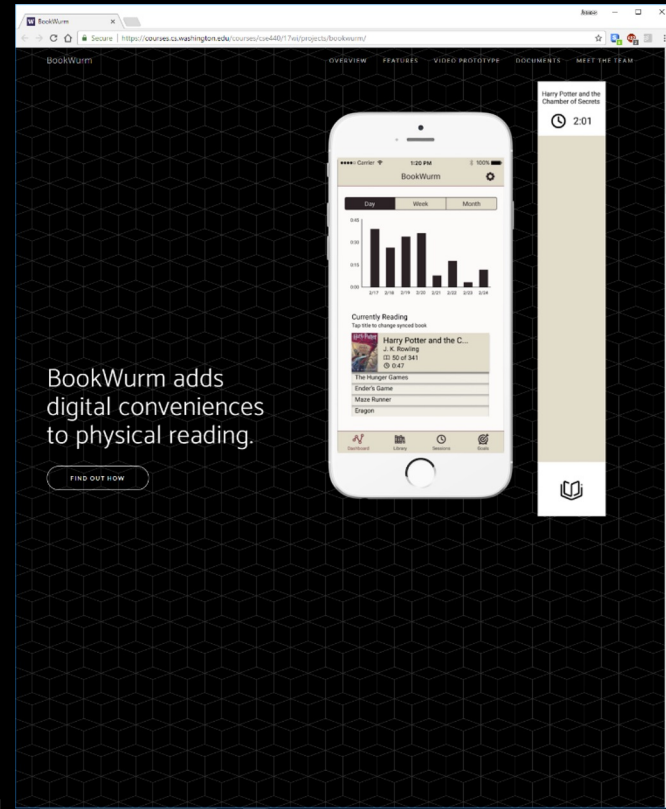
March 26, 2024



Jesse J. Martinez | Avery Mack | Simona Liao

PS: Past Project Showcase

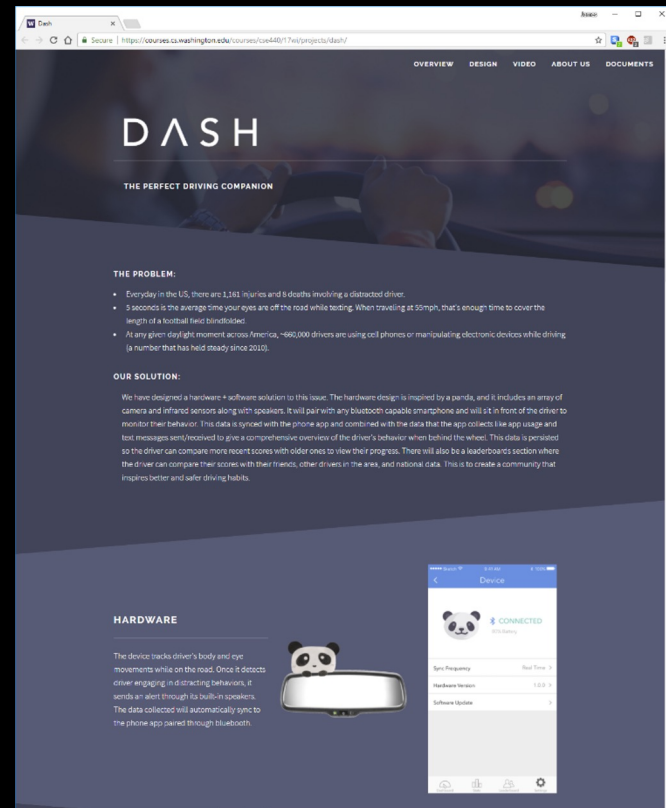
Learn by Example from Prior Projects



Bookwurm:

