AARON HETENG LI
Portfolio

Hello!
My name is Aaron
A designer of thoughtful
emerging technologies

AARON HETENG LI

aaronli.co
hetengaaronli@gmail.com
https://www.linkedin.com/in/aaronlico/

EDUCATION

UC Berkeley
Master of Design
2022 - 2023

University of Washington
Photomedia + Informatics
2018 - 2022

AWARDS

Distinguished Scholar
UC Berkeley

Dean's List
University of Washington

SKILLS

UX Prototyping
Usability Testing
Journey Mapping
Figma
Sketch
Illustrator
Photoshop
Premiere Pro
After Effects
Java
Kotlin
Swift
R
SQL
JavaScript
React
HTML
CSS
Chinese
English

EXPERIENCE

Design Researcher – BMW Group
June 2023 – Present | Berkeley, CA

- Conducting design research on how digital experiences can positively influence sustainable user behavior.
- Examining existing consumer products and compiling literature review in preparation for white paper publication in September 2023

UX Designer – NIO
Summer 2021 | Shanghai, China

- Crafted NIO's support messenger UX, developing key elements such as time stamps, read receipts, typing indicators, and threaded conversations through wireframing and iterative prototyping on Sketch.
- Collaborated with front-end engineers and web designers to conduct comparative analysis and product research on micro-interactions on the web, shaping guidelines for NIO's future web experiences.
- Increased click-through rates by revamping NIO Norway's user sign-up flow, streamlining layout and reducing pre-sign-up page count, as validated by user analytics.

UX Designer – VIVO
Summer 2019 | Nanjing, China

- Collaborated with developers and product managers to improve VIVO's video streaming UX, creating transition animations with After Effects and redesigning key controls using new UI elements and gestures.
- Contributed to the redesign of the Funtouch OS browser, providing mockups and design revisions for the homepage layout and tab-switching gestures.

PROJECTS

Rendezvous – Uber Pickup Redesign
June 2021 – August 2021

- Redesigned Uber's event pickup experience through an interactive AR prototype addressing issues like inaccurate locations and long wait times.
- Prototyped features including animated GPS pointers, self-location capabilities, and bad pickup area warnings to improve rider-driver coordination.

Reemerged Soundscapes
December 2020 – June 2021

- Designed a unique experience combining digital and physical interaction to explore the physical identity of sound.
- Developed a wearable device using an Android application and Kotlin, featuring a bespoke 3D printed enclosure mimicking a lanyard. The device could produce unique soundscapes or replace footsteps based on the user's movement, resembling the sound-making ability of a keychain.

SKILLS

UX Prototyping   Interaction Design   Typography Design
Usability Testing   Journey Mapping   Interview/Survey
Visual Illustration   Front-end Development   Photography   Videography
Post-Production Editing

Figma   Sketch   Illustrator   Photoshop   Premiere Pro   After Effects
Davinci Resolve   InDesign   Adobe Suite

Java   Kotlin   Swift   R   SQL   JavaScript   React   HTML   CSS
Chinese   English

BMW Group

Background

BMW, recognizing the critical intersection between digital innovation and sustainability, approached our team for a specialized project. The task was to conduct an exhaustive literature review focused on the integration and impact of digital technologies and services in advancing digital sustainability. This inquiry was not just about understanding current practices but also about envisioning future possibilities where technology could drive sustainable solutions.

Concept
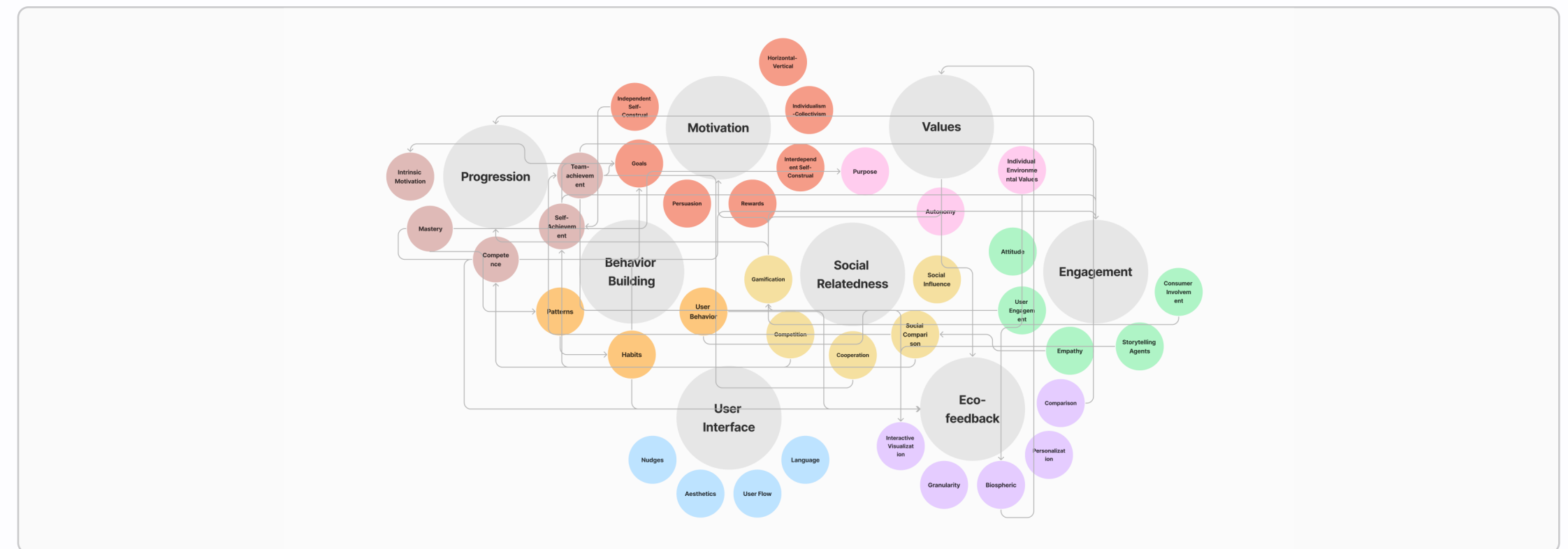
The project for BMW was an integrated effort to define the future of digital sustainability, comprising a literature review that scrutinized 58 academic case studies and industry applications. This review illuminated 8 key topics and 41 concepts, which were then distilled into 19 actionable frameworks. Insights gained were encapsulated in a white paper, providing a synthesized strategy for BMW. A high-level presentation conveyed these findings, sharing them with BMW stakeholders and academia during the Jacobs Institute Showcase. The project's culmination was in the 'Special Topics in Design Innovation' course, where prototypes and visionary concepts were developed, reflecting the extensive research and 28 product examples reviewed. This multifaceted approach provided BMW with a clear path toward harnessing digital technologies for sustainable development.
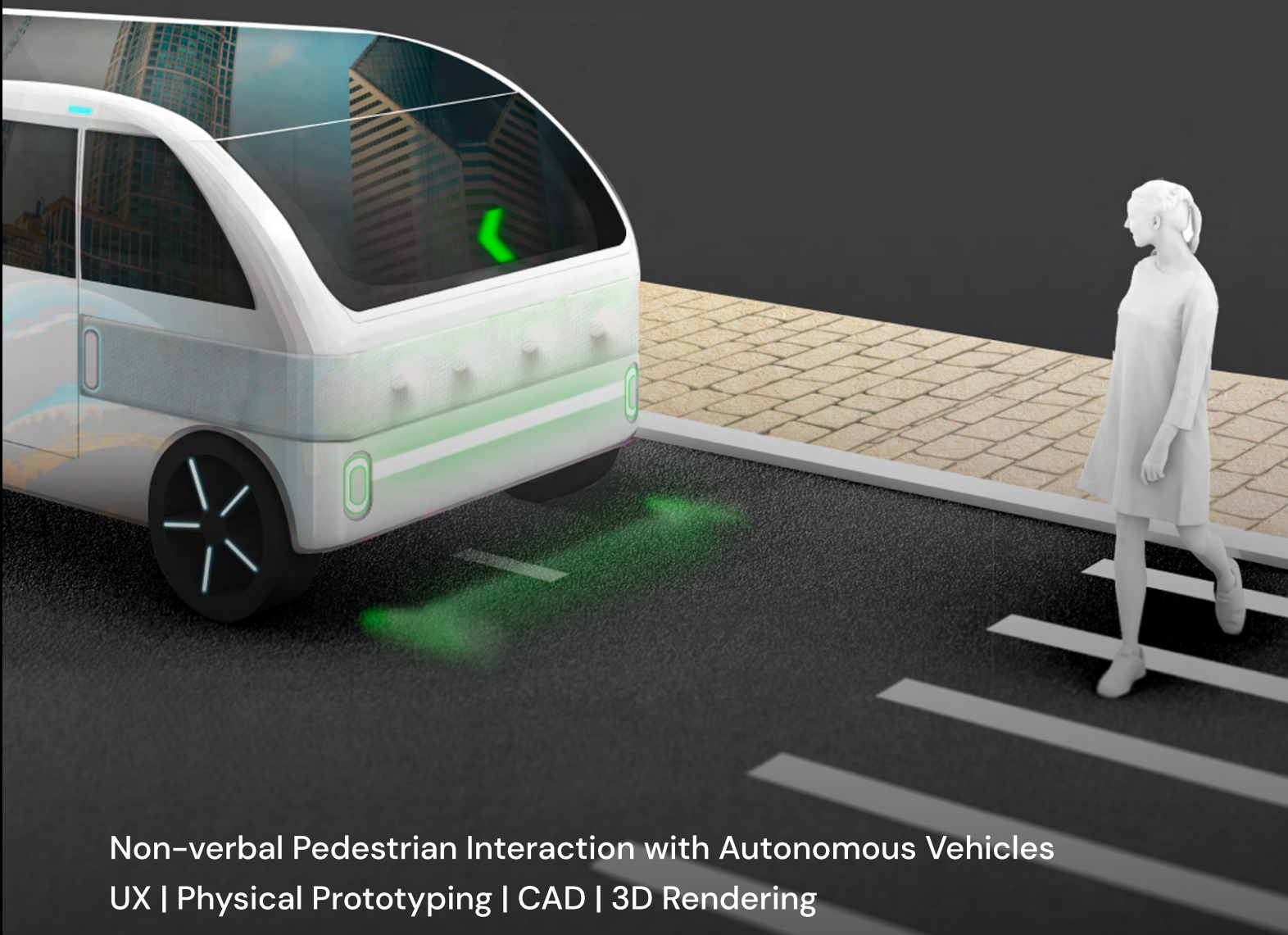
Design Research
Literature Review

