Attuning
the Viewfinder

Ian de Silva

ATTUNING THE VIEWFINDER

A thesis presented in partial fulfillment of the requirements for the degree Master of Industrial Design in the Department of Industrial Design of the Rhode Island School of Design, Providence, Rhode Island.

by

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2022

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Abstract

As there are many mobile apps designed to pull your attention, these interactions have become a kind of <mark>normalized addictiveness</mark>, such as doom scrolling.

I am working on the topic of attention and a meditation app using augmented reality because I want to understand how this technology can be useful from beyond the screen and into a physical space.

Doom Scrolling
The practice of obsessively checking online news for updates, especially on social media feeds (Random House, 2022).

INTRO ESSAY: FOCUSING THE VIEWFINDER
—

I remember seeing portable cameras with the "K" logo on there and thinking how cool it is to have the founder of Kodak, George Eastman, used to live less than a 10 minute drive from my house. For me, it's strange to think that the person who invented amateur cameras was synonymous with Rochester, NY.

I used to love taking photos. I remember the manual winding of the film, that clunk noise when you take a photo, and the charging hum sound from the built in strobe.

Kodak went out of business because the need for film is rare. Any photo capturing device can be done digitally. These photo capturing devices, as you know, can fit in your pocket, in your bag and sense, adjust for lighting, capture fluid video, compose short films, share said content on the internet to millions of people and also function as a flatbed scanner. At its core, the amateur camera, now fused to a phone, is ubiquitous. Where a camera is now and where it is headed is an exciting to me.

Around the time cameras became digitized, usable and affordable, I moved to Coventry, England. I can easily remember the camera I own, as it is a marker for what I am doing in the moment.

The digital cameras I brought with me was small, and

mobile phones were even smaller. The digital camera also existed on my phone, which was a Sony Ericsson. It didn't take great photos, but they were good enough to capture the gist of a moment when you were in a pinch. Back then, I owned a Pentax camera that was too big to fit in my pocket and it required constant charging.

The Pentax was a little bigger than a deck of cards. The outside was plated in a matte gray finish with chrome accents between all the mechanical switches to rotate between photo modes. I remember the video quality being so awful, the audio was like the equivalent of listening to music through a tin can. The impression or memory was this Pentax was that it was significantly smaller than my first Kodak camera, didn't use film and could do much more. It made me realize how technology was changing by making any and all kinds of devices smaller.

At that moment, all companies were trying to get ahead. Being first is what matters, businesses are always going to worry about profit margins and find creative ways to sell merchandise. It was very clear the smaller, the more compact, the better. Now that Apple prides themselves on having superior camera sensors (which they bought the patents from Kodak by the way), and as AR is trending, I am thinking about how the camera will evolve.

My influence from Kodak and cameras might be the reason why I've selected AR as my central thesis topic. The relationship between humans and cameras has changed so much. My work combines augmented reality and the metaphorical viewfinder as a route for exploration.

Figure 1.0
Kodak Camera 35 KB-20. My first point and shoot camera from tche 1990s.