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

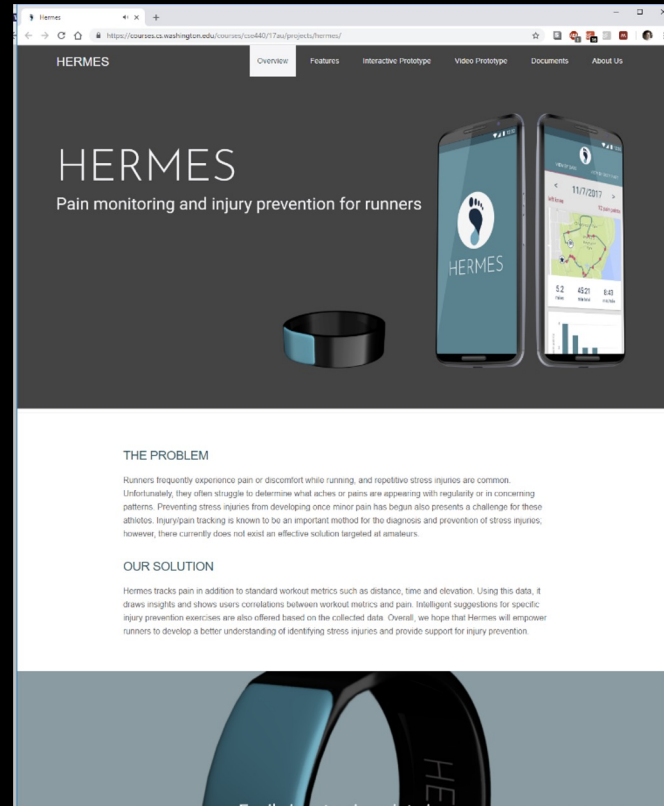
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Dash:

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

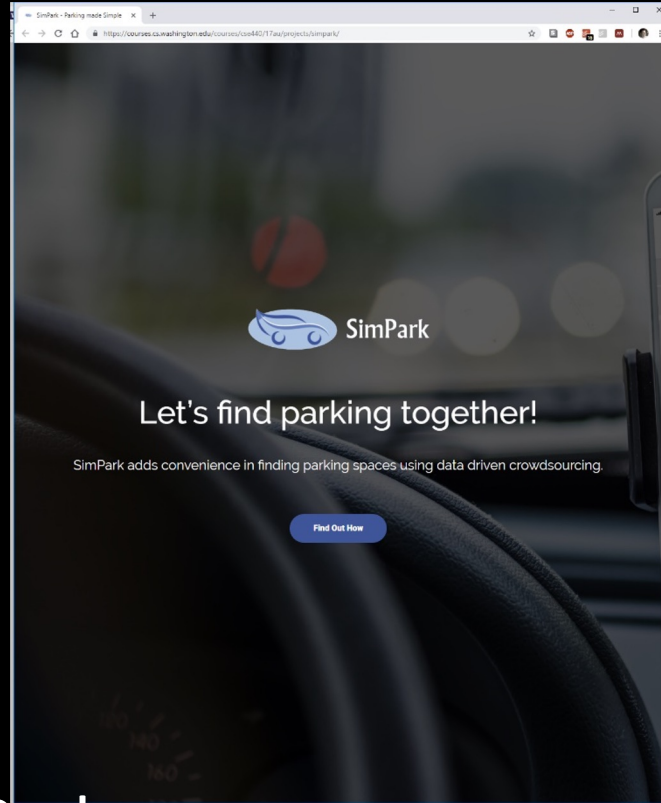
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Hermes:

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

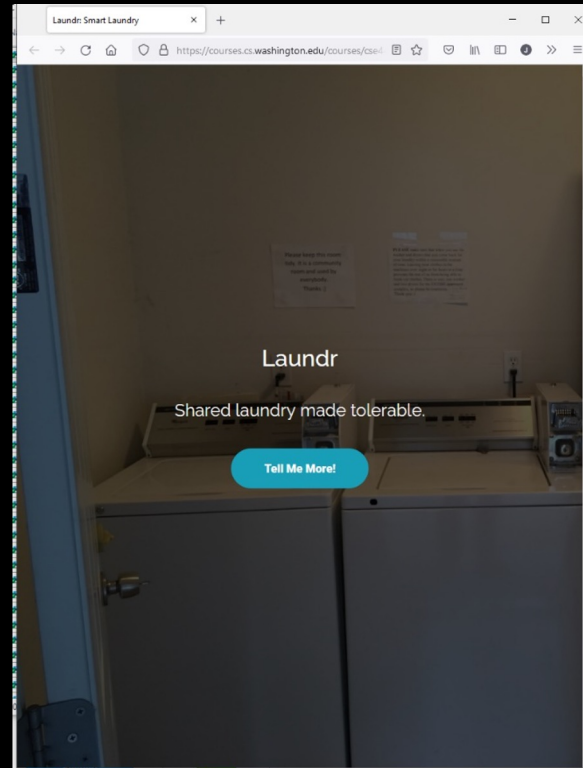
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SimPark:

