

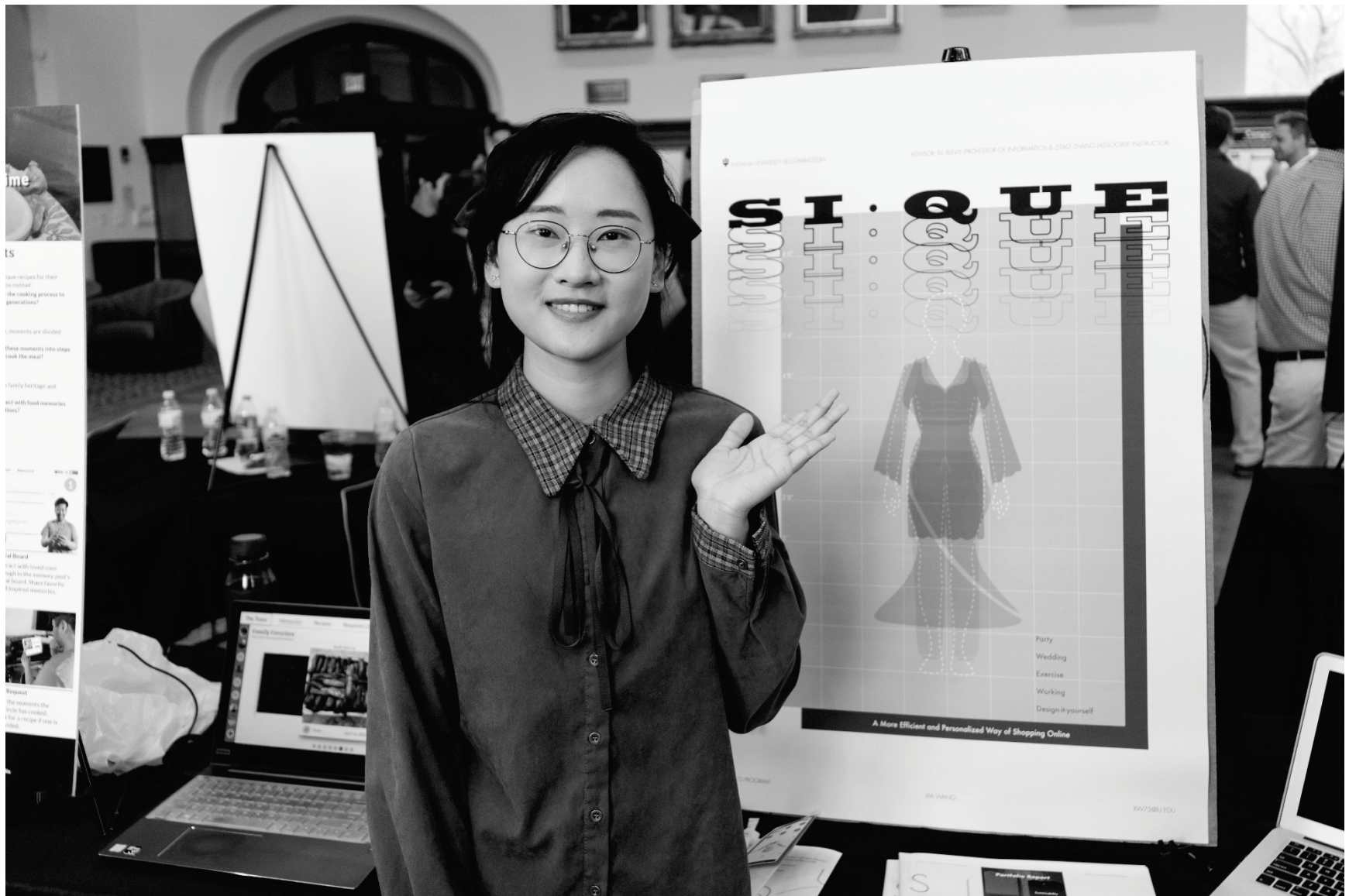
# HCI/d M.S. Degree Poster Show

Combined with Informatics B.S. Degree Poster Show

President's Hall

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





LS

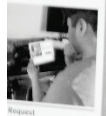
Have recipes for their  
to instead  
the cooking process to  
generations?

...moments are divided  
these moments into steps  
cook the meat?