Heteng Li, Tomas Garcia, Asbah Wasim, Amber Louie

Kosa Goucher-Lambert, Nicole Goridkov, Benedikt Steiner

Iris Koser, Brian Mok

2023

Carsius

Non-verbal Pedestrian Interaction with Autonomous Vehicles
UX | Physical Prototyping | CAD | 3D Rendering

Heteng Li, Simian He, Anqi Song

Dongho Shin, Jahnavi

2022

Technology Design Foundations

Background
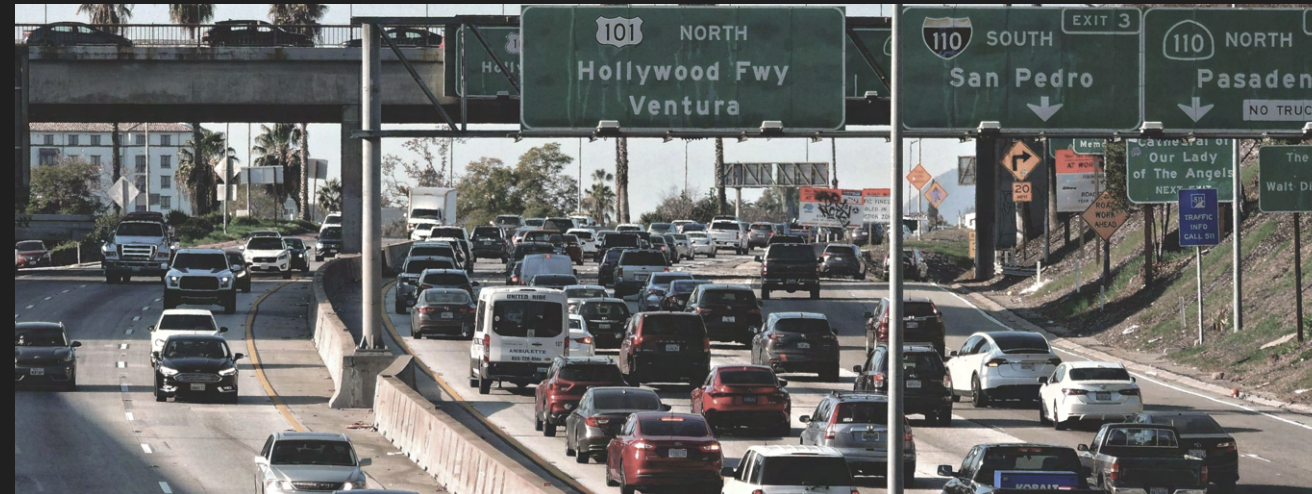
Urban American road environments are predominantly designed with automobiles in mind, often at the expense of pedestrian considerations. This vehicle-centric approach tends to prioritize the safety of drivers over other road users. As automation continues to advance, this imbalance poses a significant challenge: pedestrians might find themselves increasingly constrained, navigating spaces dominated by machines.

Concept

Recognizing this issue, **Carsius aims to explore the future of non-verbal pedestrian interaction with autonomous vehicles.** Our speculative project focuses on fostering clear and effective communication between different road users. By enabling this interaction, Carsius aims to mitigate technophobia and promote active human engagement in a manner that is both actionable and interpretable. We believe that this project will not only enhance pedestrian safety but also contribute to a more harmonious coexistence of humans and automated technology on our roads.

Research

Interviews

Denise Heredia
Previously worked at an autonomous vehicle company

Lee Chaeyeol
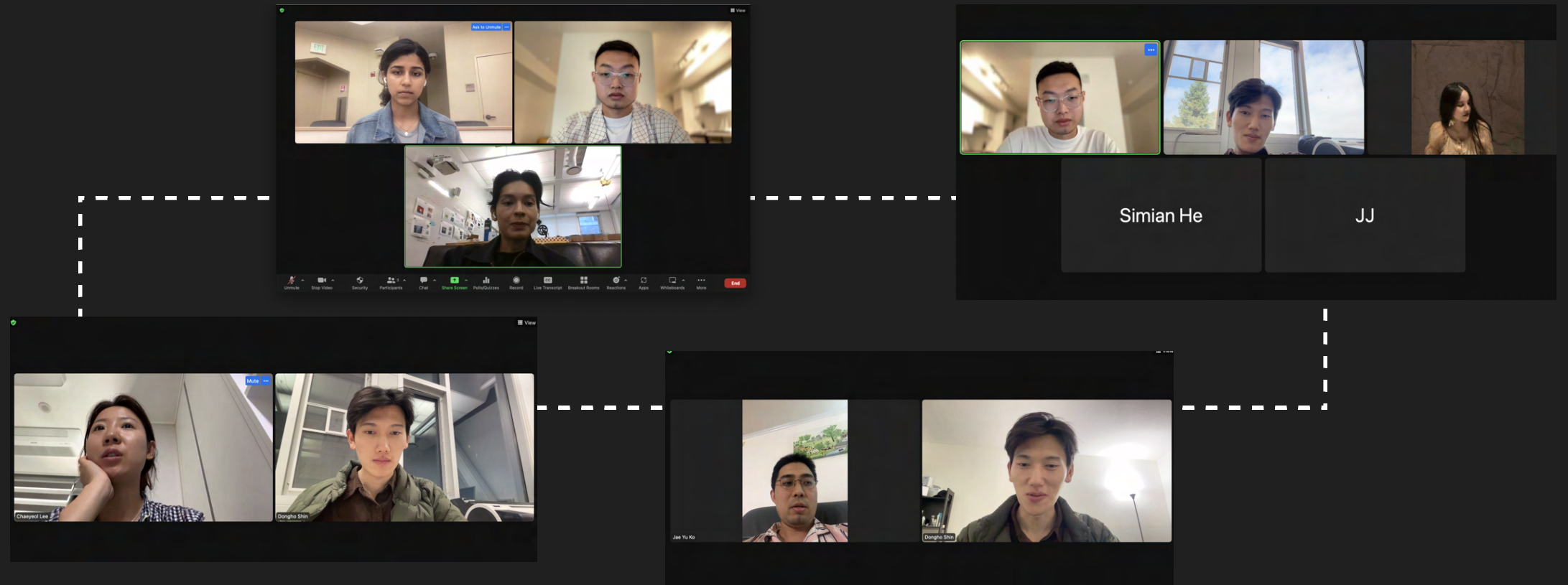Research Engineer, Hyundai

JaeYu Ko
Research Engineer, Hyundai

Carmela Wilkins
Student, Pedestrian

Yani Mai
Car Owner

Insights

Communication Gap
There is a gap in communication protocols between autonomous vehicles and pedestrians, which must be addressed to ensure safety and trust in autonomous vehicle systems.

Social Interaction
The human aspect of social interactions in traffic, such as eye contact and gestures, plays an important role in safety and needs to be integrated into autonomous systems.

Safety and Trust
For people to feel safe and to trust autonomous vehicles, these vehicles must be able to communicate with pedestrians in a universally understood language, perhaps akin to traffic lights.
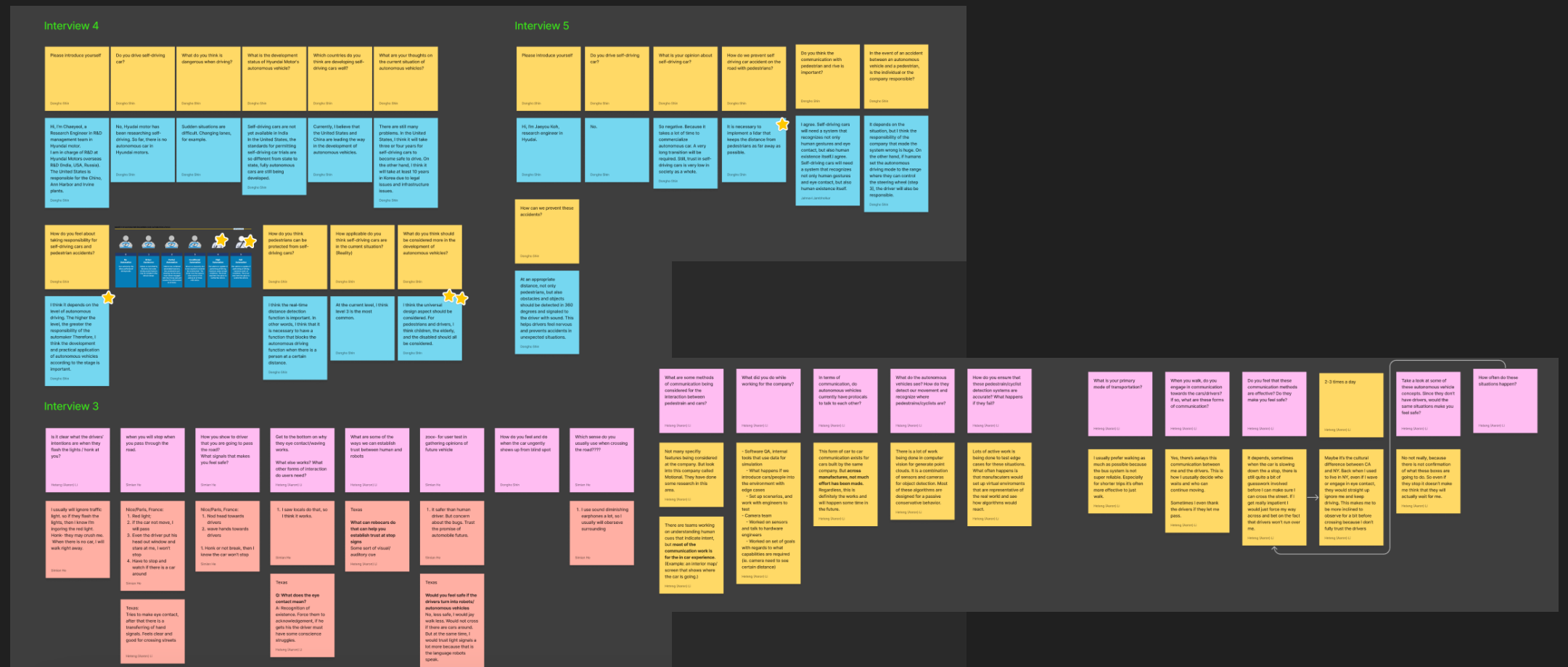
Storyboards

Based on our gathered insights, we developed a set of storyboards to enhance our visualization of the project. The first storyboard depicts the existing paradigm, showcasing how human drivers communicate with pedestrians and other road users through gestures. This is followed by a portrayal of a future scenario, highlighting the challenges where communication between autonomous vehicles and pedestrians is non-existent. Finally, we envision an ideal scenario, where autonomous cars on the streets are capable of interpreting pedestrian behaviors and effectively communicating with them.