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

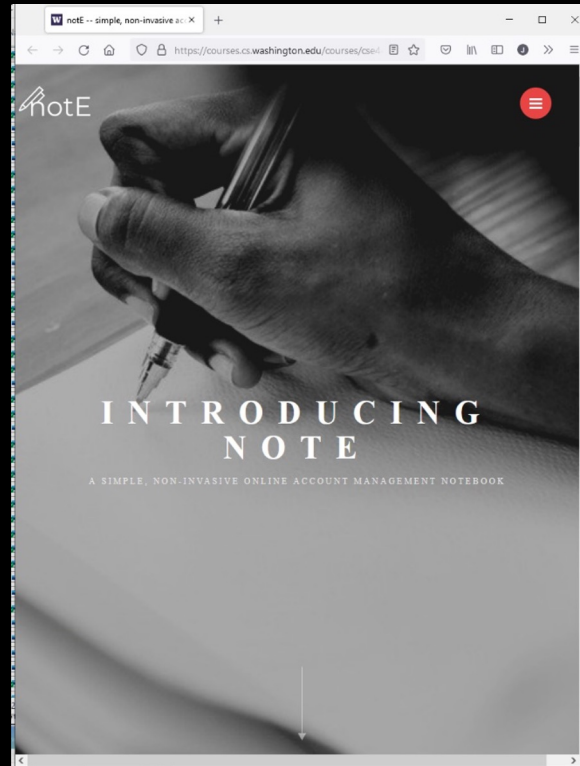
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Laundr:

<https://courses.cs.washington.edu/courses/cse440/19wi/assets/projects/laundr/>

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notE:

<https://courses.cs.washington.edu/courses/cse440/19wi/assets/projects/note/>

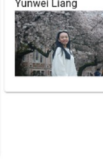
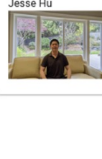
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CSE 440 - INTRODUCTION TO HCI - SPRING 2022 PROJECTS ASSIGNMENTS CALENDAR

Clark

Presenting Made Easier

Team Members



Problem and Design Overview

Many people will agree that public speaking is terrifying. It is a daunting task that people are faced with at some point (or many points) in their lives. Despite how difficult it is and how often we are required to do it, it seems like there are not many ways to get feedback and know audience comprehension besides simply asking someone afterwards. Are there better or more accessible ways for people of all ages to improve their public speaking?

To solve this problem, Clark is a cross platform software focused on allowing the presenter to get real time feedback and the opportunity to review their presentation afterwards. This includes the ability to record presentations through the camera installed, review past recordings, as well as collect data on audience comprehension throughout the presentation in which the presenter can reflect back on. The hardware component is paired with a tablet screen that can display time left, submitted questions by the audience, or display emotional support messages. Clark will sit in front of the presenter for easy visibility and to monitor their presentation. This data is synced with the presenter's phone app and combined with the feedback received through the audience app to give a comprehensive overview of the presentation.