Family heritage and  
act with food memories  
from?



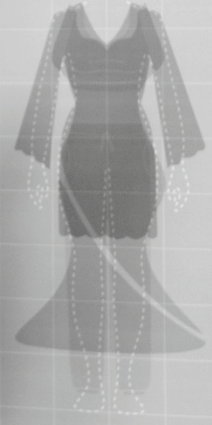
at Board  
...with food items  
sign to the memory and  
at board. Share from the  
important memories.



Request  
The moments the  
from their content.  
I for a recipe if you is  
related.

UNIVERSITY INFORMATION      ASSISTANT PROFESSOR OF INFORMATICS & ZIHO DING ASSOCIATE INSTRUCTOR

SHOPQUE



Party  
Wedding  
Exercise  
Working  
Design-It-yourself

A More Efficient and Personalized Way of Shopping Online

HP

HP

HP

ShopQue



### 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 learning how to knit is tedious. Learning to knit often takes up to 100 hours. Usually the first few months can take several hours.
- Current digital solutions are restrictive and do not hold a person back from moving up to skill level.
- Design goals include providing orientation for skill-building, offering feedback, and learning by doing.
- I took into account constraints such as the size of a typical knitting book, the writing quality required for machine reading, and thoughtful ways how to present content by format.

Tablet App for Skill Review



Smart Needles for Teaching

- LED contact marker shows when the needles are supposed to connect.
- LED gauge line track with pattern parameters.
- Shows when a needle is made.
- Multiple color communication with tablet app.

Knitting like a professional? The interactive coach. A personal digital coach with user through the steps. A helpful feedback loop for memorization.

### App and Feedback Process





LUDDY


## LIVING IN LIMB-O


as if it was built keeping in mind individuals with limb loss & difference


**DESIGN FOR:**

- Empowerment & Ownership**
  - What if we could have easier access to adaptive tools?
 

Handy multi-use utility hook
  - What if we could tailor our shopping to our specific needs?
 

Choice for easy single / both shoes
- Self-Expression & Freedom**
  - What if we could use our own resources to 3D print something?
 

3D print a single shoe / glove.
- Collective Intelligence & Exchange**
  - What if we could download and use 3D printing templates?
 

Library of wearable templates.
- Social Perception & Engagement**
  - What if we could learn from others' experiences?
 

Workshop for recent amputees

**Problem Space**  
Of the 32 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.

**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 engage in a dialogue, learn about their lived experiences and invite them to ideate.

**Participatory Workshop Probes**  
Embodied experiences and the resulting adaptations to complete daily tasks, perception & representation of and by individuals with limb loss or difference, and a process for social acceptance rather than personal enhancement or stigmatization of limb loss and difference, not an afterthought or extension

Screenshots from the workshop

\*US Census Bureau, 2014







**Learning to Knit with an Interactive Knitting Coach**

Knitting is a complex skill that requires a lot of practice and patience. This interactive knitting coach is designed to help you learn the basics of knitting in a fun and engaging way. It features a series of interactive tutorials that guide you through each step of the process, from casting on to finishing a project. The coach is available on a mobile app, making it easy to access anytime, anywhere.

### LIVING IN LIMB-O

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

**Problem Space**

As a designer, I wanted to create a world that was different from the one we live in. I wanted to create a world where individuals with limb loss and difference were not just seen, but were also heard and valued. I wanted to create a world where they were not just passive recipients of help, but were active participants in their own lives. I wanted to create a world where they were not just seen, but were also heard and valued.

**Process**

Philosophical - Research - Insights - Concepts - Strategies

During the workshop, I explored various concepts and strategies for creating a world that was different from the one we live in. I explored the idea of "Living in Limb-o" and how it could be used to create a world that was more inclusive and supportive of individuals with limb loss and difference. I also explored the idea of "Participatory Design" and how it could be used to involve individuals with limb loss and difference in the design process.

