

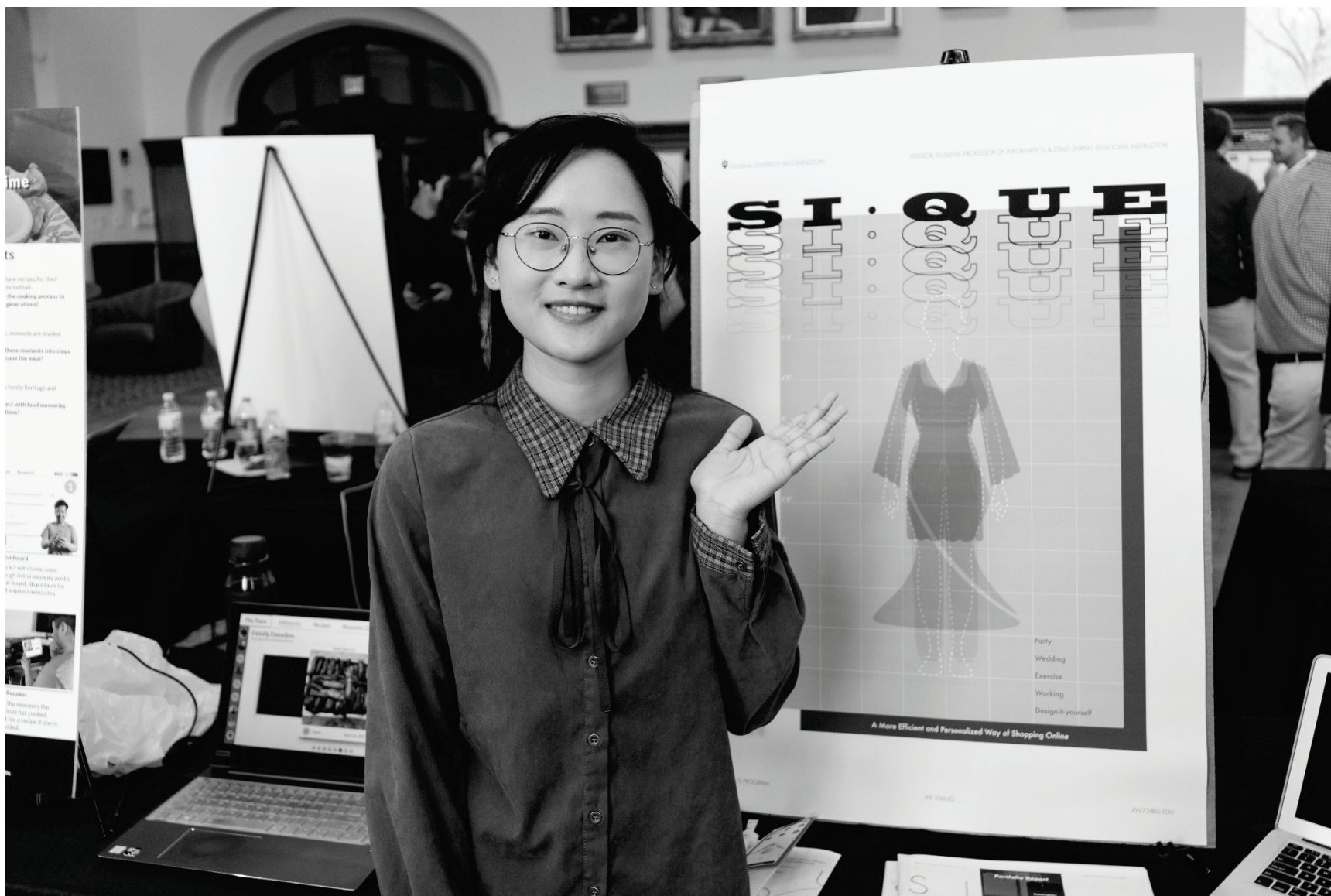
# HCI/d M.S. Degree Poster Show

Combined with Informatics B.S. Degree Poster Show

President's Hall

*The Twenty First of April, Two Thousand and Twenty Two*









## Learning to Knit with an Interactive Knitting Coach

• Knitting offers numerous health benefits, such as stress reduction, providing a creative outlet, and keeping the mind active.