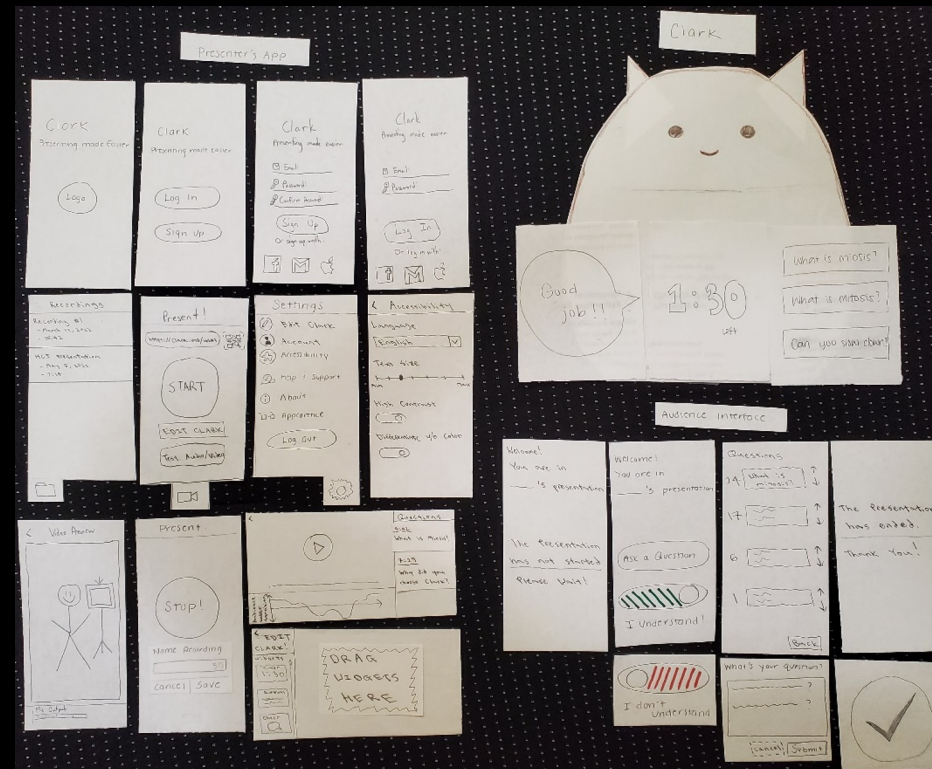
Design Research Process and Key Insights

To tackle our problem, we decided to try to understand the magnitude of the problem first and conducted a series of interviews with students and faculty members who frequently presented in front of multiple people. We chose people who regularly gave speeches to learn what aspects helped them succeed and where we could possibly help them as well as those inexperienced in public speaking, and focused on stakeholders from UW as they were easily accessible. These included three students - a fraternity leader, a Ph.D student with extensive TA experiences, and a Business student - as well as a communications professor teaching public speaking courses. We created a list of open-ended questions to ask each participant, which was updated after each interview, and conducted our interviews with a single note-taker and facilitator. We chose interviews as our primary research method as we felt that there were many factors that would make someone a good public speaker, and we needed to learn from the experiences of our stakeholders themselves.

Delivery analysis:

Clark:

<https://courses.cs.washington.edu/courses/cse440/22sp/projects/clark/>



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CSE 440 - INTRODUCTION TO HCI - SPRING 2022 PROJECTS ASSIGNMENTS CALENDAR

Waste Wizard

Sorting as Easy as Abracadabra.

Anahita Gharai
Madrona Maling
Sydney Kuhl
Zane Pribe

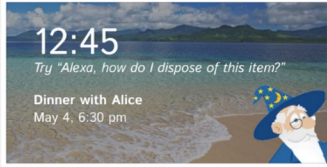
Problem and Design Overview

Waste generated by humans has a detrimental effect on our environment. Even recyclable items such as plastics often end up in landfills. In fact, a 2019 study found that "of the 6.3 billion metric tons of plastic waste that had been produced, only 9% of that plastic waste had been recycled" (Downs, Acevedo). Our design sought to fix this problem by answering the question: how can we promote the proper sorting of waste in order to create a more sustainable society?