EXTEND

ADD
TO MY BAG

LOOK UP
FRUIT & VEG

KEY
BARCODE PLU

SELF-CHECKOUT

FINISH & PAY

CANCEL
ITEMS

HELP

Pick this up!
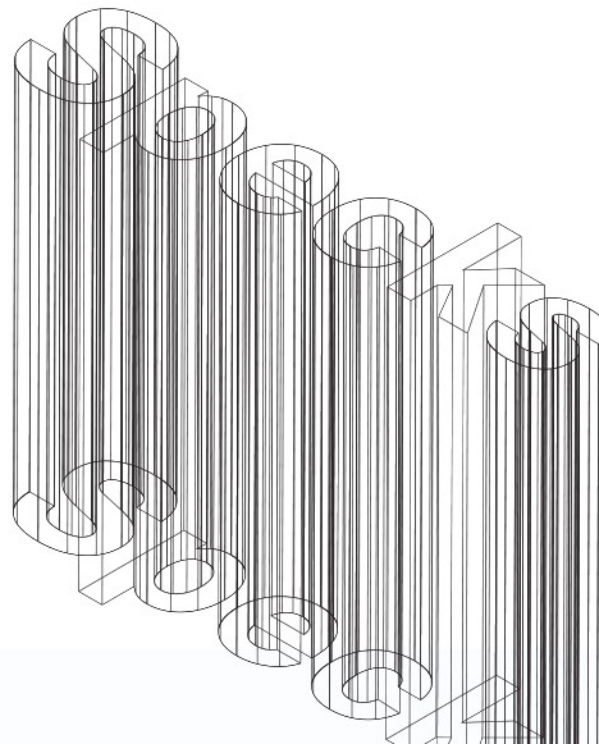