• The process of knitting has to be in tandem. Learning to knit affects on the needles. Usually the first few weeks, one takes several hours.

• Current digital solutions are restrictive and are held a person back from moving up to skill level.

• Design goals include providing interaction for skill building, offering feedback, and learning by doing.

• I took into account components such as the size of a digital knitting book, the writing quality required for machine reading, and integrated with how people learn by doing.

### Tablet App for Skill Review

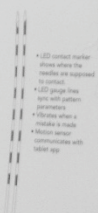


• Knitting skills describe the interactive view.

• Automated diagrams walk user through the steps.

• Knitting framework shows for navigation.

### Smart Needles for Teaching



• LED contact marker shows where the needle is supposed to contact.

• LED gauge lines sync with pattern parameters.

• Shows when a needle is made.

• Marker sensor communicates with tablet app.

### App and Feedback Process



## LIVING IN LIMB-O

Acute Stroke | World Bank  
to Birmingham | MS, MSN  
Prosthetics | Dr. A. B. B. B.  
Helen Zhang | Prosthetics Researcher

**Living in Limb-o re-imagines the world as if it was built keeping in mind individuals with limb loss & difference.**

### Problem Space

Of the 332 million people in the US, 2.1 million live with limb loss or difference and a whopping 28.1 million are at risk of amputation. In addition to daily life struggles, they live and function in a world predominantly designed for the non-disabled masses. Living in Limb-o proposes design concepts that will pave the way for normalizing conversation around limb loss and difference, ultimately reducing stigma and friction.

© 2017 Source: Amputee Coalition

### Process

Predispositions > Research > Insights > Concepts > Strategies

Drawing on Maxine Greene's Social Imagination and the maker movement, design concepts were developed based on personal accounts from individuals with limb loss or difference. These fictional concepts should be treated as "probes" to help us envision and re-build our deficit society. Using these "probes", a participatory workshop was held with an individual with limb loss to form a dialogue, learn about their lived experiences and invite them to ideate.

### Participatory Workshop Probes

Serialized experiences and the resulting adaptations to complete daily tasks. Representation and representation of individuals with limb loss or difference. Prosthesis for social acceptance rather than personal enhancement. Utilization of limb loss and difference, not an afterthought or extension.



## DESIGN FOR:

### 1. Empowerment & Ownership

What if we could have easier access to adaptive tools?



Handy multi-utility tools

What if we could tailor our environment to our specific needs?



Choose to buy single / split shoes

### 2. Self-Expression & Freedom

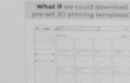
What if we could use our prosthetic as a 3D print workshop?



3D print a single shoe / glove

### 3. Collective Intelligence & Exchange

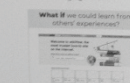
What if we could download and use 3D printing templates?