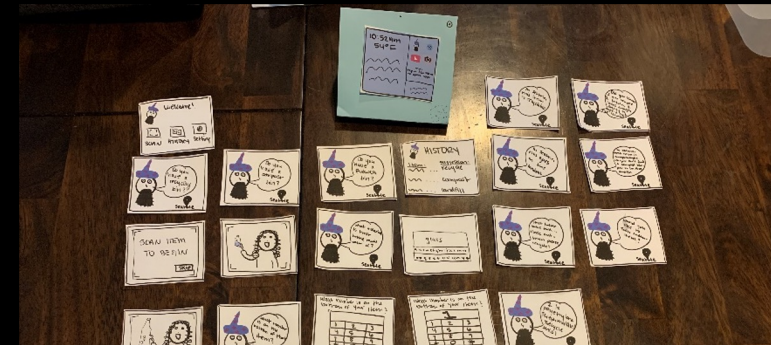
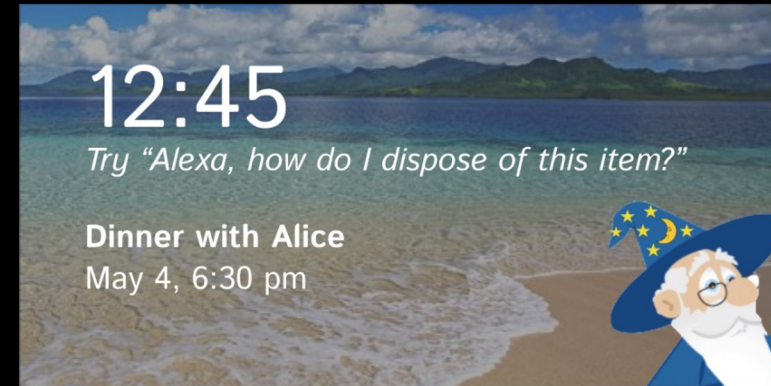
Our solution was an Alexa enabled application for the Echo Show. It helps users sort their waste when they are unsure of how to dispose of an item. This functionality is activated by asking Alexa how to sort a specific item. Inquiring prompts the Waste Wizard app, where a person can scan their item, answer any clarifying questions about the item, and then get suggestions from the Wizard on how to dispose of the item. For example, some plastics are tricky to recycle because it is hard to remember which numbers are recyclable and which are not. Some items are not recyclable in certain regions so Waste Wizard takes into account the location of your Show. It also helps users find places to dispose of items that cannot go in regular recycling, such as batteries. Below we recreated the Echo Show home screen to emphasize our Waste Wizard application.

Design Research Process and Key Insights

For our design research we wanted to understand the barriers people



Echo Show home screen to emphasize our Waste Wizard application.



Waste Wizard:

<https://courses.cs.washington.edu/courses/cse440/22sp/projects/wastewizard/>

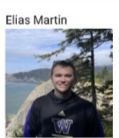
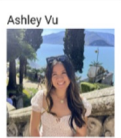
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CSE 440 - INTRODUCTION TO HCI - WINTER 2023 PROJECTS ASSIGNMENTS CALENDAR

PenPal

The ultimate handwriting coach for fun, easy, and effective practice

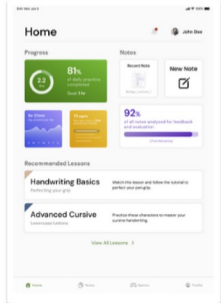
Team



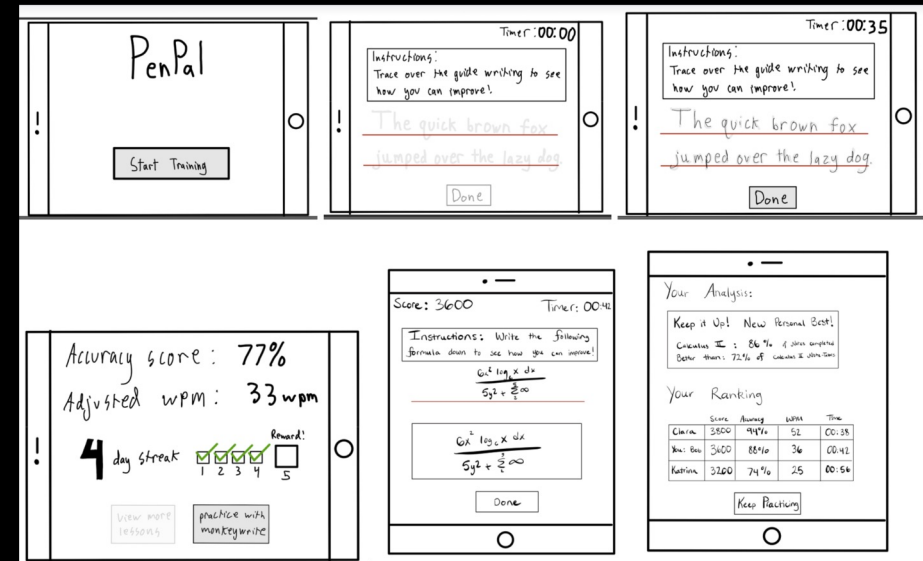
Problem and Design Overview

Did you know that 45% of Americans struggle to read their own handwriting? Everybody wants to get nice handwriting, but how do you acquire it? With so many resources available online (Youtube videos, online worksheets, etc.) and find something that is the right fit for you. At best, practicing handwriting can be repetitive, boring, and feel a little bit childish. Not to mention if you work or go to school, it can be hard to find time in your busy schedule to commit yourself and dedicate time to work on improving your handwriting.