Current Paradigm

Gestural Communication Between Drivers and Pedestrians
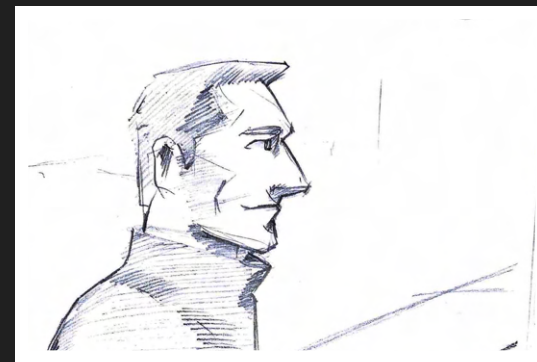
Andy pauses at the curb, ready to cross the street.

Andy looks both ways to ensure the road is clear and cars are yielding.

The driver acknowledges Andy's intention with a nod and a hand gesture, indicating it's safe to cross.
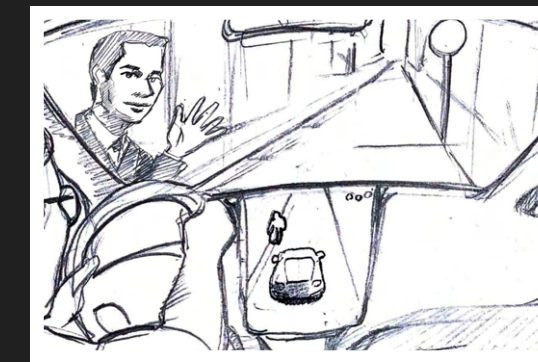
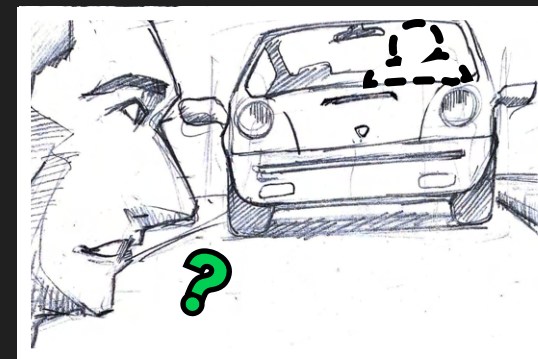The driver signals directly to Andy, confirming they will stop with clear body language.
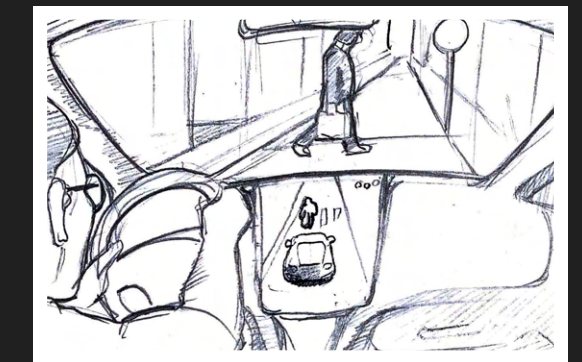
With the driver's assurance, Andy strides across the crosswalk confidently, assured of his safety.
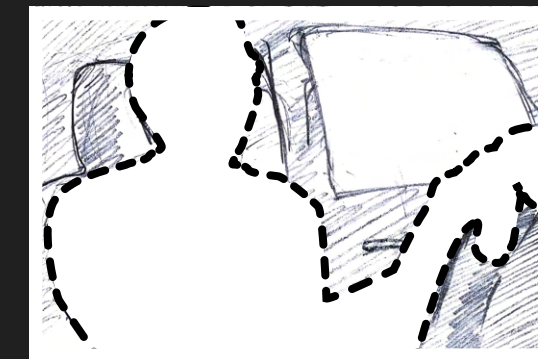
Emerging Challenge

The Disconnect in Autonomous Vehicle-Pedestrian Interaction
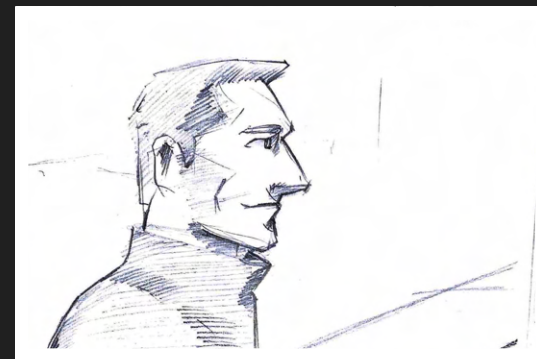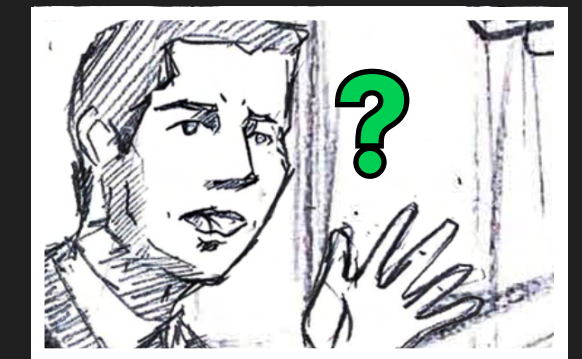
Andy pauses at the curb, ready to cross the street.

Noticing an approaching vehicle, Andy searches for a driver to make eye contact with - but finds none

Confusion sets in as Andy tries to understand how to interact with an autonomous car at the crosswalk.

The absence of a driver leaves Andy uncertain: Will the car stop or continue? His safety is in question.
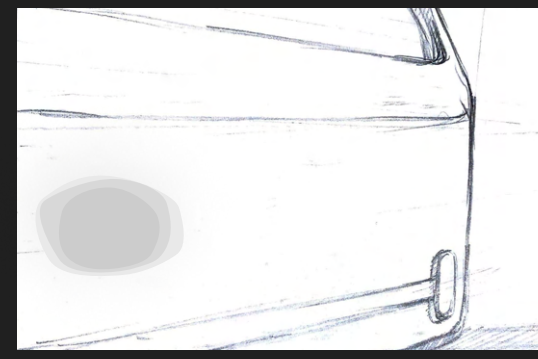
Overwhelmed by the unfamiliar situation, Andy stands frozen, questioning his next move in this new era of transportation.
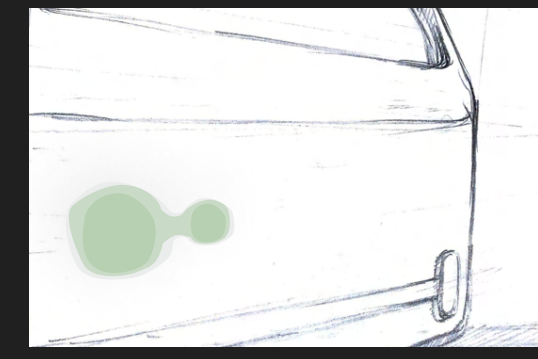
Preferred Future

Enhanced Interpretation and Communication between Autonomous Vehicles and Pedestrians
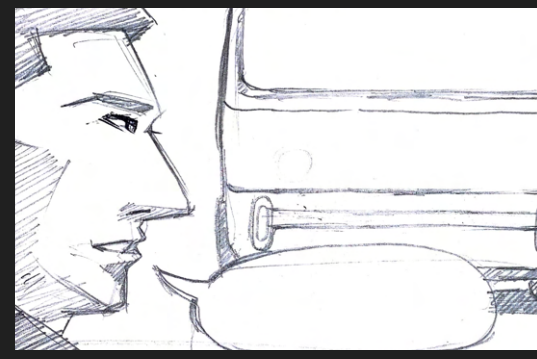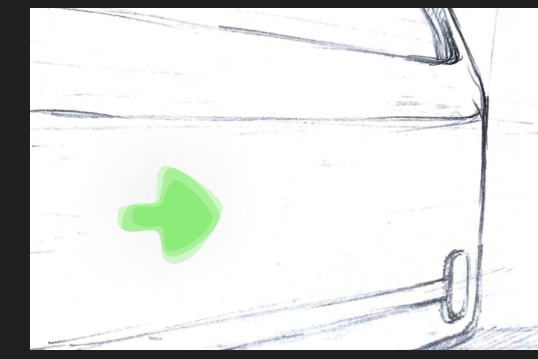
Andy hesitates at the curb, questioning: 'Has the car detected me? Will it yield?' as he faces the autonomous vehicle.
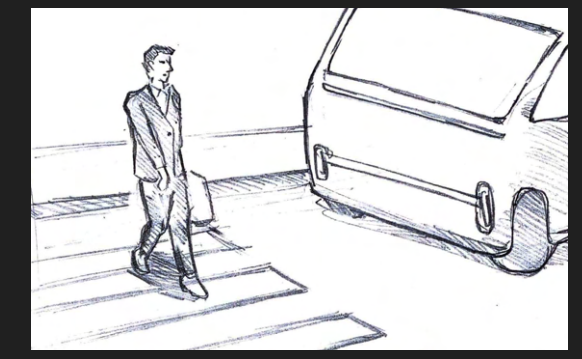
Spotting his reflection on the car's emblem, Andy receives visual confirmation - the vehicle has acknowledged his presence.