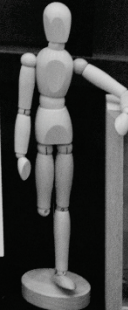
Library of editable templates

### 4. Social Perception & Engagement

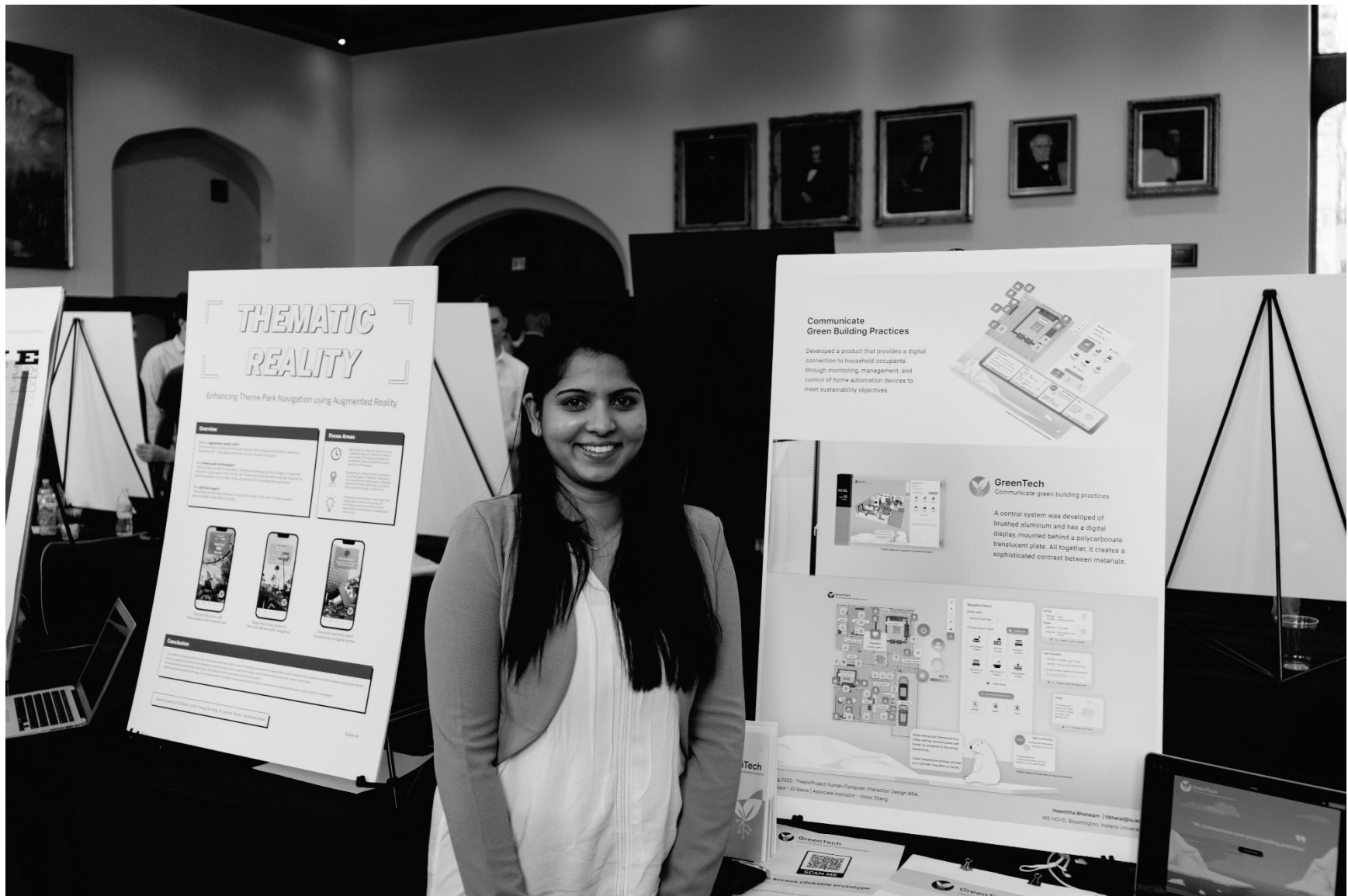
What if we could learn from others' experiences?



Walkway for recent amputees







# THEMATIC REALITY

Enhancing Theme Park Navigation using Augmented Reality

## Overview

The THEMATIC REALITY project is a digital navigation system for theme parks. It provides a digital connection to household occupants through monitoring, management, and control of home automation devices to meet sustainability objectives.

## Project Areas

The project areas include: 1. User Interface Design, 2. Data Collection and Analysis, 3. System Integration, 4. User Testing and Evaluation.