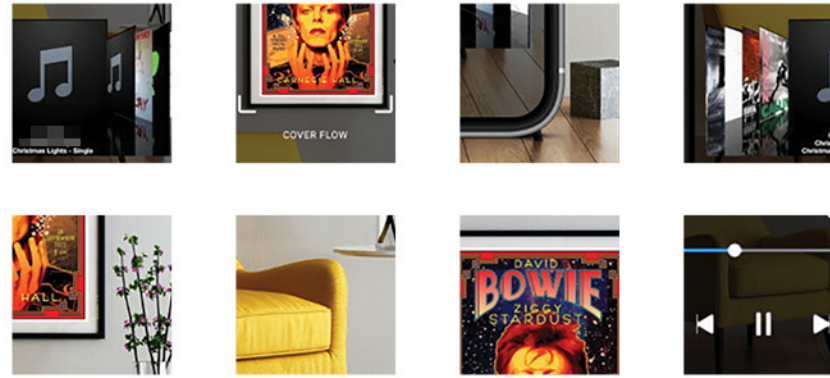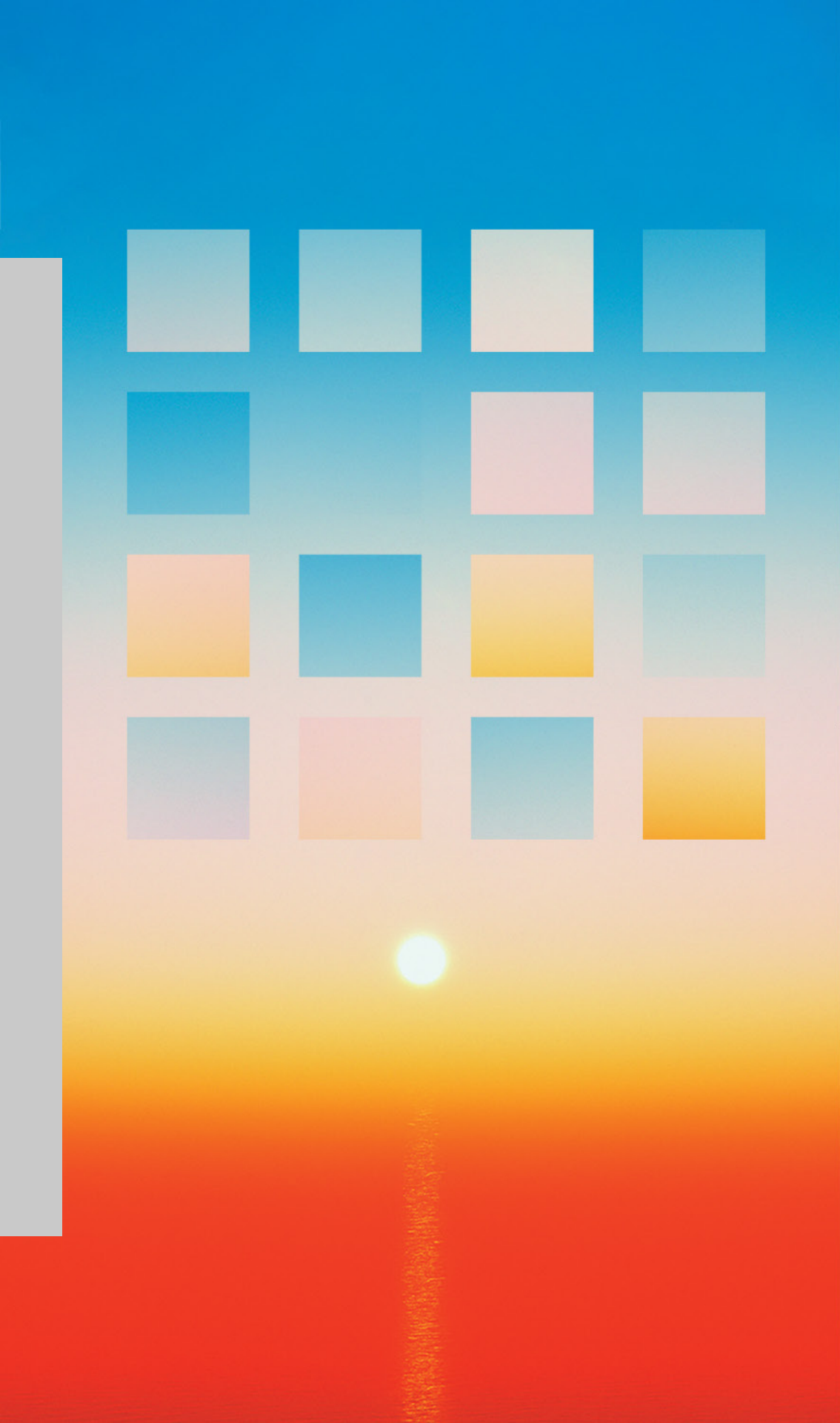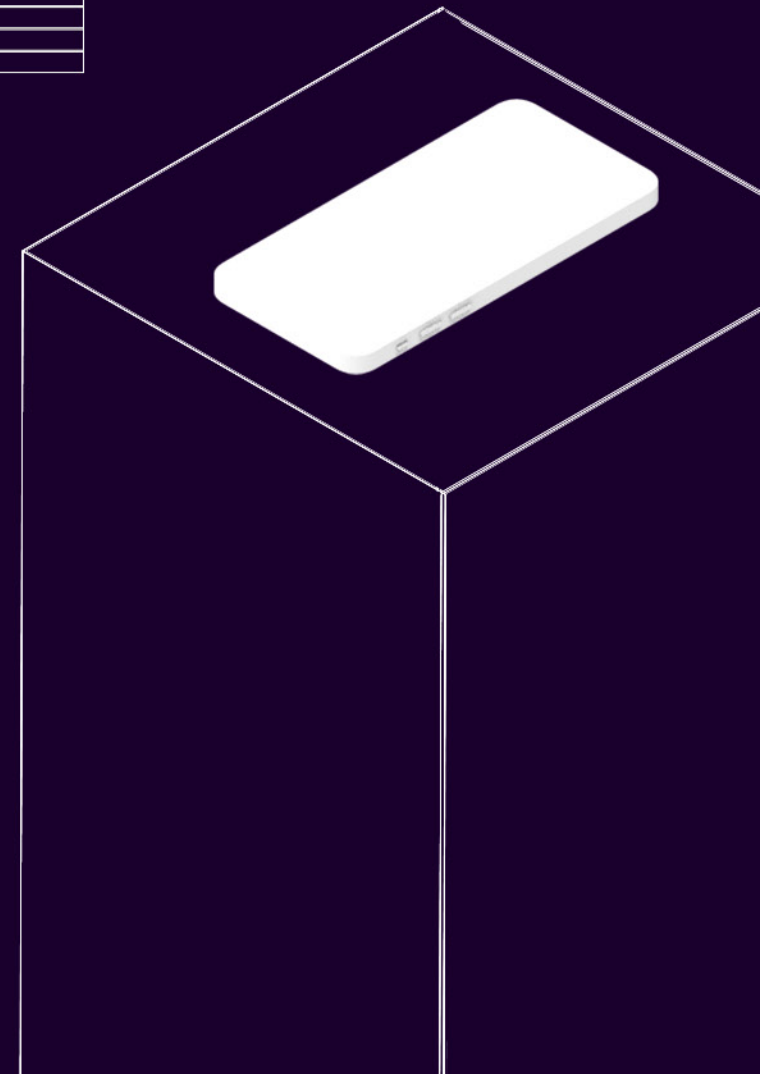