Making a gesture to cross, Andy watches the emblem glow green, signaling the car's intent to stop.
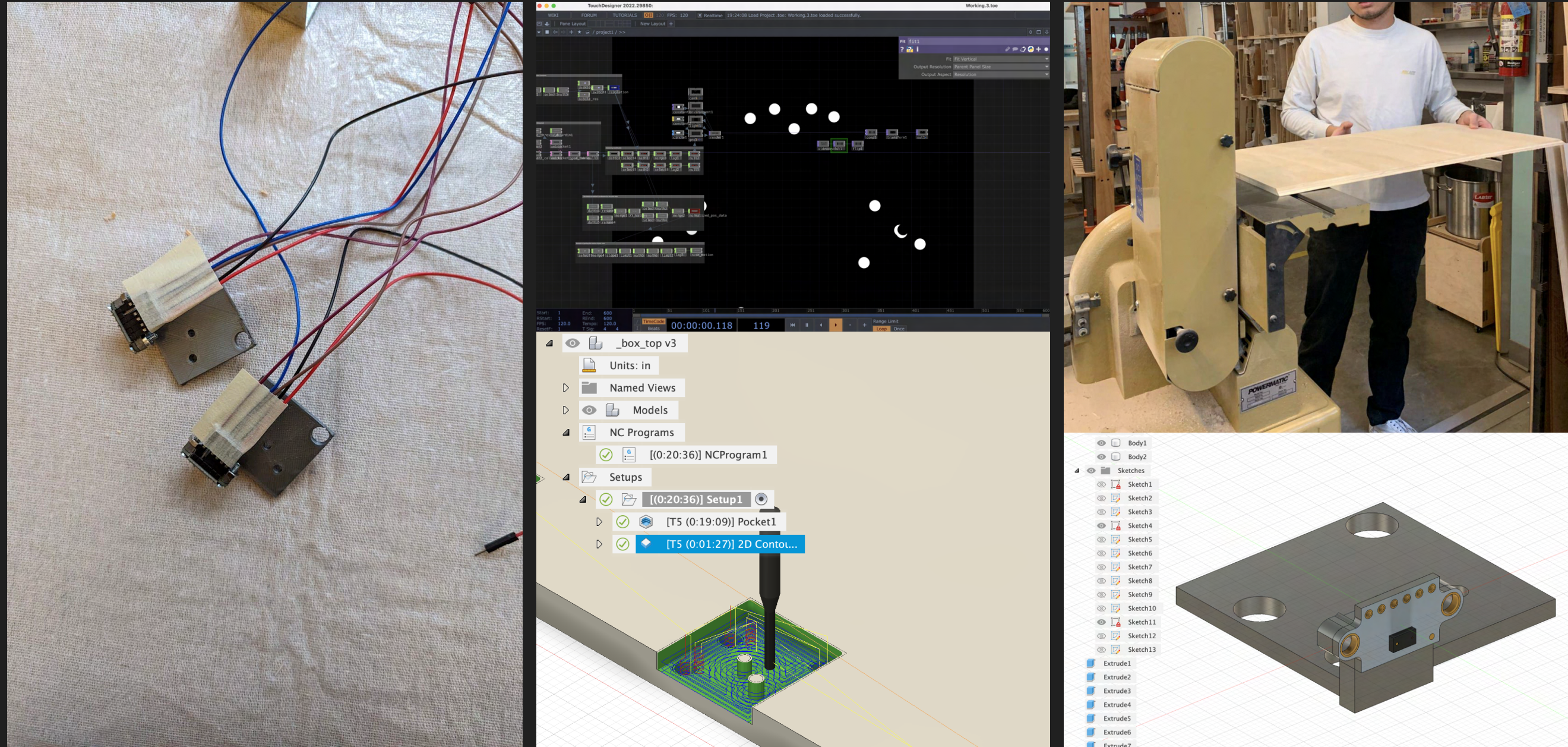
The emblem morphs into a bright green arrow, assuring Andy that the vehicle is waiting for him to pass safely.
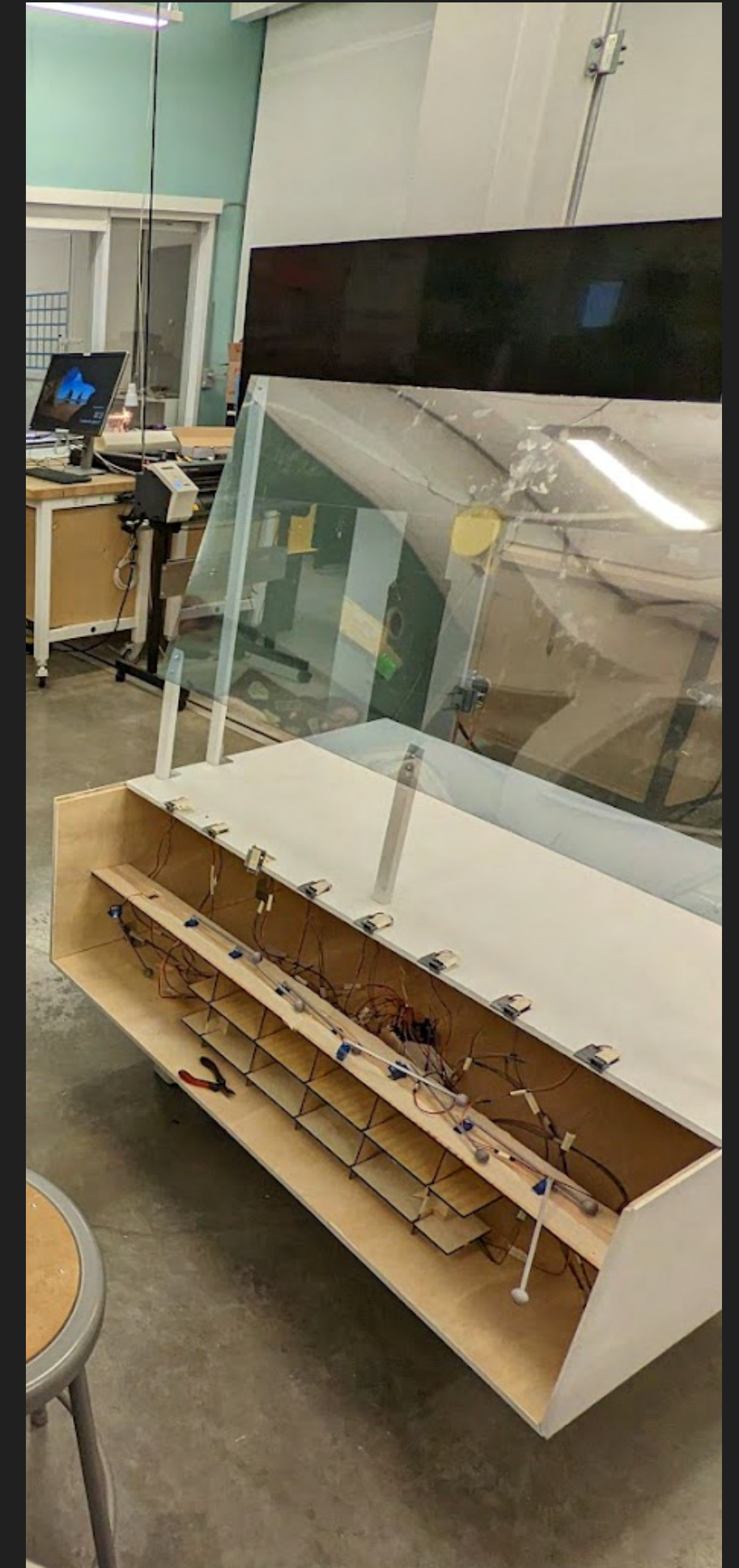
Guided by the responsive Carsius emblem, Andy strides across the road with newfound assurance in the age of autonomous travel.
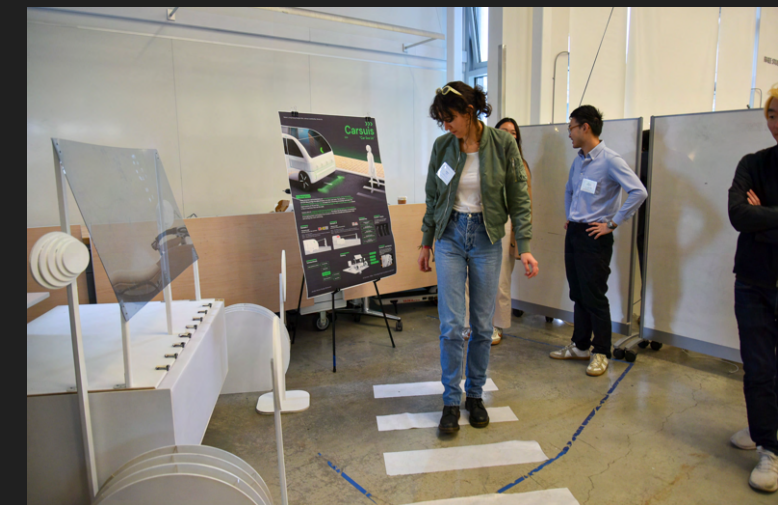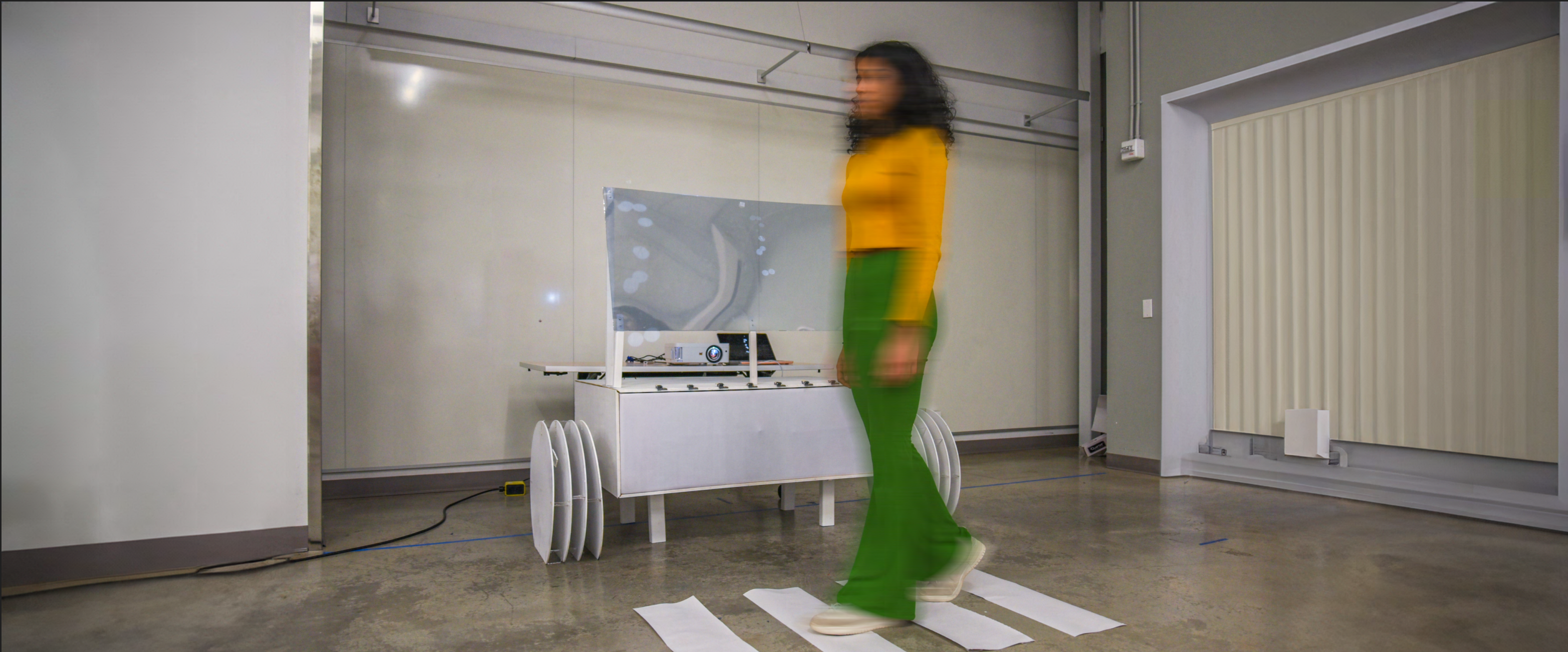
Prototyping

Based on the insights and scenarios gathered, our team embarked on the prototyping phase to construct a lifelike model of Carsius. We began with a detailed design of the wooden frame or chassis using CAD software, which served as the blueprint for construction. This frame was then brought to life through a blend of traditional woodworking techniques and modern CNC machining. To enhance the model's interactivity, we integrated lidar sensors that activate servo motors, creating a responsive and dynamic system. These high-tech components were then carefully concealed under a layer of flexible cloth material, which not only protected the inner workings but also added to the overall tactile experience.