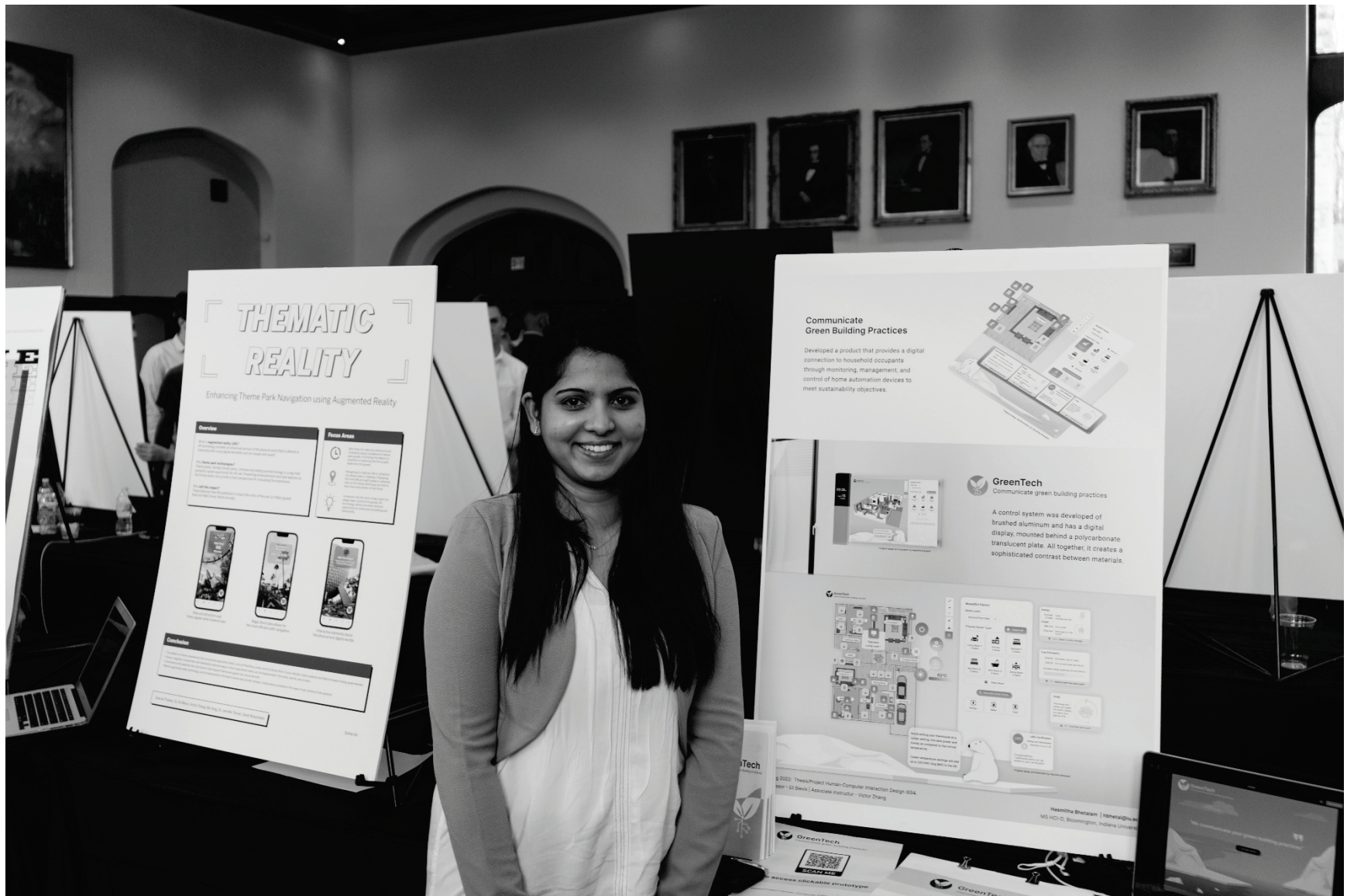
**Participatory Workshop Process**

1. Introduction to the project and the concept of "Living in Limb-o".
2. Exploration of various concepts and strategies for creating a world that was different from the one we live in.
3. Discussion of the idea of "Participatory Design" and how it could be used to involve individuals with limb loss and difference in the design process.
4. Development of a series of design concepts and strategies for creating a world that was more inclusive and supportive of individuals with limb loss and difference.

**DESIGN FOR:**

1. **Accessibility**
2. **Usability**
3. **Collaborative Participation & Exchange**
4. **Social Perception & Engagement**





# THEMATIC REALITY

Enhancing Theme Park Navigation using Augmented Reality

### Overview

Augmented Reality (AR) is a technology that allows users to interact with a virtual world overlaid on the real world. This project aims to enhance theme park navigation by providing users with a digital map and information about the park's various areas and attractions.