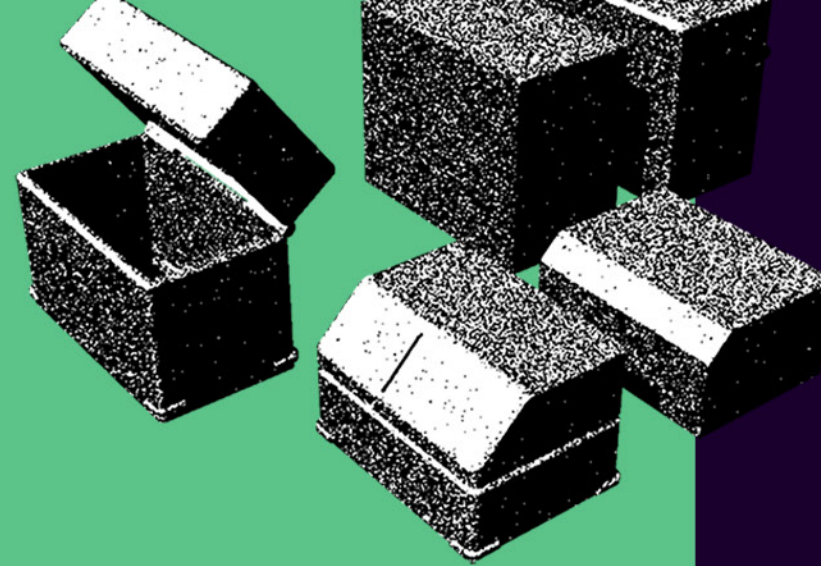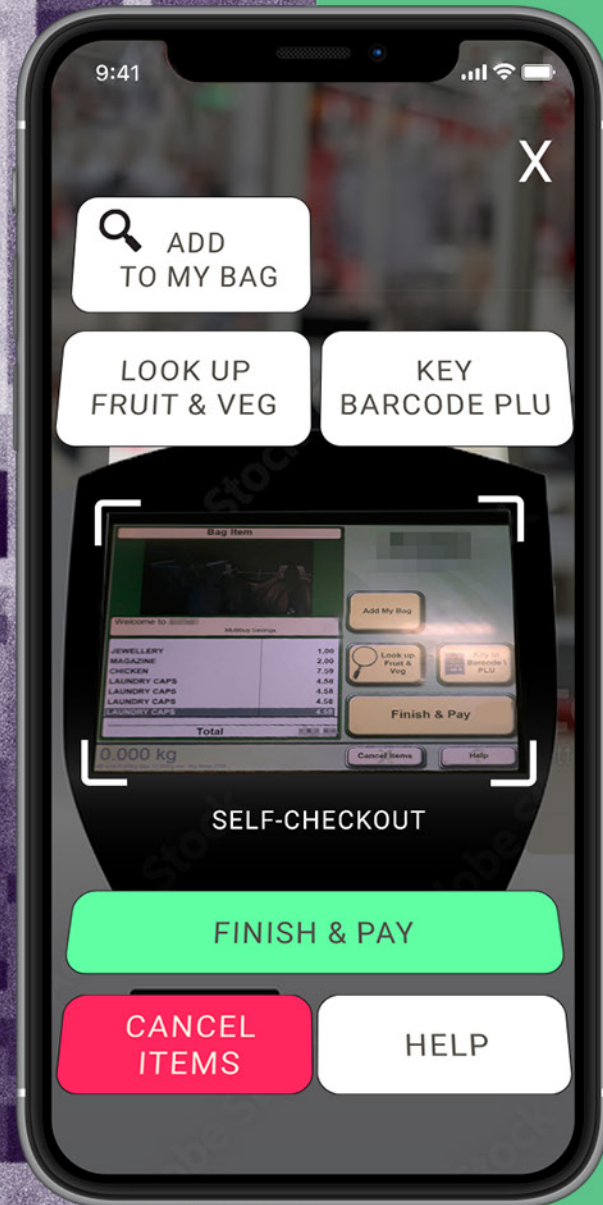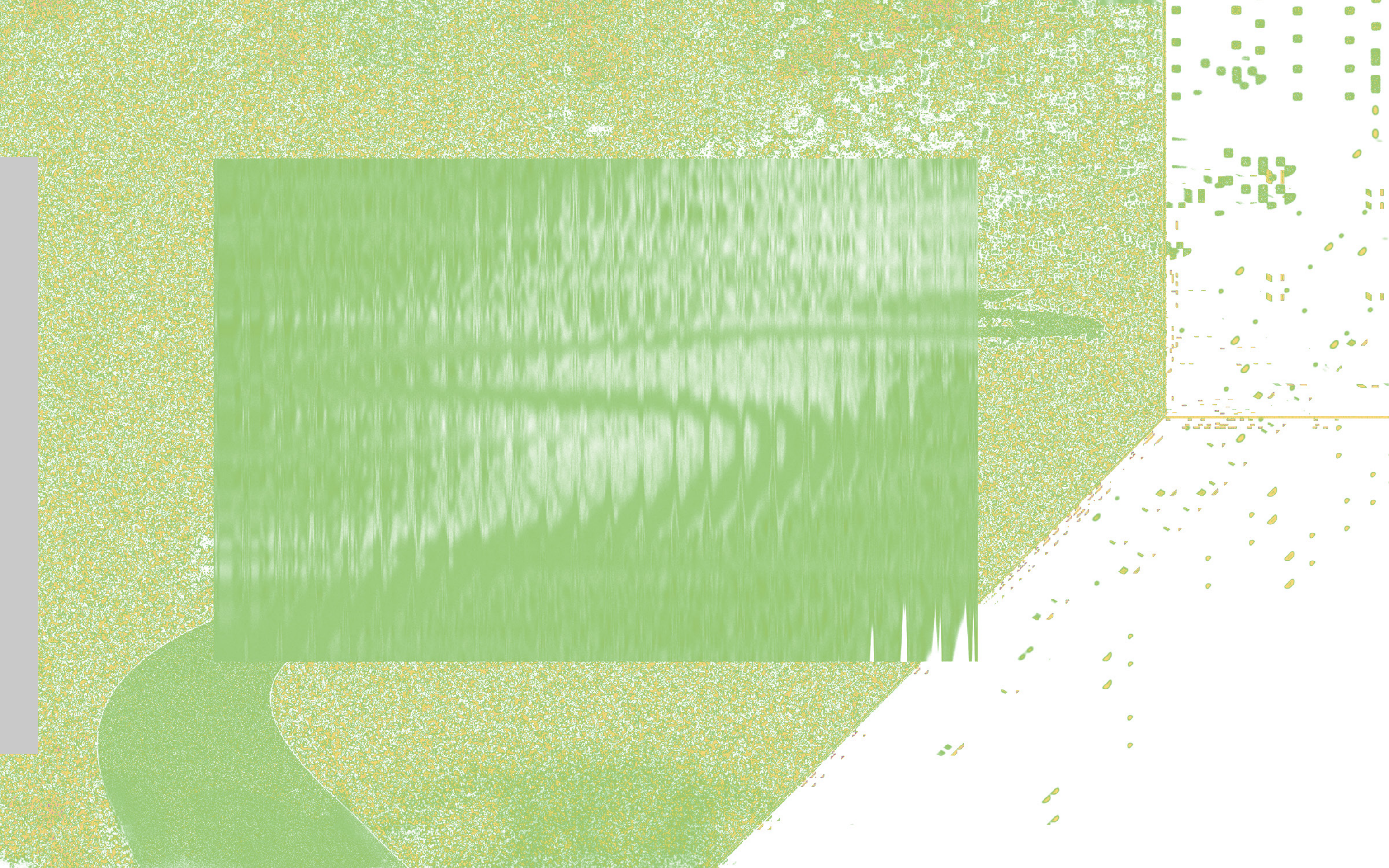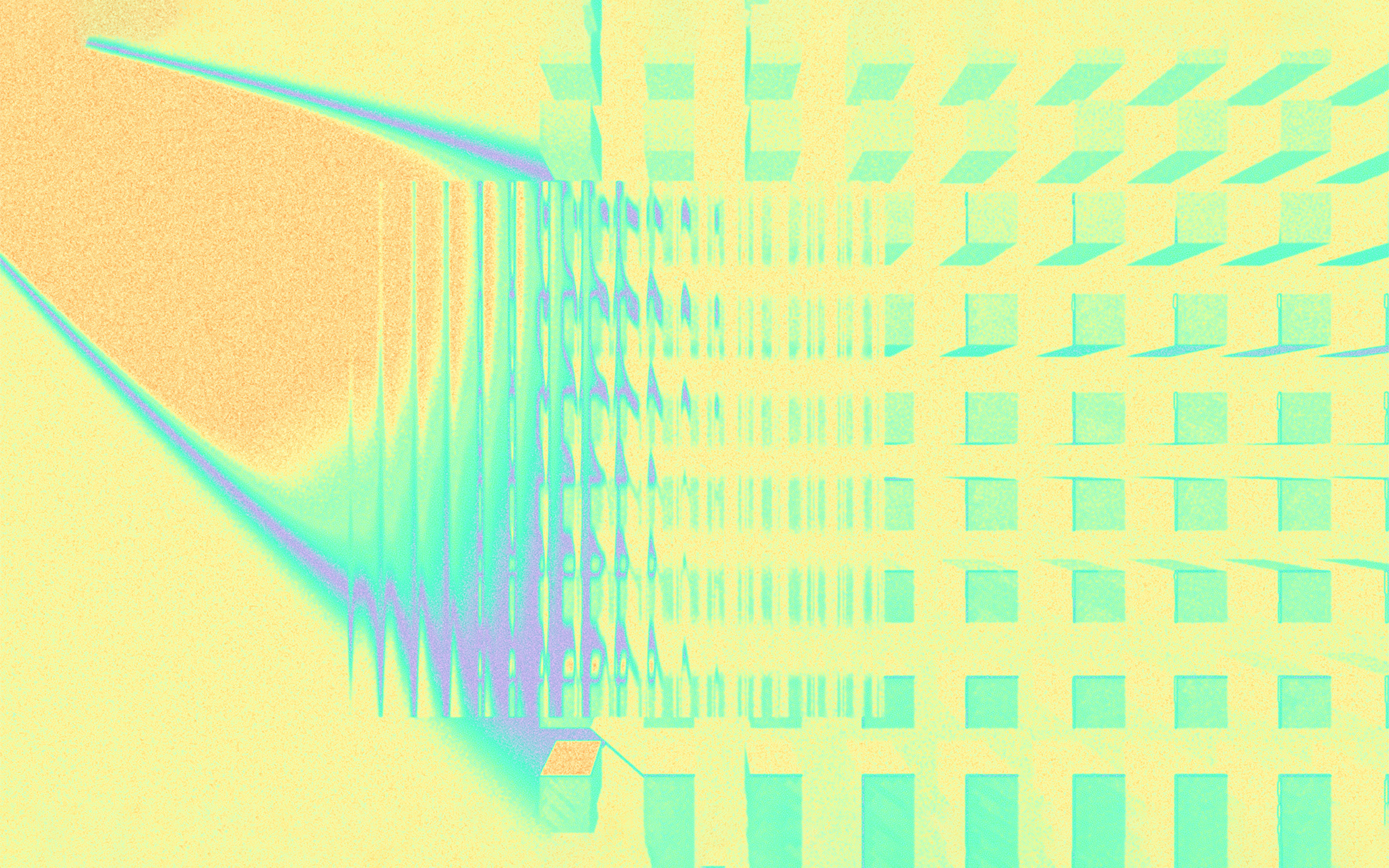