**Conclusion**  
The THEMATIC REALITY project has successfully demonstrated the potential of augmented reality in enhancing theme park navigation. The system provides a digital connection to household occupants through monitoring, management, and control of home automation devices to meet sustainability objectives.

## Communicate Green Building Practices

Developed a product that provides a digital connection to household occupants through monitoring, management, and control of home automation devices to meet sustainability objectives.



## GreenTech

Communicate green building practices

A control system was developed of brushed aluminum and has a digital display, mounted behind a polycarbonate translucent plate. All together, it creates a sophisticated contrast between materials.



© 2022 - Thesis/Project Human-Computer Interaction Design 024.  
BSc - El Dews | Associate instructor - Victor Cheng

Hazratia Bhutani | bhutani@indiana.edu  
MS HCI-G, Bloomington, Indiana University































Set goals,  
prioritize tasks,  
achieve work-life balance.

# Goalery

### Overview

According to research, young adults who controlled content of their own agenda significantly perceive reduction of their work-life imbalance.

Learning to prioritize tasks from various life categories can help people to achieve a customized life without feeling lost.

This design aims to assist young adults in prioritizing work, achieving their goals, and creating a balanced goal setting.



### Design Function

1. Monitor ring & board with date.

2. Add tasks & categorize them on a board.

3. Set goals & track progress in the app.

4. Use the mobile application, people can prioritize their tasks based on importance and urgency. They can set goals and track their progress, and monitor and provide advice to achieve the goal they set for.

For goal setting, the app will assist people to set goals in different categories such as Career, Self, Family, and Friends, so that people can set their goals in a comprehensive manner.

The app supports the Community feature, where people can share their goals, achieve their goals and share results. Inspiring people can also motivate or advising when the goals become going badly to being going.

Goalery is a Spring 2022 - 2024 UICIS Graduate Thesis (UI-Basic Information: UI-City, 27, Zhang, Graduate Researcher)

## DIVE MEMO

Empowering people with  
goal and learning information.

### 1. DESIGN OPPORTUNITY

Designing a system that can help people to achieve their goals and learn from their experiences.

### 2. VIRTUOUS CYCLE

Designing a system that can help people to achieve their goals and learn from their experiences.