Finally, we employed TouchDesigner along with a computer vision API to create an interactive visualization. This advanced setup allowed for a seamless and intuitive interaction with the model, making the experience of Carsius both immersive and engaging.
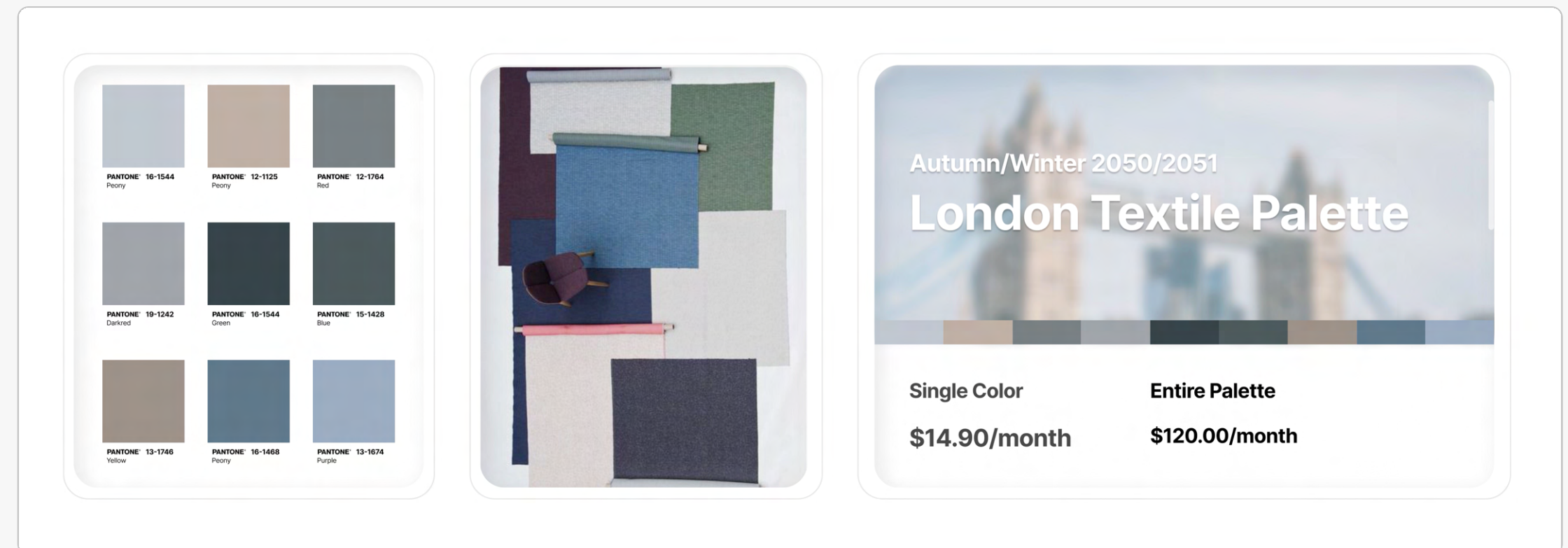
Final Outcome

Monochromatic World

Speculative Design
Video Production & Editing | UX Prototyping | CAD | 3D Rendering

Heteng Li, Haesung Park, Nian Tong, Phyllis Fei

Clover Li, Ashwan Kadam , Carmela Wilkins

2023

Design Frameworks

Background

With the rising public adoption of Extended Reality (XR) technology, it's plausible to anticipate a corresponding increase in control by major technology companies over our sensory perception. This, coupled with the current upsurge in intellectual property licensing and the prevalence of subscription-based services, poses a risk of diminishing individual control over sensory experiences. *Monochromatic World* is a speculative project that delves into this dystopian potential, underscoring the dangers of technology's unchecked influence on the fabric of human experiences.

Concept

The ethos of the project is conveyed through a video, envisioning a dystopian future. Set in 2045, the narrative immerses viewers in a hypothetical world where Pantone™ holds a monopolistic control over color perception. In this reality, people's experiences of color are constrained by subscription-based services, illustrating a world where sensory experiences are commodified and controlled by corporate power.

Research + Ideation

Storyboard

The narrative creation for the project involved extensive storyboarding and meticulous shot planning. The storyline unfolds through a unique advertisement format, seamlessly blending rendered scenes with camera-shot clips. This approach is designed to present the narrative from the perspective of Pantone as the advertiser, while subtly embedding the subtext of a dystopian future. The aim is to evoke a sense of the uncanny valley, prompting viewers to discern the deeper, underlying meaning of the narrative.
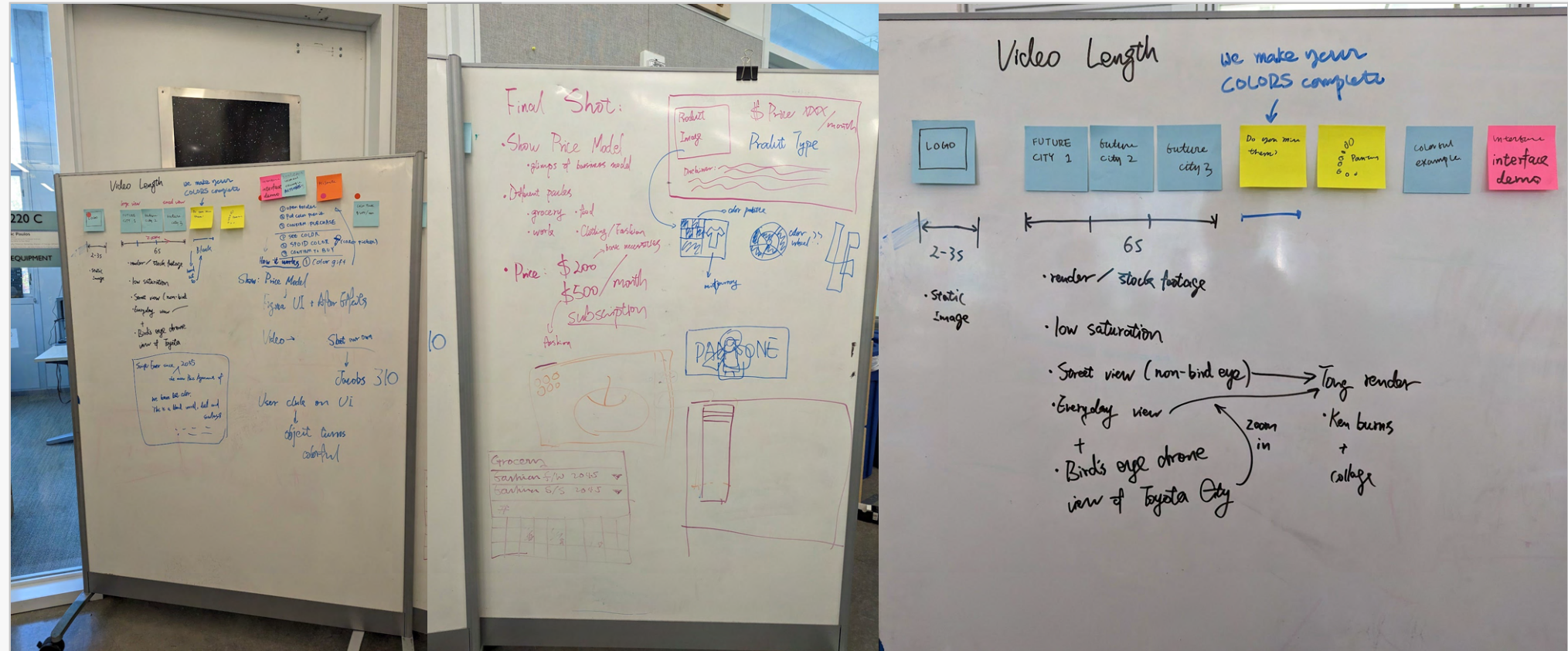
Inspiration

To align the tone and visual language with the script, a thorough research was conducted into the aesthetics of Pantone and the XR industry. This research was pivotal, significantly informing the User Experience (UX) design featured in the video. Additionally, a future cone was developed to pinpoint the speculated future. This approach deviates from the typically imagined preferred scenarios in speculative projects, offering a unique perspective on the potential trajectory of technology and society.