PenPal removes the hassle of using traditional handwriting improvement methods, and instead creates a platform that is encouraging, easy to use, and personalized directly to your goals and time commitment. PenPal does this through gamifying practice, delivering real-time personalized feedback, and offers a variety of tools that make it easy to track your handwriting progress.



PenPal's Homepage allows the user to take notes, play a writing exercise game, or view their profile for personalized data and tips



PenPal:

<https://courses.cs.washington.edu/courses/cse440/23wi/projects/penpal/>

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CSE 440 - INTRODUCTION TO HCI - WINTER 2023

PROJECTS ASSIGNMENTS CALENDAR

Skia

An Automated Boxer Training Solution

Team

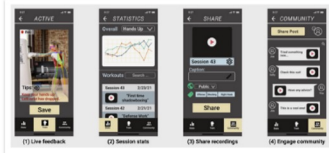


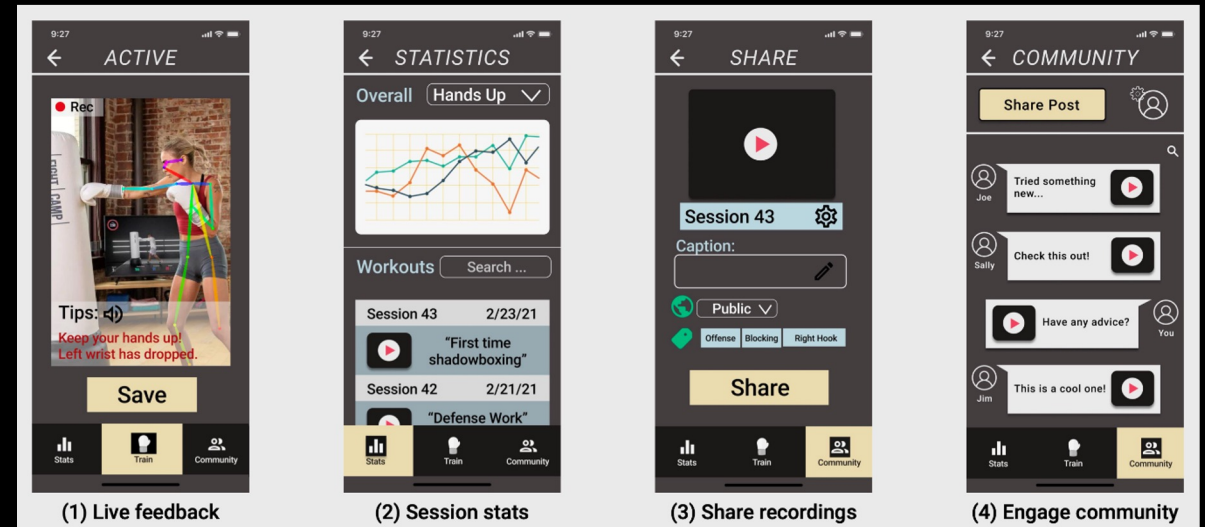
Problem and Design Overview

There are many quantitative self-tracking technologies available that can help boxers measure various statistics such as speed, power, and endurance, but proper form and technique is often overlooked despite being an essential aspect of boxing practice. Additionally, boxing is a highly social activity, with many boxers relying on their communities as a source of morale support and instruction. Most automated training technologies on the market today are isolated training tools and might even detract from the benefits of the sport as a social activity. We asked ourselves, how can we automate form tracking for boxers while giving them new avenues to connect and interact with their fellow boxers?

The Skia project icon

Through integration with a multi-camera and/or stereodepth camera setup, a mobile application could potentially track the movement and relative positions of each of a boxer's joints during training sessions, opening up the opportunity for automated analysis and feedback on the observed form and technique of the boxer. We propose a solution that combines this novel sensory system and mobile device application to provide real-time form feedback to boxers, track their statistics, and establish a platform where they can engage with an online community through their practice.





Skia:

<https://courses.cs.washington.edu/courses/cse440/23wi/projects/skia/>