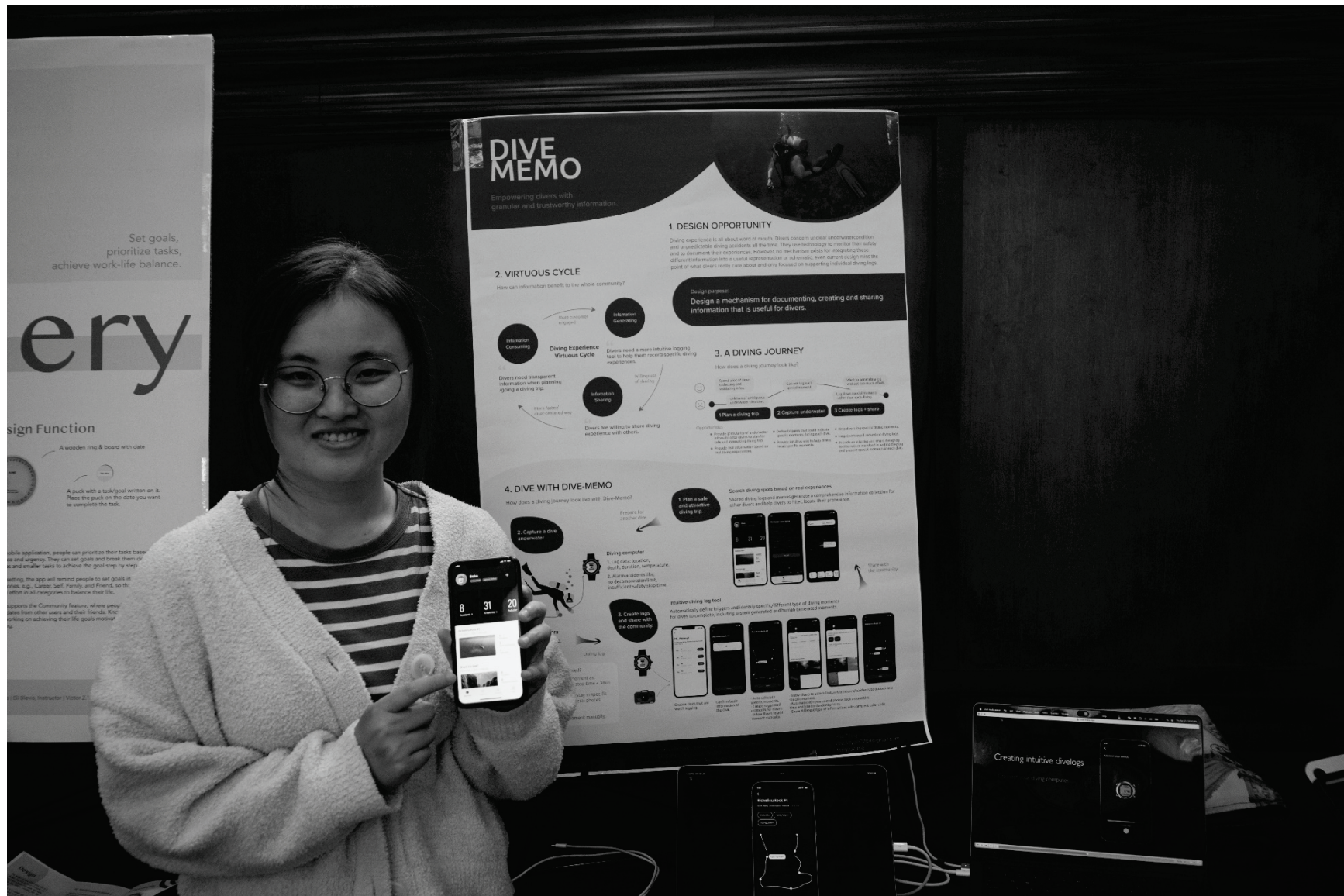
### 4. DIVE WITH

Designing a system that can help people to achieve their goals and learn from their experiences.









# DIVE MEMO

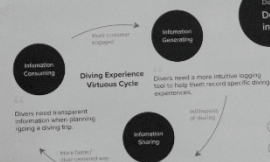
Empowering divers with granular and trustworthy information.

## 1. DESIGN OPPORTUNITY

Diving experience is all about word of mouth. Divers concern unclear understanding and unpredictable diving accidents all the time. They use technology to monitor their safety and to document their experiences. However, no mechanism exists for integrating these different information into a useful representation or schematic, even current design miss the point of what divers really care about and only focus on supporting individual diving logs.

## 2. VIRTUOUS CYCLE

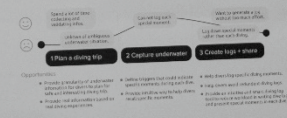
How can information benefit to the whole community?



**Design intent:**  
Design a mechanism for documenting, creating and sharing information that is useful for divers.

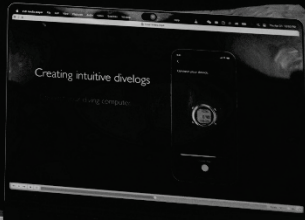
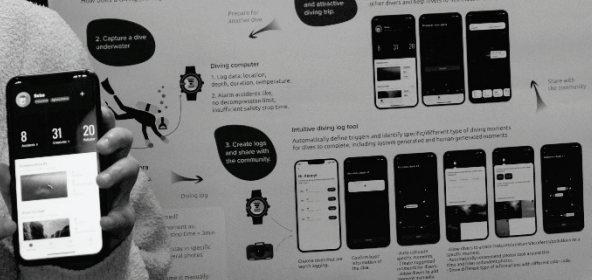
## 3. A DIVING JOURNEY

How does a diving journey look like?