### Theme Areas

The theme park is divided into several distinct areas, each with its own unique atmosphere and attractions. These areas are represented in the AR application, allowing users to explore the park in a more immersive and interactive way.



### Conclusion

The AR application successfully enhances theme park navigation by providing users with a digital map and information about the park's various areas and attractions. This technology allows users to explore the park in a more immersive and interactive way, making their experience more enjoyable and informative.

## 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

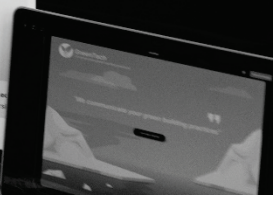
Communicate green building practices

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 604, Ben - El Davis | Associate Instructor | Victor Cheng

Harshita Bhutani | bhutani@uic.edu MS HCI-C, Bloomington, Indiana University





















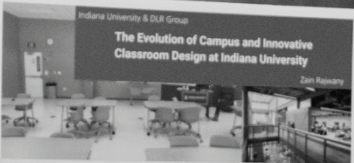


ISM President 1987-1991  
Professional Portrait of 1987  
James A. DeLoach

### Indiana University & DLR Group

## The Evolution of Campus and Innovative Classroom Design at Indiana University

Don Robinson



**Situation**  
The Covid-19 Pandemic created shutdowns all across the United States, including higher education institutions. This at first drove a spotlight on the vulnerabilities of the industry that has created learning systems change that looks to become the norm. These changes include methods of learning as well as new classroom additions.

**Process**  
Partnering with DLR Group, a sustainable design firm, implemented the Evolution of Campus process from 1.0 to 3.0 and beyond. In addition to this, also researched how classroom designs are changing and adapting to the current world from all Indiana University. Some of key findings are displayed here.

**The Collegiate Learning Model**  
The immediate reaction to remote and hybrid learning started a new student experience which has uncovered a new opportunity to explore future options for education.

**The Quality of Remote Learning**  
Through interviews with students across 171 institutions, there was a variety of answers regarding the quality of education. Ultimately, it was found that there was a rough transition period initially.

**Communication was a big issue.**  
Students often preferred to have cameras off, restricting teacher-student contact.

**Other pain points include low participation, limited classroom activities. Active learning (engaging students through various methods) was down.**

**There were a lot of positives however.** These include praise for screen sharing, a chat function, and the option to record lectures to look back on later.


**Hybrid Learning at Indiana University**  
Like most universities, IU transitioned from full remote during the Spring of 2020 to a hybrid or blended learning system which is in place as of Spring 2022.

**Learning Space Rating System 3.0**  
Developed in conjunction with other universities, the LSR3 provides measurable criteria to assess how a classroom supports multiple ways of learning.

**As classes continue to change, we find that students prefer to attend them online due to the flexibility it provides for them. Due to this, the needs of the classroom continuously evolve.**

**Adjustments made at IU**  
Due to the significant percentage of students who attend classes online, IU has made steps to provide a creative learning environment for every student. This includes equipping classrooms with increased camera and microphone capabilities.

Year	Classroom Type	Count	Percentage
2019	Traditional	1,200	85%
2020	Traditional	1,100	75%
2021	Traditional	1,000	65%
2022	Traditional	900	55%
2022	Hybrid	700	50%
2022	Remote	300	25%




## IOH

We welcome everyone.

**Background**  
The COVID-19 pandemic created shutdowns all across the United States, including higher education institutions. This at first drove a spotlight on the vulnerabilities of the industry that has created learning systems change that looks to become the norm. These changes include methods of learning as well as new classroom additions.

**Project Timeline**



**Pain Points & Opportunities**

- Communication was a big issue. Students often preferred to have cameras off, restricting teacher-student contact.
- Other pain points include low participation, limited classroom activities. Active learning (engaging students through various methods) was down.
- There were a lot of positives however. These include praise for screen sharing, a chat function, and the option to record lectures to look back on later.

**Design Highlights**

- Increased camera and microphone capabilities.
- Screen sharing and chat functions.
- Recorded lectures for later viewing.
- Active learning activities.
- Hybrid learning options.