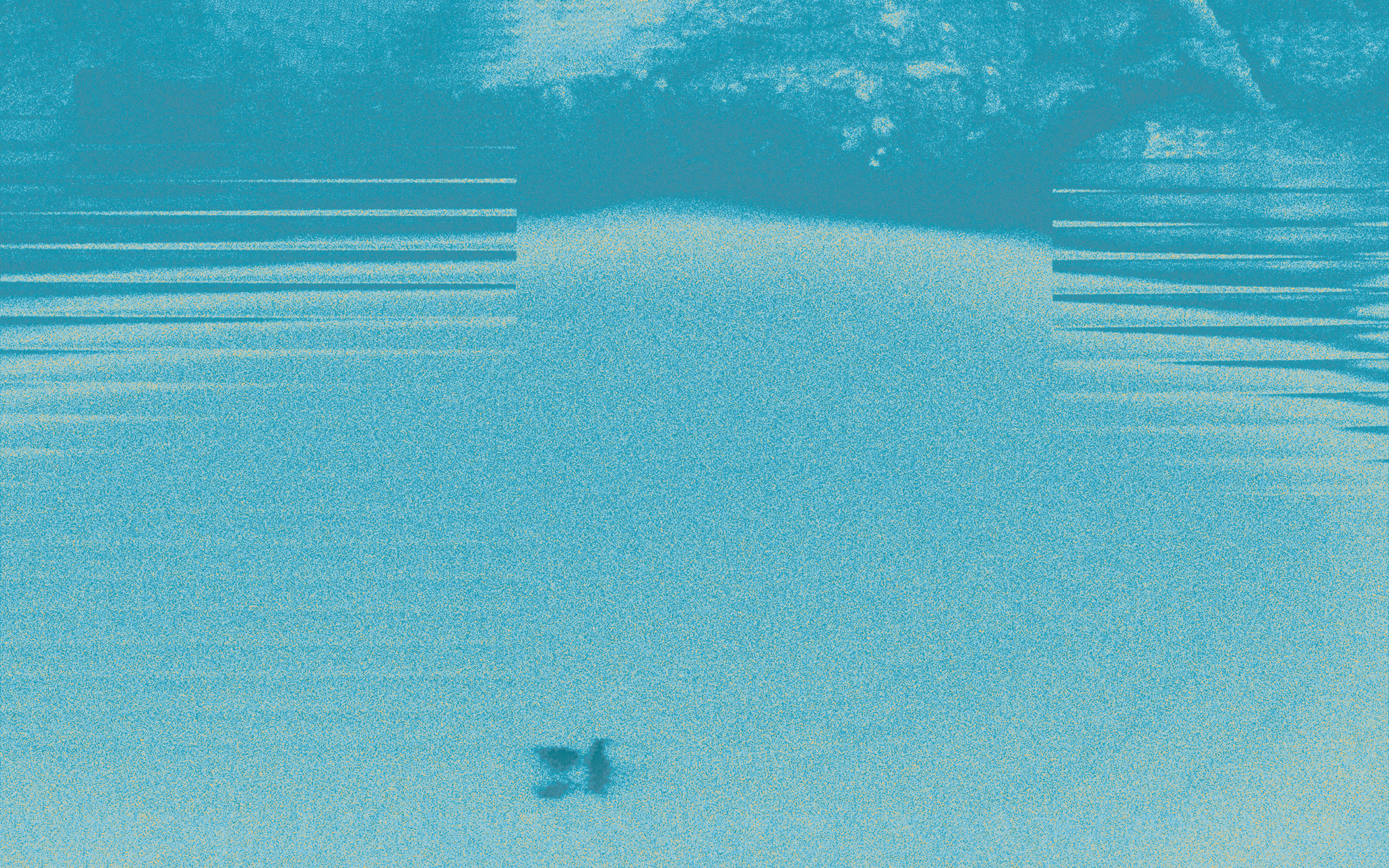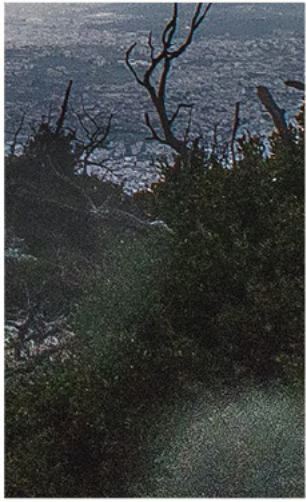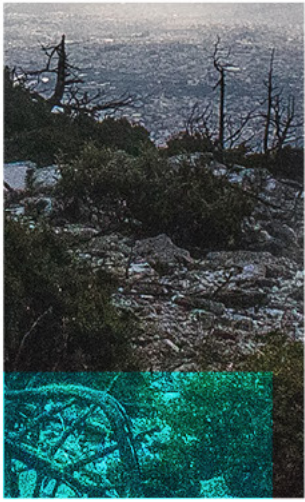
Attentional Processing