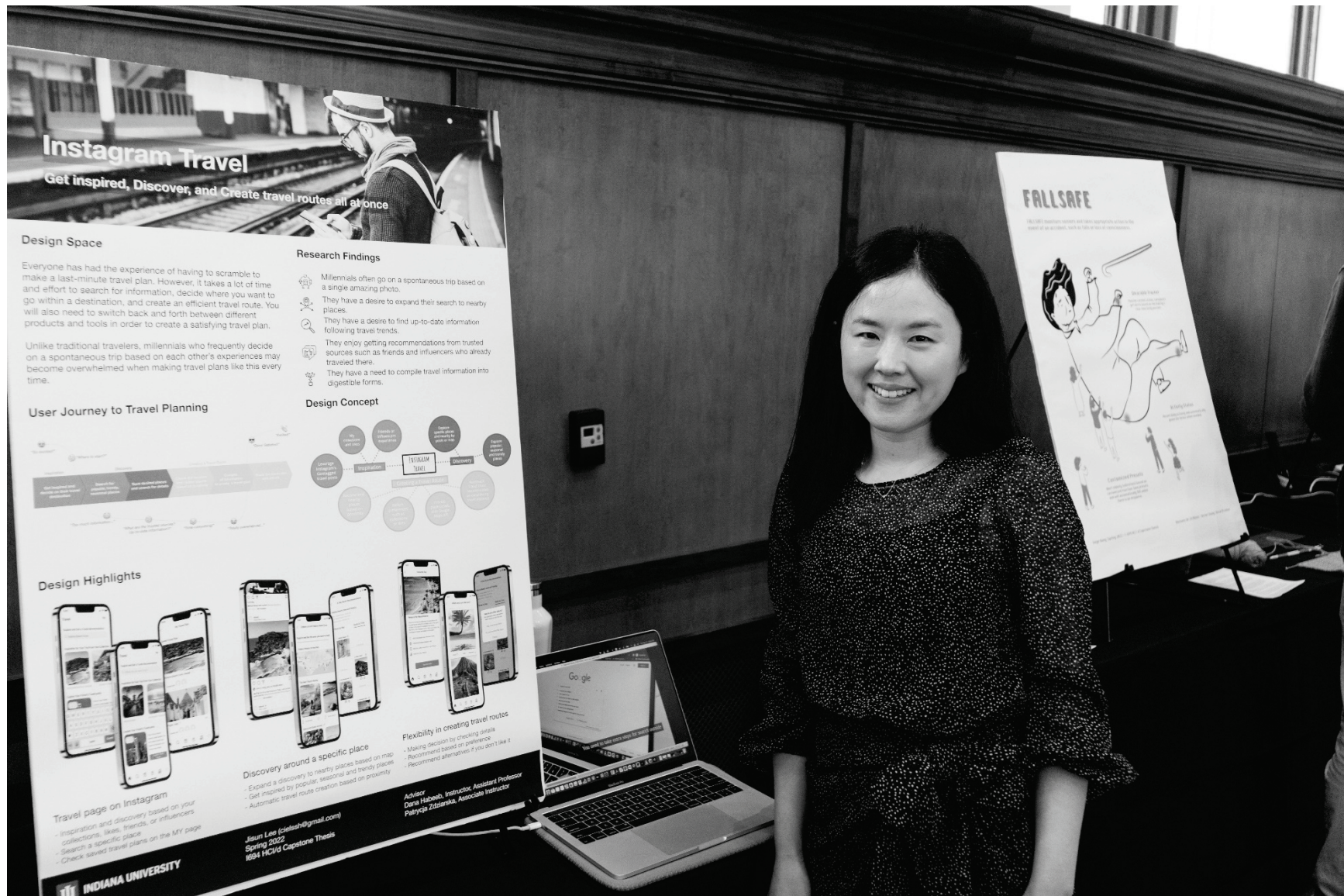


## 4. DIVE WITH DIVE-MEMO

How does a diving journey look like with Dive-Memo?