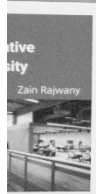








15th President 1987-1994  
Presidential Portrait, ca. 1995  
James A. Fox (1976)



able design firm - I  
process from 1.0  
I also researched  
and adapting to the  
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iversity  
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r blended  
f Spring 2022

3.0  
iversities, the  
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is to provide a  
student. This  
based camera



**AOE**  
We welcome everyone.

**Background**  
Projected to reach a \$24 billion USD market by 2025, voice interaction through personal devices and services has grown from a niche option used by tourists and commuters to become the primary mode of interaction for many users. However, the lack of a consistent way to interact with these devices and services has led to frustration and confusion, especially for users with sensory disabilities.

Through research and innovation, I developed the development of a universal, multi-modal personal assistant to address the diverse needs of hearing, visually impaired, and neurodivergent users. This involves creating a "learning and onboarding" phase that guides the user through the device's features and gestures, ensuring they can interact with their device in a way that works for them.

**Project Timeline**

**Pain Points & Opportunities**

Customers are faced with complex navigation and a lack of clear instructions, leading to frustration and abandonment. This highlights the need for a more intuitive and accessible onboarding experience that can guide users through the device's features and gestures in a way that works for them.

Users often struggle to find the right settings and options, leading to a lack of personalization and a sense of being overwhelmed. This highlights the need for a more intuitive and accessible onboarding experience that can guide users through the device's features and gestures in a way that works for them.

Users often struggle to find the right settings and options, leading to a lack of personalization and a sense of being overwhelmed. This highlights the need for a more intuitive and accessible onboarding experience that can guide users through the device's features and gestures in a way that works for them.

**Design Highlights**

For those with hearing disabilities, use multi-modal onboarding with audio, haptic, and visual cues to ensure they can interact with their device in a way that works for them.

Users often struggle to find the right settings and options, leading to a lack of personalization and a sense of being overwhelmed. This highlights the need for a more intuitive and accessible onboarding experience that can guide users through the device's features and gestures in a way that works for them.

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Indiana University Bloomington  
1975 USA (Classroom 24th Street, Campus Building)  
Professor Li Huan, Associate Professor, Vice PI Zhang  
Sun-Chi Wang, co-inventor

Smacking helps friends and family  
keep in touch by  
communicating and connecting students.







# THEMATIC REALITY

Investigation using Augmented Reality

## Focus Areas

- Time: Guests can explore the history of the building and the area around it, learning about the events that shaped the location.
- Location: The app provides a virtual tour of the building, highlighting key areas and providing detailed information about each location.
- Information: The app offers a wealth of information about the building, including its architecture, history, and the people who have lived and worked there.



Experience the history of the physical and digital worlds.

Based on chosen view, guests can read interesting facts/trivia about the different attractions.