In *Zen-Brain, Horizons Toward Living Zen* by James Austin, the author explains a duality which blends between the egocentric and allocentric neural networks. These two "modes" correspond with our attention systems. (Austin 86) Austin claims through meditation, these systems or behaviors can heighten and deepen awareness (21).

In parallel, within the duality, a "top-down" attention system is associated with the executive, goal-oriented processing, whereas a "bottom-up" attention system engages the with finding meaning. Figure 2.0 illustrates where these are located as indicated with "E" and "A".

Attentional Processing
An emphasis toward a specific mental activity that it "fills the mind" (De Gruyter).
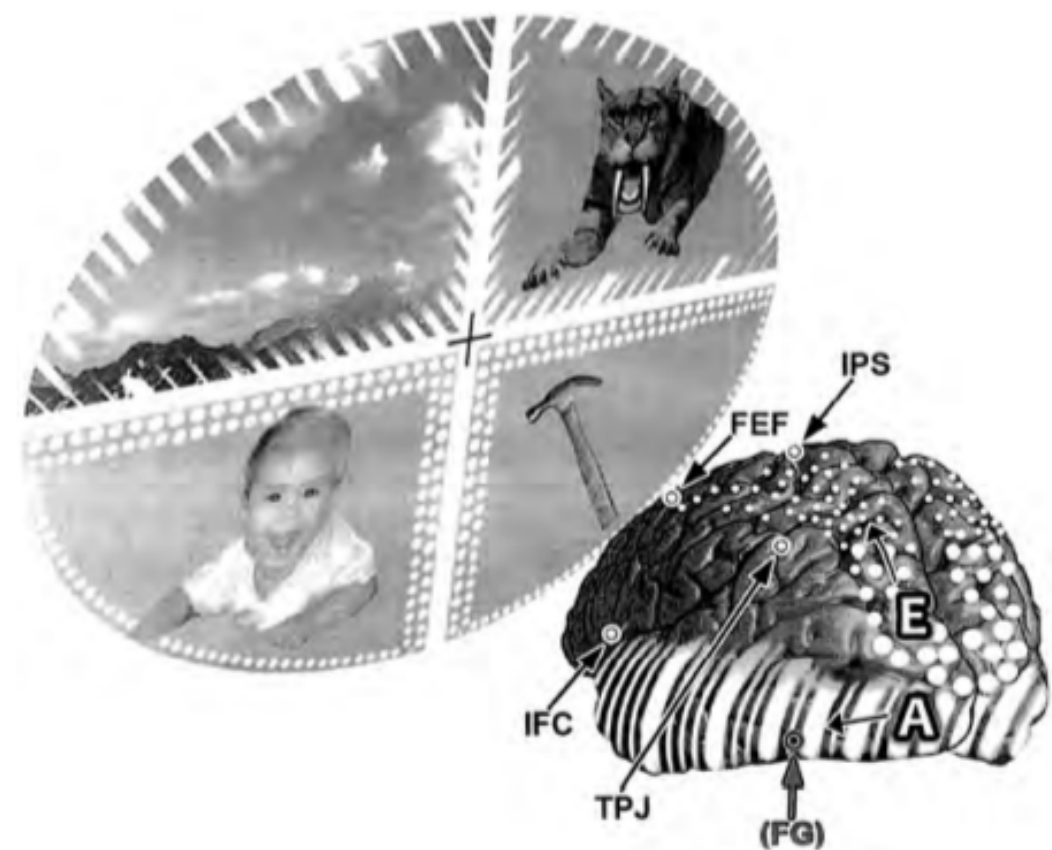
Figure 2.0
Illustrating major differences in egocentric
and allocentric processing (Austin 100).

Aside from their anatomical position, their Greek roots highlight meaning. "Ego", which you are probably familiar with, refers back to the self and "allo" points in the opposite direction, translating to "other" (26). Austin states shifting your frame of reference from an "I-Me-Mine" into an other-dimension, this is where advanced, pure insights come from (10).

Egocentric
Thinking only of oneself, without regard for the feelings or desires of others;self-centered (Merriam-Webster).

Allocentric
Having one's interest and attention centered on other persons (Merriam-Webster).

Doom Scrolling

—

Doom scrolling is defined as the practice of obsessively checking online news for updates, especially on social media feeds (Random House, 2022).

My curiosity in the how and what makes a computer interface addictive posed an interesting approach angle to understand what are the mechanisms driving people to mindlessly scroll however bad it is for you.

VARIABLE RATIO SCHEDULING

—

My findings were revealing. The mechanisms between doom scrolling are similar to gambling. According to the BBC, doom scrolling mimics gambling behaviors. The act of scrolling isn't only for the bad news or content, but also for anything uplifting. This factor, known as a variable reinforcement schedule, is highly addictive. This is why slot machines are designed the way they are, and social media feeds too. (Klein, 2021).

Figure 3.0
A depiction of Doom Scrolling.