# Instagram Travel

Get inspired, Discover, and Create travel routes all at once

## Design Space

Everyone has had the experience of having to scramble to make a last-minute travel plan. However, it takes a lot of time and effort to search for information, decide where you want to go within a destination, and create an efficient travel route. You will also need to switch back and forth between different products and tools in order to create a satisfying travel plan.

Unlike traditional travelers, millennials who frequently decide on a spontaneous trip based on each other's experiences may become overwhelmed when making travel plans like this every time.

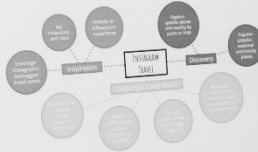
## User Journey to Travel Planning



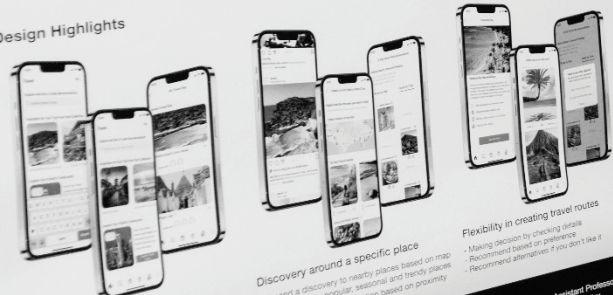
## Research Findings

- Millennials often go on a spontaneous trip based on a single amazing photo.
- They have a desire to expand their search to nearby places.
- They have a desire to find up-to-date information following travel trends.
- They enjoy getting recommendations from trusted sources such as friends and influencers who already traveled there.
- They have a need to compile travel information into digestible forms.

## Design Concept



## Design Highlights



**Travel page on Instagram**

- Inspiration and discovery based on your collections, likes, friends, or influencers
- Search a specific place
- Check saved travel plans on the MY page

**Discovery around a specific place**

- Expand a discovery to nearby places based on map
- Get inspired by popular, seasonal and trendy places
- Automatic travel route creation based on proximity

**Flexibility in creating travel routes**

- Making decision by checking details
- Recommend based on preference
- Recommend alternatives if you don't like it

Advisor  
Daria Hebeck, Instructor Assistant Professor  
Patrycja Zdzienicka, Associate Instructor

Jiun Lee (jlees11@gmail.com)  
Spring 2022  
1994 HCI/0 Capstone Thesis



## FALLSAFE





# FALLSAFE

FALLSAFE monitors seniors and takes appropriate action in the event of an accident, such as falls or loss of consciousness.



**Wearable Tracker**  
Monitor current status, caregivers get alerts based on the elderly's real-time body posture.

**Activity Status**  
Record daily activity and automatically generate forms when needed.

**Customized Presets**  
Alert elderly (orphan) based on customized reaction time presets and alert automatically SMS when there is no response.

Gege Dong / Spring 2022 / 1-894 BC / d Capstone Thesis

Advisors: Dr. Elé Blais / Victor Zhang / Oscar R Lemos



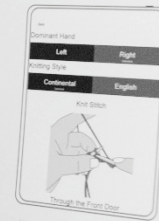


Myles N. Brand  
18th President 1942-2002  
President's Room, 2nd Floor  
1000 U.S. Capitol

## Learning to Knit with an Interactive Knitting Coach

- Knitting offers as stress reduction and keeping fit.
- The process of learning to knit typically takes 6-8 hours.
- Current digital tools can hold a person at a beginner level.

### Tablet App for Skill Review



- Knitting style determines the animations shown
- Animated diagrams walk user through the steps
- Knitting frameworks show for memorization

### Smart Needles



- LED lights indicate when to knit
- LED lights indicate when to purl
- Vibration indicates when to stop
- Motorized tension control

### App and Feedback Process