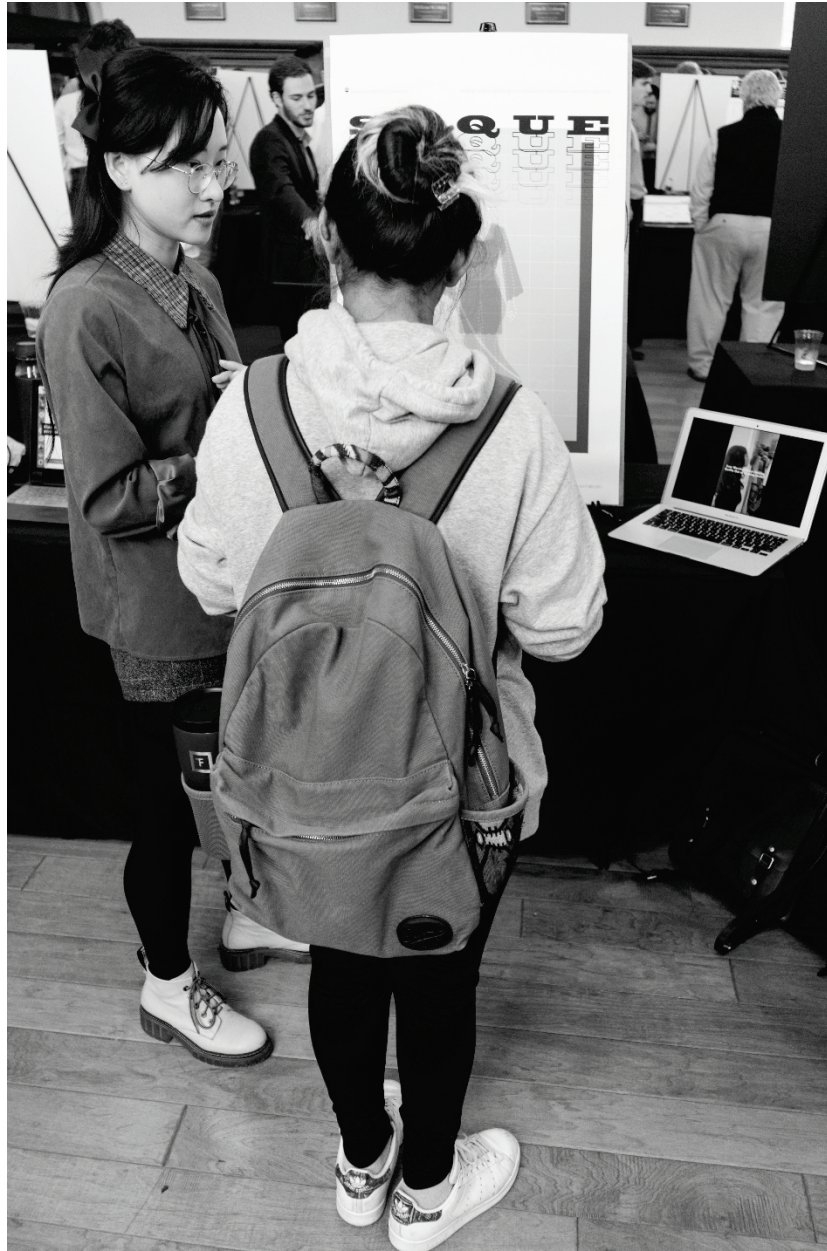
These interactive elements help pass the time when waiting in line and serve as true fun.

GreenTec












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

# Goalery

**Overview**

According to research, young adults who consistently record at least five personal goals for the year have a 42% higher probability of achieving them.

Learning to prioritize tasks has become the subject of many articles in order to address a common life-related challenge. The design aims to assist young adults in prioritizing work, achieving their goals, and reaching a balanced goal setting.

**Design Function**

Consider ring & board with app

It is a goal with a significant impact on a person's life and the ability to reach their goals.

On the mobile application, users can prioritize their goals based on importance and urgency. They can set goals and track their progress.

The goal setting app will be designed to be a good reference for everyone to do "better" and "strong" and to be able to set and track their goals in a more organized way.

The app supports the "Commitment" feature, which enables users to share their goals with other users and their friends, making it possible to share their progress and celebrating when the goals have been completed.

Mid-Project Spring 2022 - 2023/2023 Graduate Thesis (UI/UX) Student, Interaction (UI/UX) Design, Interaction (UI/UX)

## DIVE MEMO

Empowering students with generative and collaborative experiences.

**1. DESIGN OPPORTUNITY**

How can we create a more inclusive and collaborative learning environment for students?

**2. VIRTUOUS CYCLE**

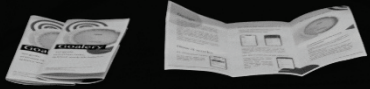
How can we create a more inclusive and collaborative learning environment for students?

**3. DESIGN OPPORTUNITY**

How can we create a more inclusive and collaborative learning environment for students?

**4. DIVE WITH IT**

How can we create a more inclusive and collaborative learning environment for students?











## WOMEN SAFETY FOR IU CAMPUS

By Utkarsha Joshi  
Mentors: Eli Blevis | Victor Zhang







### Software: Mobile Application

**Key Idea Features:**

- One-click hazard call. Track location of all Police using their services. Receive two-way communication while Police are on the scene.

### Hardware: Smart System

Inside the IU building, this system integrates with a smoke detector or alarm system. Light changes to red color and the alarm rings.

Automatically opens all Safety Applications on your mobile and a signal is sent and alert to the IU Police mobile version.

### Storyboarding



Scenario 1: User receives an alert on their mobile device. They tap the alert to view details and call for help.