Final Outcome

Synth

SPECULATIVE DESIGN
UX & PLATFORM DESIGN

Project Toolkit

Speculative Design | Platform Design | UX / UI
User Flow | Figma | Interface | LLM

2023, Academic, Speculative Experiments

Haesung Park, Heteng Li

Collaboration Work

Objective
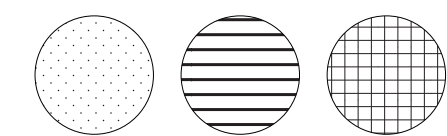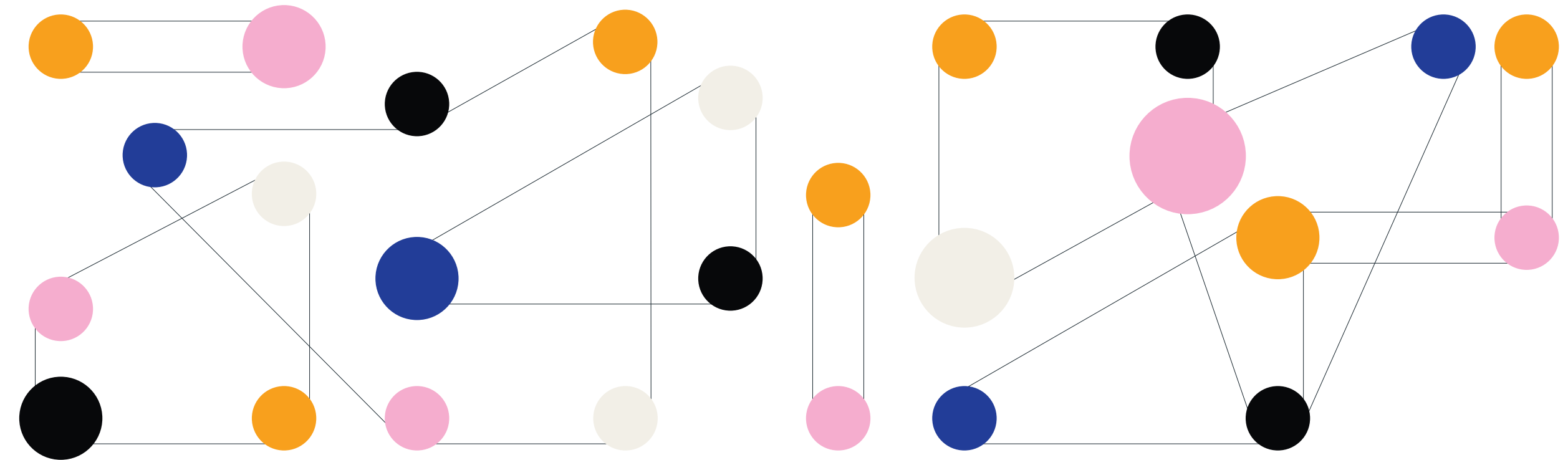
1 think and synthesize

2 discover and retrieve

3 morph and organize

Synth is a place to organize your digital artifacts, texts, images, and everything else. More importantly, it is a place for you to organize your thoughts and generate ideas through the intentional use and co-creation with AI. We believe that this is a better way to mediate your relationship with the digital world and facilitate harmonious relationships with AI.

There is a long lineage of rethinking how information should be organized and how technology can act as an expansion of personal memory. One of the earliest efforts at this originated from As We May Think by Vannevar Bush, which as early as 1945 introduced the concept of computing as "supplement to memory". However, despite

advancements made to personal computing, information technology still fundamentally relies on a hierarchical system abstracted through operating systems, apps, and files. A notable endeavor to break away from this is Apple's Knowledge Navigator, which demonstrated a computer's ability to manage schedules and documents, engage in discussions, and retrieve content based on broad queries. Open-Doc tried to materialize this vision with and App-less, document-centered interface where each file is capable of various functions. Recent years saw a re-emergence of re-thinking digital knowledge spaces, spearheaded by works such as Notion AI, where users can converse with documents to semantically retrieve information, and MercuryOS,
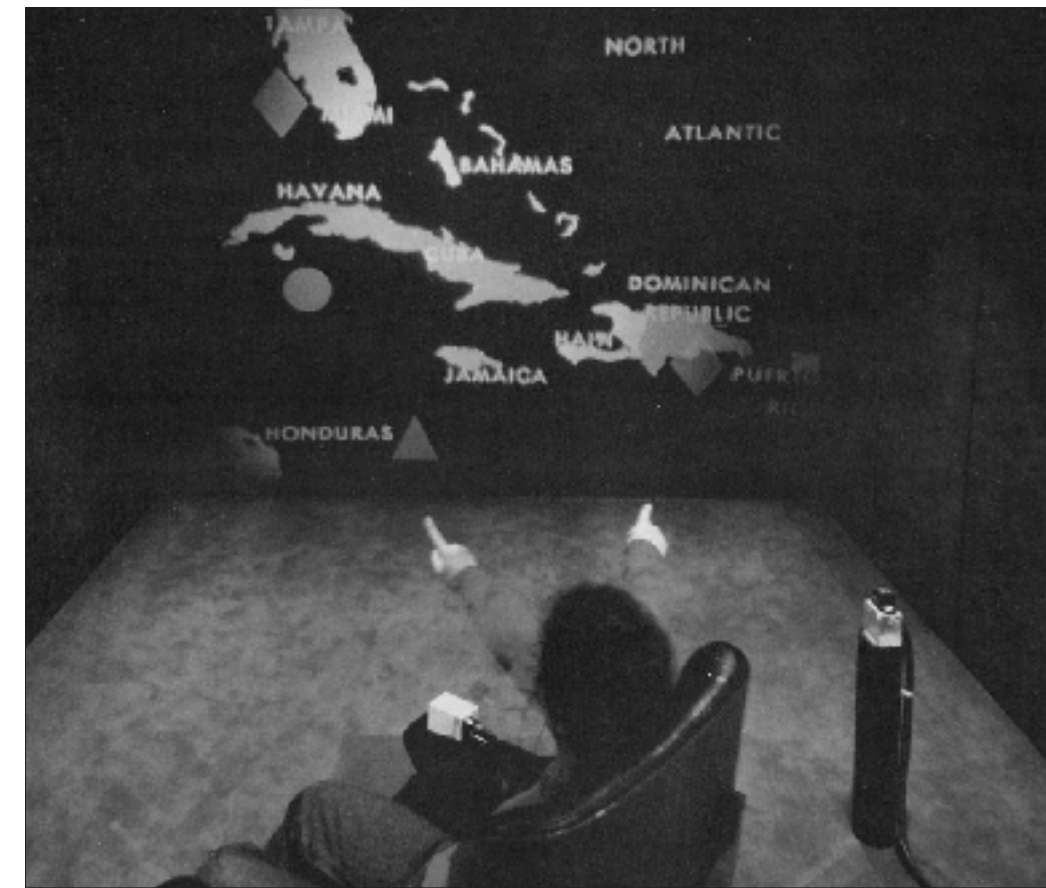
The 1966 ELIZA program pioneered conversational AI by using pattern matching to turn user inputs into open-ended questions, creating an illusion of understanding.

MIT's 1980s Put-that-there pioneered conversational interfaces with semantic speech and gesture understanding to manipulate UIs.

Apple's 1987 concept of an AI assistant conversing naturally with a professor to help with tasks like scheduling and document retrieval pioneered ideas for semantic human-computer interaction.

BARD AI
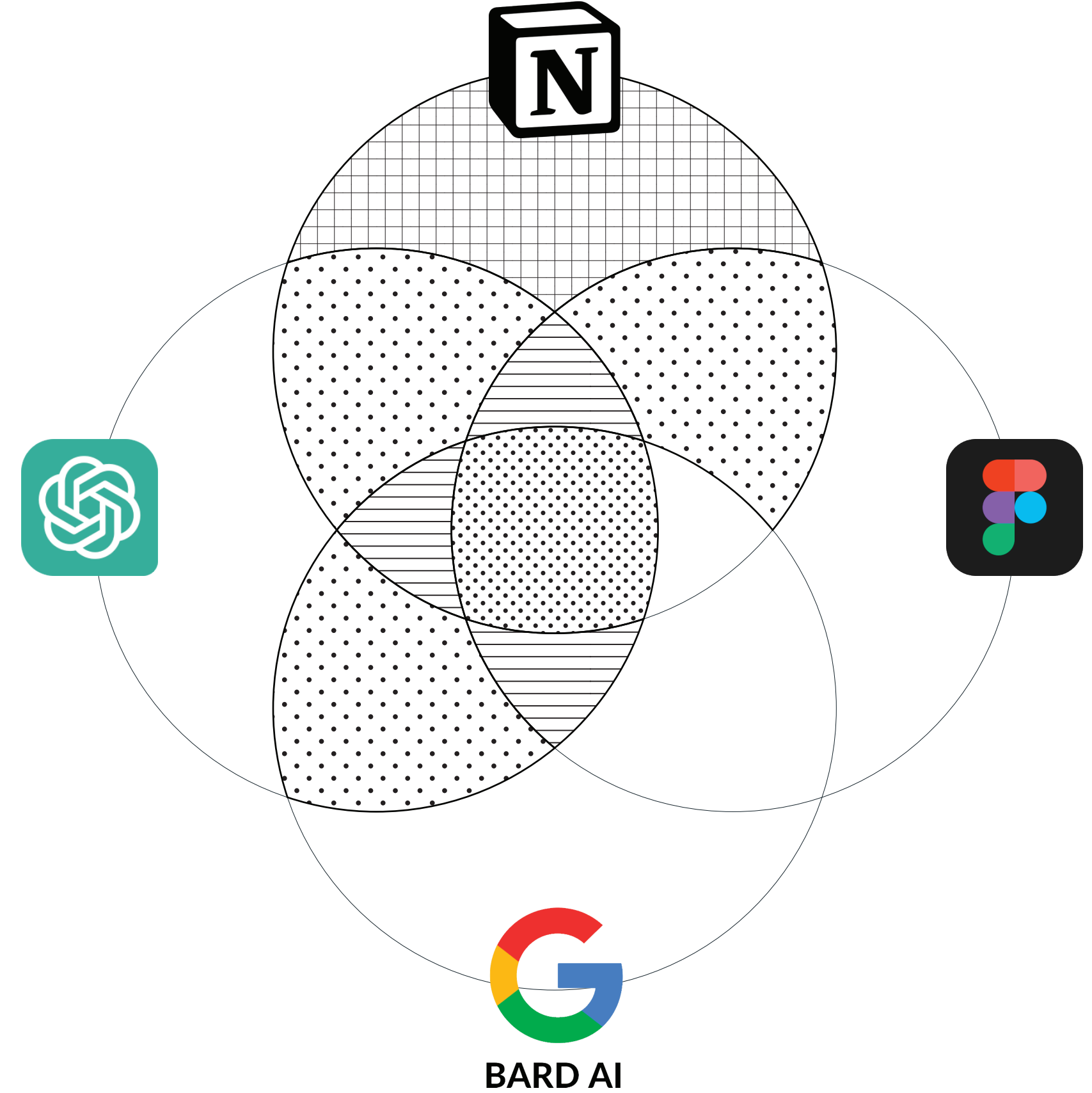
a UX concept where user flows are not bounded by which applications are open, but the usage contexts. We believe that with the democratization of access to AI, specifically LLMs and RAG (retrieval-augmented generation), opens the opportunity to streamline the workflows mentioned. This is why we propose a new form of digital workspace, an LLM powered knowledge base that helps you organize your thoughts and synthesize ideas, where archival, search, and co-creation come together as one singular platform.