JOURNALING ON DOOM SCROLLING
—

I documented my feelings after doom scrolling as a way of stopping to notice and take inventory of what I was feeling at the time. This was part of my weekly practice for a while, as per suggestion from peers and tutors.

While the interface is really easy to use, the content delivery scheme is automated. Engaging in this is zero to little effort. At some point along this user experience timeline, there was a video in which my interest piqued, the "reward".

I wanted to explore why to observe the mechanisms that let doom scroll manifest itself.
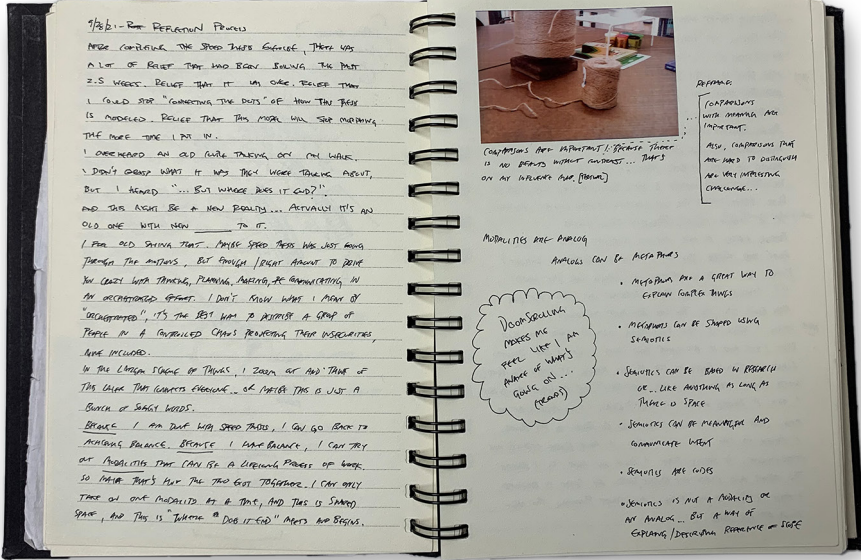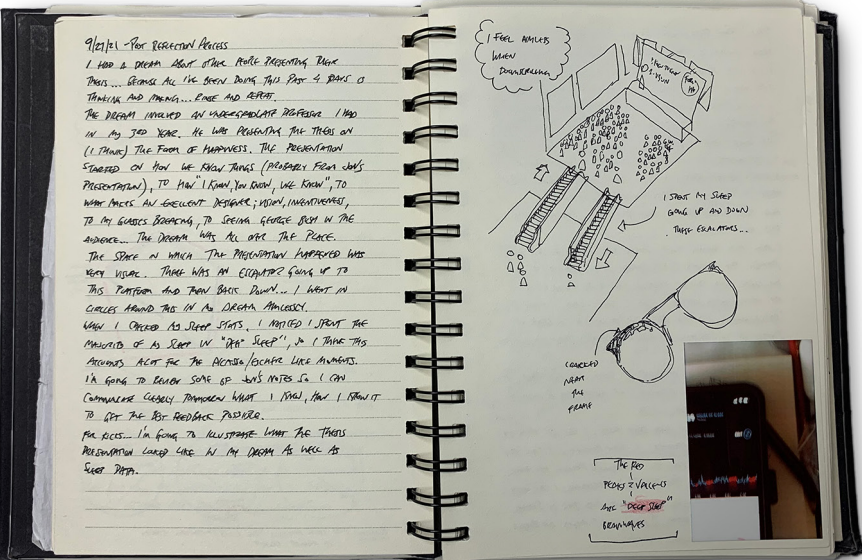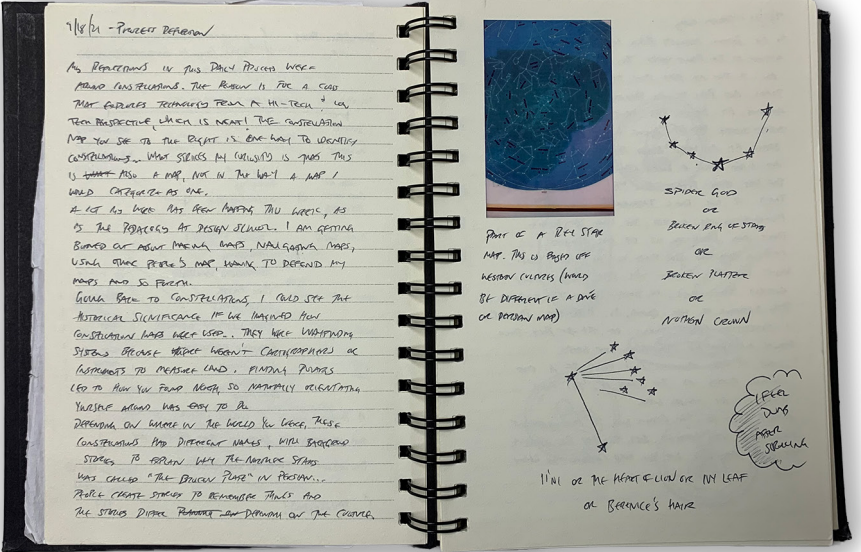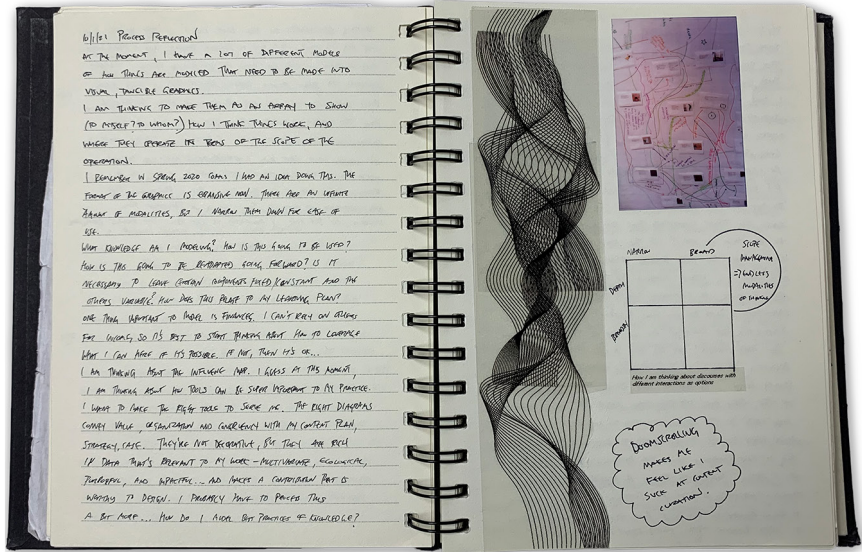
9/22/21 — MAPS AND LAYERING AND MULTIVARIATE