Scenario 2: User is in a building and receives an alert. They tap the alert to view details and call for help.

### Vision

This design is about prioritizing safety for a critical location within the building on the IU campus to help the most vulnerable users within the building. The design is about prioritizing safety for a critical location within the building on the IU campus to help the most vulnerable users within the building.

### Software: Wearable

**Key Idea Features:**

- Active Tracking and ability to change location within building.

QR code for Women Safety Application









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

# ery

Design Function

A wooden ring & board with date

A book with a task list written on it. Place the puck on the date you want to complete the task.

Mobile application, people use priorities their tasks based on urgency. They can set goals and break them down into smaller tasks to achieve the goal step by step.

Setting the app will remind people to set goals in time, e.g. Career, Self, Family and Friend, in the effort in all categories to balance their life.

Supports the Community feature, where people share from other users and track friends. Keep working on achieving their life goals motivator.

## DIVE MEMO

Empowering divers with granular and trustworthy information.



### 1. DESIGN OPPORTUNITY

Diving experience is all about word of mouth. Divers seldom analyze underwater condition and unpredictable diving accidents all the time. They use technology to monitor their safety and to document their experiences. However, no real-time guide 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 focused on supporting individual dives logs.

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

### 2. VIRTUOUS CYCLE

How can information benefit to the whole community?

**Information Generating**  
Divers need a more intuitive logging tool to help them record specific diving experiences.

**Information Sharing**  
Divers are willing to share diving experience with others.

**Information Consuming**  
Divers need transparent information when planning going a diving trip.

**Diving Experience Virtuous Cycle**  
Information generating leads to information sharing, which leads to information consuming, which leads back to information generating.

### 3. A DIVING JOURNEY

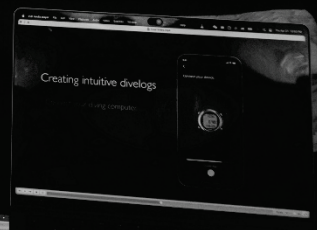
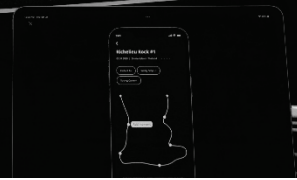
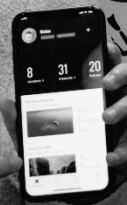
How does a diving journey look like?