AVOID

Progress Tracking

Enterprise Focused (like Jira)

GUIDE

USER INTENT

INSTANCE "retention" "resumption"

RESPONSIVE "collaborative"

INTUITIVE INTERFACE

Writing Center by LLM

INSERT

Writing Tool

In Line Editing

The Quick Brown
1. insert ...
2. add supporting
3. add assumption

?

Prompt Assistant

SPECULATIVE & FUTURE DIRECTION

LLM defining terms & picking up nuances

"work" could be
1/ house chores
2/ school
3/ job
depending on the user context

AI being sentimental or picking up on emotions

in person collaboration
/body language
/tone of voice
/gestures
/social or visual cues

COLLABORATION

Collaboration is SHARING IDEAS RECEIVING/GIVING FEEDBACK

IDEA SHARING

How to design a to tool that's better at PROVIDING FEEDBACK?

Vertical and Horizontal Thinking

Figma: Not bounded by space or a pre-defined grid. Encourages Vertical and Horizontal thinking.

BEYOND
text based interface

INTUITIVE USE

Contextual drop down menu or options

Google doc
Colors
Editing History
** why common denominator??

like recycling bins, High AFFORDANCE

UX STRUCTURE

SEARCH BAR

Ideate

work

personal

Organic Growth
(Time, Chronolo, FREQUENCY)

Organic Growth

none-linear jump sidebar

Thought Manager

Indexing like table of contents

>> In case of "infinate scroll"

photo apps "2 years ago today"

Search [Category?] Like Apple Photo

To Do

work

personal

Supporting Multi-media File Types

CANVAS

mix

Organic arrangement "DYNAMIC FILTER "

Elements of Indexing Contents

Synth

ALIGNMNET

VALIDATION

Explore supporting arguments?

bridge

biology

computer science

Click on a word for definition/reference

Word

A   B

remix

C

IDEA 1

+ reason/ connect

IDEA 2

you start a conversation, with AI to flush out an idea

REASONING/ SYNTHESIZE

DISAGREE MENT

LOGIC SEQUENCE

CONCEPT

if

else

PERSPECTIVE FEEDBACK

"A Lawyer would read it as ..."

Affinity Mapping

In our quest to comprehensively understand the features and functionalities we envisioned for Synth, we embarked on an affinity mapping process. This approach was not just a mere exercise in organization, but it materialized into a pivotal aspect of our project's development. Through affinity mapping, we were able to visually group and categorize our ideas, thoughts, and expectations for Synth. This methodical arrangement of concepts allowed us to identify patterns and relationships between different features, leading to more coherent and user-focused design decisions. As a result, the affinity mapping became a guiding element, influencing every stage of the project and ensuring that the development of Synth was in perfect alignment with our initial vision and the overarching objectives we set out to achieve.
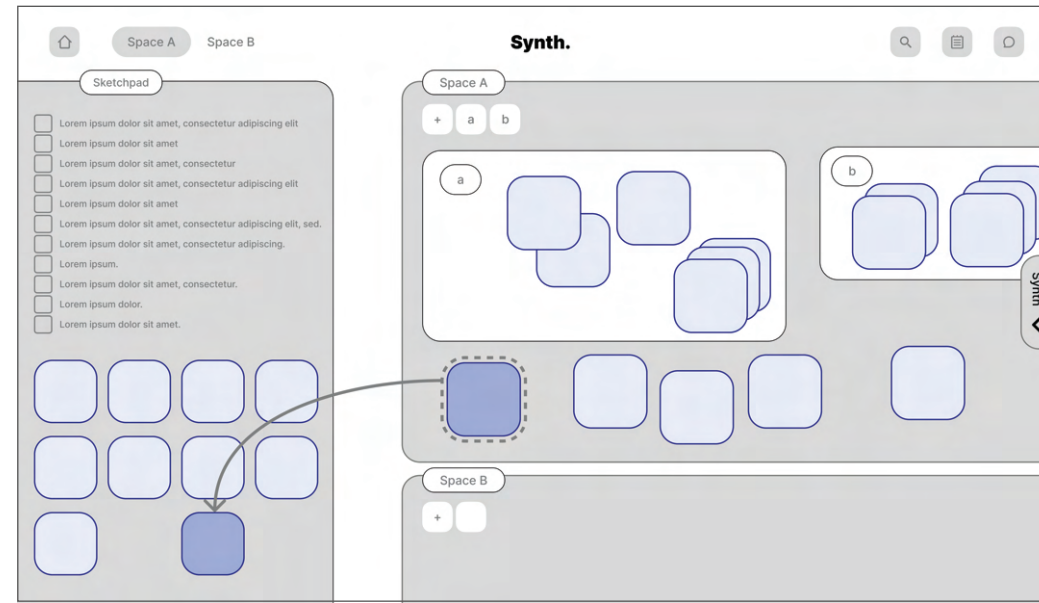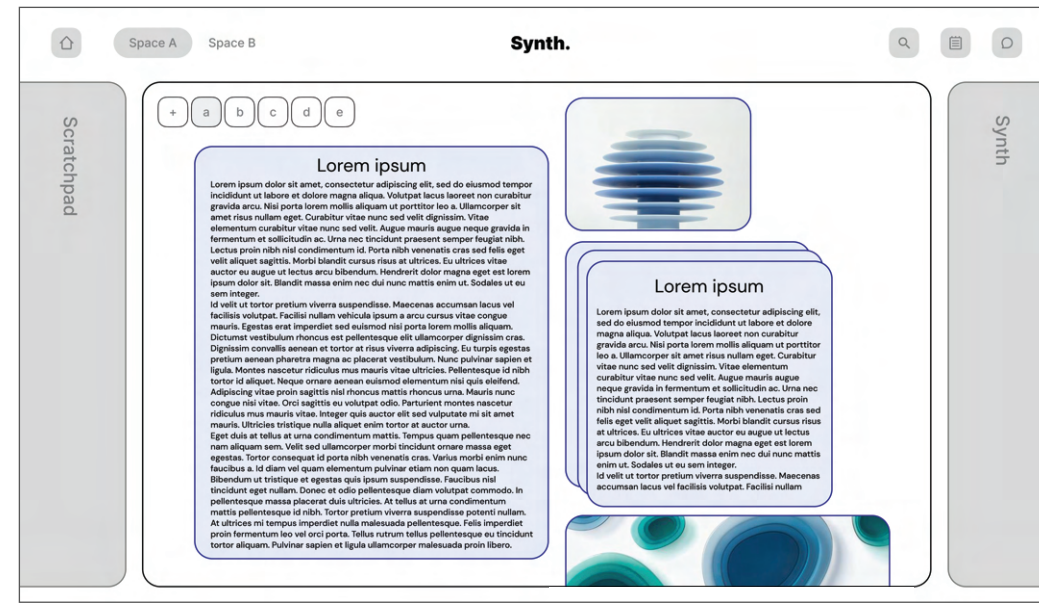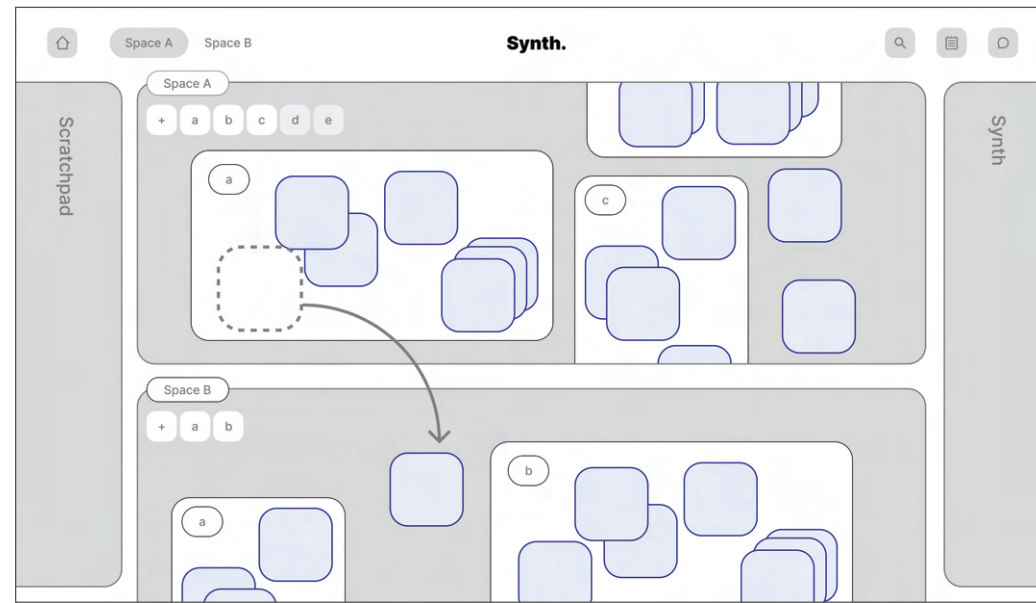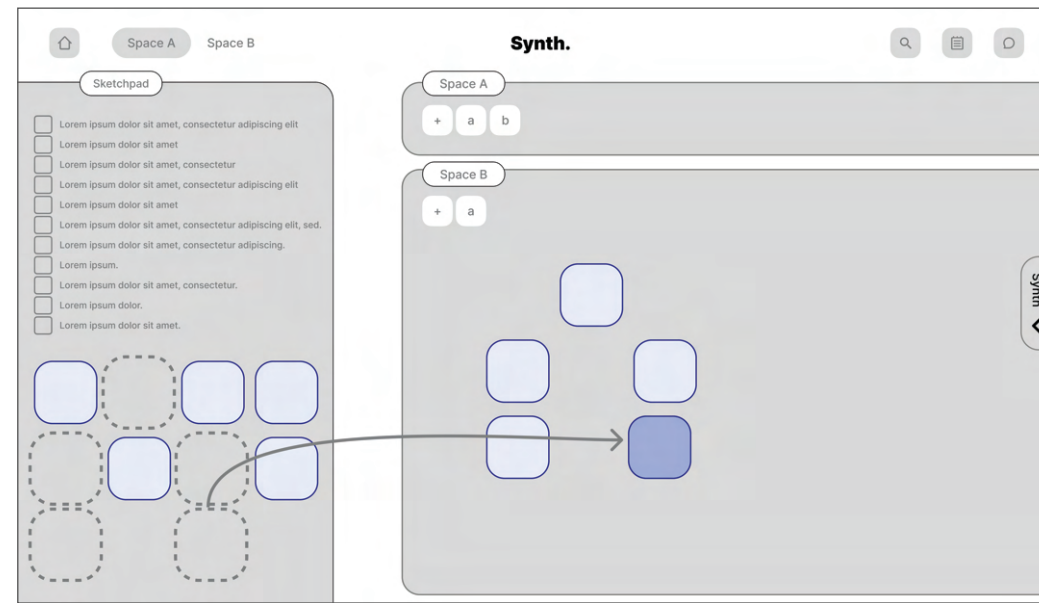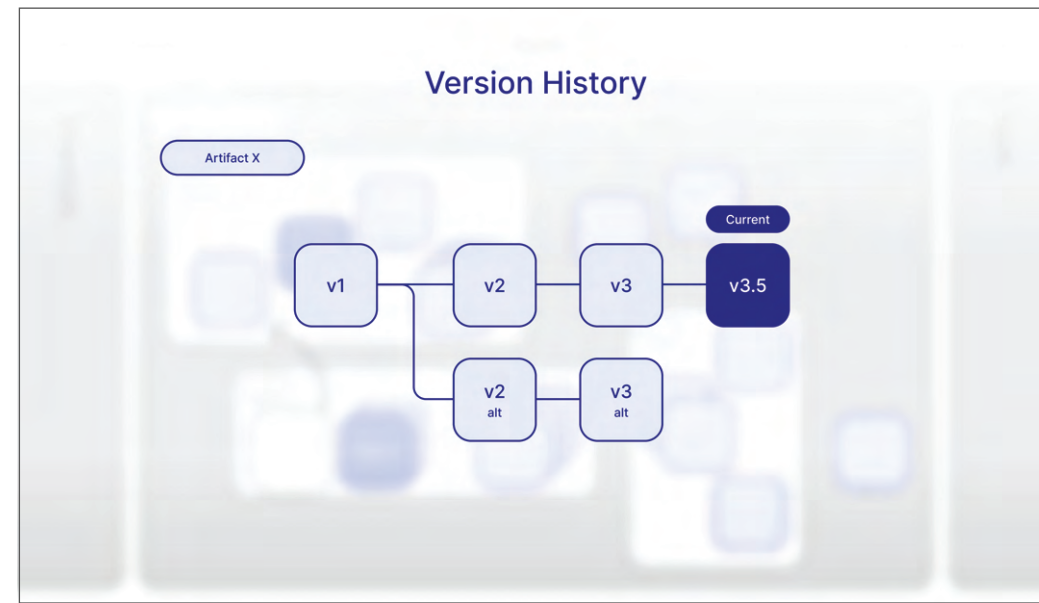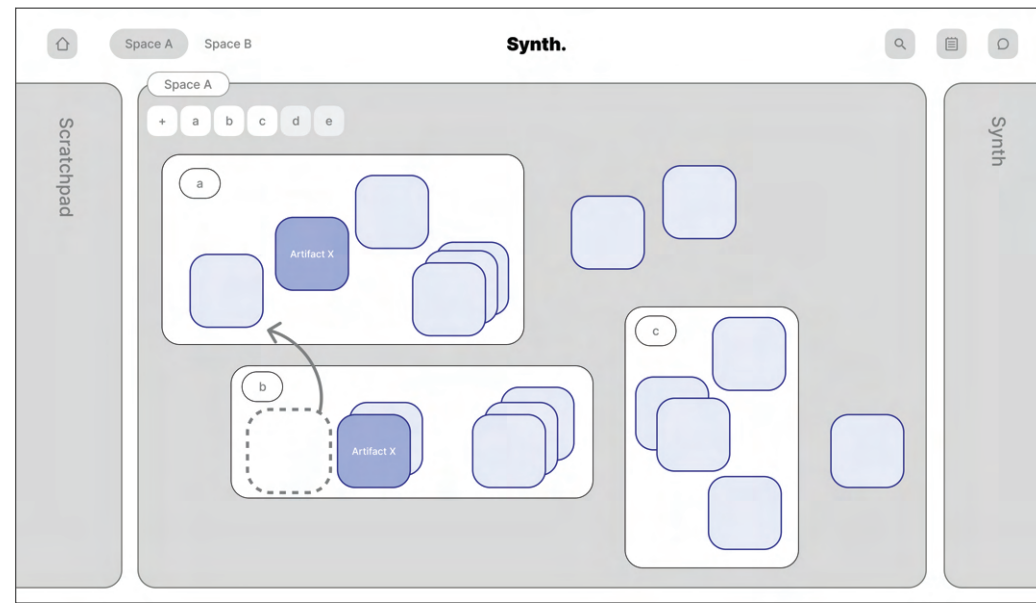
Spaces

Synth Spaces are flexible digital canvases for organizing ideas and artifacts not in rigid hierarchies but through spatial arrangements that reflect evolving mental models, facilitating thinking through user-defined thematic groupings, semantic synthesis of contents, and fluid redevelopment of conceptual connections between imported texts, files, images and other media.

Artifacts

Unlike traditional files trapped in fixed paths, Synth Artifacts maintain a singular origin identity across Spaces' fluid organizations, embodying ideas that can exist in multiple conceptual arrangements without fragmentation. Auto-saving and visual version control replace duplicated copies so users no longer struggle to locate the right file version. This consolidation centers digital workspace around evolving mental models rather than rigid hierarchies.

Scratchpad

Synth's Scratchpad is a temporary vertical thought space allowing quick, effortless capture of unorganized ideas that mediates between mental buffer and structured Spaces, imposing 24-hour artifact limits to prevent hoarding and maintain its working memory-like purpose.
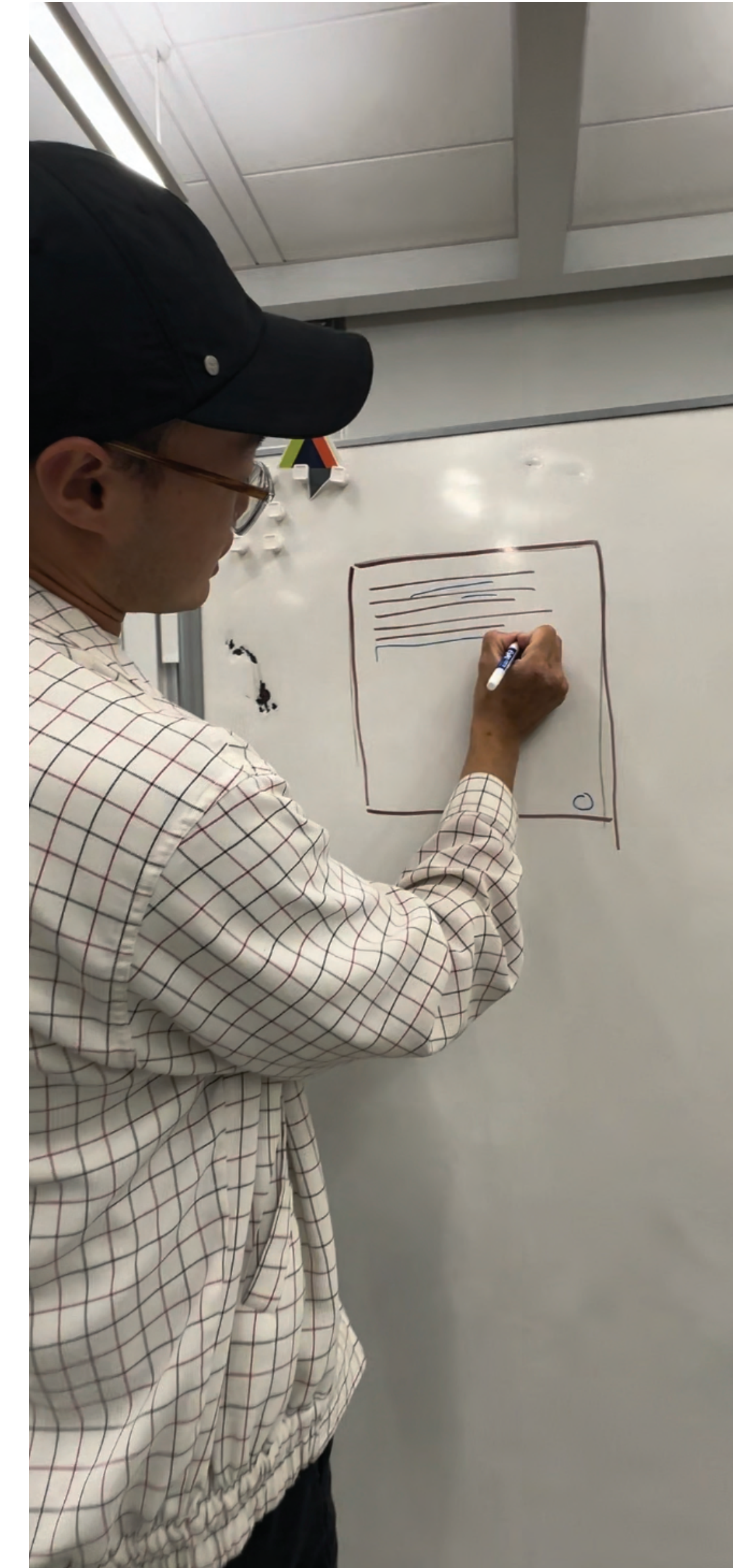
Visual Reasoning

LLMs can act as powerful reasoning tools for brainstorming and ideation. However, prompt-based interfaces constrain their potential. We propose Visual Reasoning as a radical rethink of how to utilize their reasoning potential. As illustrated, users can drag Artifacts around in a Space to explore logical relationships such as causality, conditionality, equivalence, and contradictions between Artifacts. In this mode, users can select Artifacts and invite Synth to suggest possible logical relationships or input manually and ask Synth to generate further artifacts based on the conditions given. An advantage of this design is the multi-modality of inputs. Unlike input-boxes that support rich mediums, images, textual content, visual content, and all other mediums alike are more clearly denoted in Visual Reasoning and play an equal role in the reasoning process. Each Artifact acts like a node in a sequence of logical operators to generate new content. This allows for quick re-arrangements of information involved in the reasoning process and presents strong visual feedback to the user.