1. Plan a diving trip
2. Capture underwater
3. Create logs + share

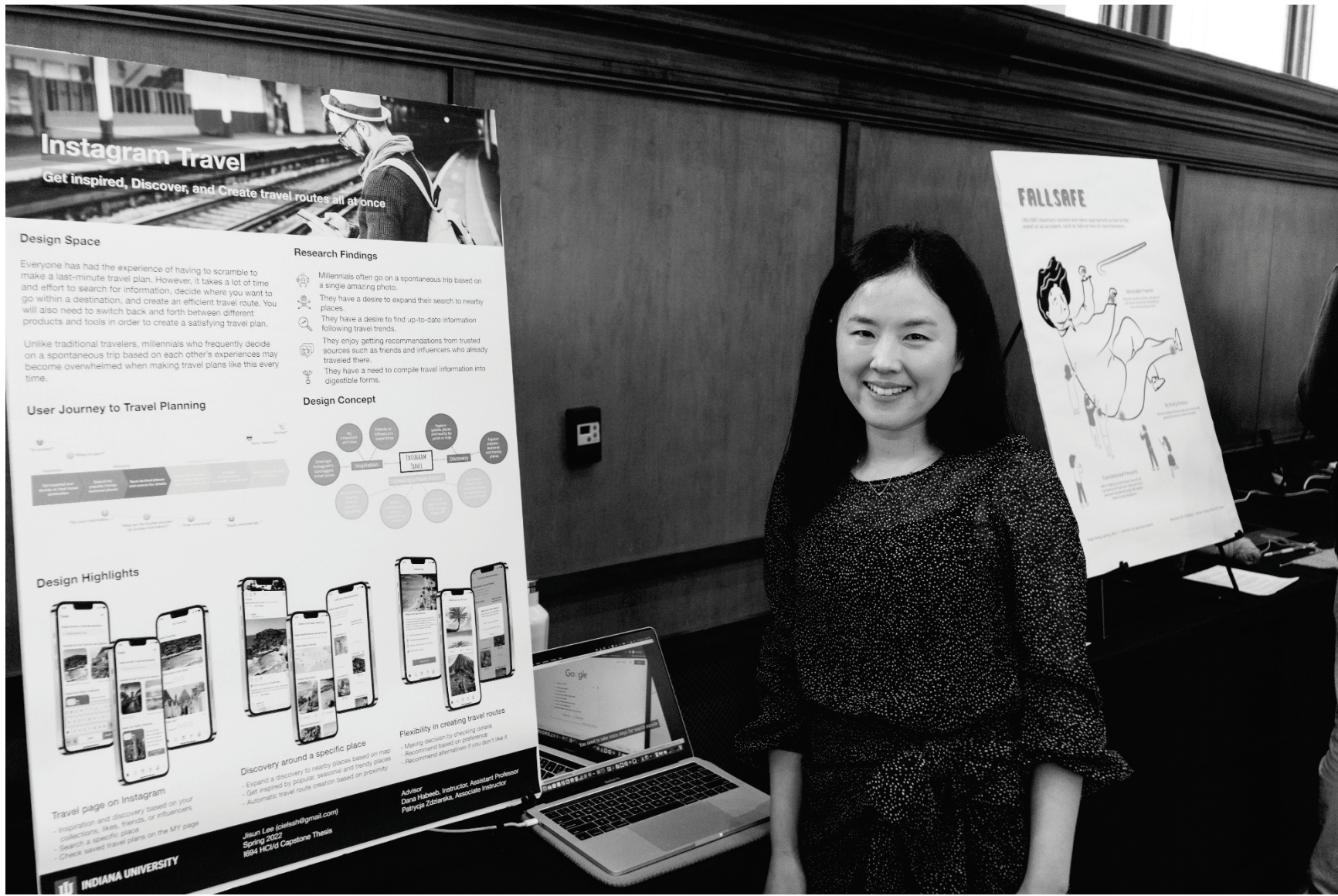
**1. Plan a safe and attractive diving trip**  
Search diving spots based on real experiences. Search diving logs and generate comprehensive information collection for other divers and help others to learn from their experience.

1. Plan a safe and attractive diving trip
2. Capture a dive underwater
3. Create logs and share with the community

**Intuitive diving log tool**  
Automatically derive loggers and identify type of diving records. For divers to compare, including various equipment and through personal records.







# 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.

## 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



## User Journey to Travel Planning



## Design Highlights



**Travel page on Instagram**

- Inspiration and discovery based on your collections, likes, trends, 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
- Recommendation based on preference
- Recommendation alternatives if you don't like it



Jiann Lee (jle154@gmail.com)  
Spring 2022  
1694 HCI/0 Capstone Thesis

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

# FALLSAFE

THE FALLSAFE SYSTEM HELPS YOU TAKE APPROPRIATE ACTION IN THE EVENT OF AN ACCIDENT, WITH AN EYE ON YOUR COMMUNITARIAN.



**Be a Fall Safe**

When you fall, you can be hurt. The Fall Safe system helps you take appropriate action in the event of an accident, with an eye on your communitarian.

**Be a Fall Safe**

When you fall, you can be hurt. The Fall Safe system helps you take appropriate action in the event of an accident, with an eye on your communitarian.



# FALLSAFE

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



Gege Dang / Spring 2022 | I-694 BC | Capstone Thesis

Reviewers: Dr. ES Blevis | Victor Zhang | Oscar B Lemos









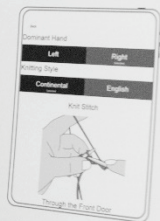


Myles N. Brand  
18th President 1992-2002  
President's Office, 200  
1000 University Ave.

## Learning to Knit with an Interactive Knitting Coach

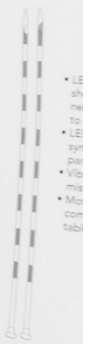
- Knitting offers stress reduction and keeps the mind sharp.
- The process of learning to knit typically takes 10-15 hours.
- Current digital tools can hold a person's hand.

### 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
- Vibration
- Motion sensors
- Bluetooth
- USB
- Micro-USB
- Micro-USB
- Micro-USB

### App and Feedback Process