THIS MORNING DURING MY WALK INTO STUDIO, WITH THESIS IN THE BACK OF MY MIND I SAW A MAP THAT WAS PRETTY FROM A GRAPHIC DESIGN PERSPECTIVE.

OF COURSE, WITH MY INTEREST IN HOW MAPS WORK FOR OTHER PEOPLE, I DECIDED TO LOOK AT IT AND ANALYZE WHAT IT'S CONTENTS WERE, AND WHAT THE MAP IS TRYING TO CONVEY.

THE MAP HAD MANY LAYERS — EACH ONE DIFFERENTIATED BY TEXTURE, SYMBOL, COLOR OR SHAPE TO FILL THE SPACE. GOING BACK TO AN EXCERPT I DID LAST SPRING, OR TO SIMPLY SAY OLD WORK, THERE WAS AN ANALYSIS I DID ON EDWARD TUFTE THAT WAS ON HOW TO ENVISION MULTIVARIATE DATA. THIS POSTER WAS AN EXAMPLE OF THAT. ACTUALLY, THIS MAP WAS AN EXAMPLE OF THAT. DID THE MAP CONVEY ANY SORT OF PURPOSE? WAS IT USEFUL BEYOND LOOKING AESTHETICALLY PLEASING? I WOULDN'T SAY SO. I THINK AS DESIGNERS, MAKING THINGS LOOK PRETTY IS A TRAP WE EASILY FALL INTO, ESPECIALLY IF WE HAVE GOOD TECHNICAL VISUALIZING SKILLS. THIS IS IMPORTANT TO THE LOGICAL/SCOPE ASPECTS OF DESIGN, THAT EMPLOYS CRITICAL THINKING.

WHAT THE LOGICAL ASPECTS CONTAIN ARE THE PARAMETERS, SO IN THERE ARE ARGUMENTS, OPTIONS AND OBJECTIVES THAT MUST BE CLEAR, IN ORDER TO BE COMPREHENDED. THIS MAP WAS NOT COMPREHENSIBLE, BUT WAS AESTHETICALLY PLEASING TO THE EYE. CONSUMING ≠ GOOD, PURPOSEFUL
INFORMATION   DESIGN
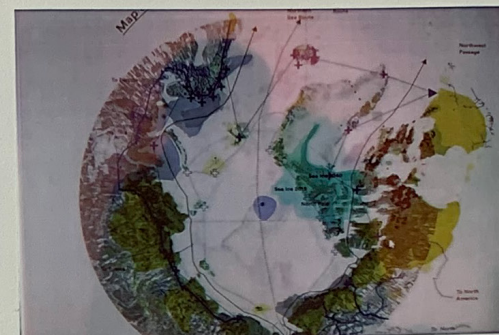
WHEN I DOOMSCROLL, I FEEL DEVOID OF THOUGHT

I LOVE THE TEXTURES ON HERE, BUT HAVE NO IDEA / DON'T CARE TO LOOK DEEPER...

WHAT IF I MAPPED MY THESIS PARAMETERS LIKE THIS... ...USING MULTIVARIETY?

... OR ...

WHAT IF EACH PARAMETER HAD THEIR OWN, TO COMPLICATE MATTERS?
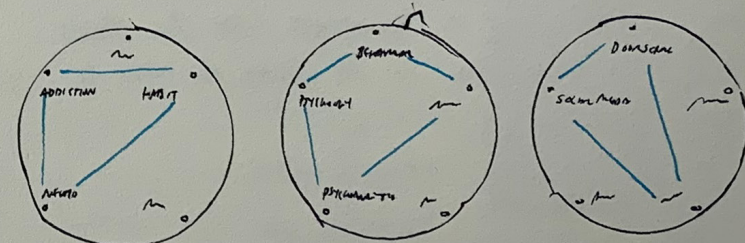
QUESTION: DOES DATA ACTUALLY TELL GOOD / PURPOSEFUL STORIES IF FRAMED RIGHT?

Figure 3.2
Snapshot of journal entry.

Experiments

—

The following section is an array of my project work, from the beginning of the September 2021, through Winter session into Spring.

These are projects are a demonstration of the thinking, experimentation, investigation, interviews and making. The purpose was to generate a variety of contexts spanning from scripting augmented reality objects in C#, observations in space using spatial ephemera and precedent checks.

My concentration is toward augmented reality on mobile devices because I wanted to understand how the application of a camera lens in combination with this spatial technology can be useful.

I chose augmented reality on mobile because of its ubiquitous potential.

Ubiquity computing
The trend of embedding capability (generally in the form of microprocessors) into everyday objects to make them effectively communicate and perform useful tasks (Shea, 2019).
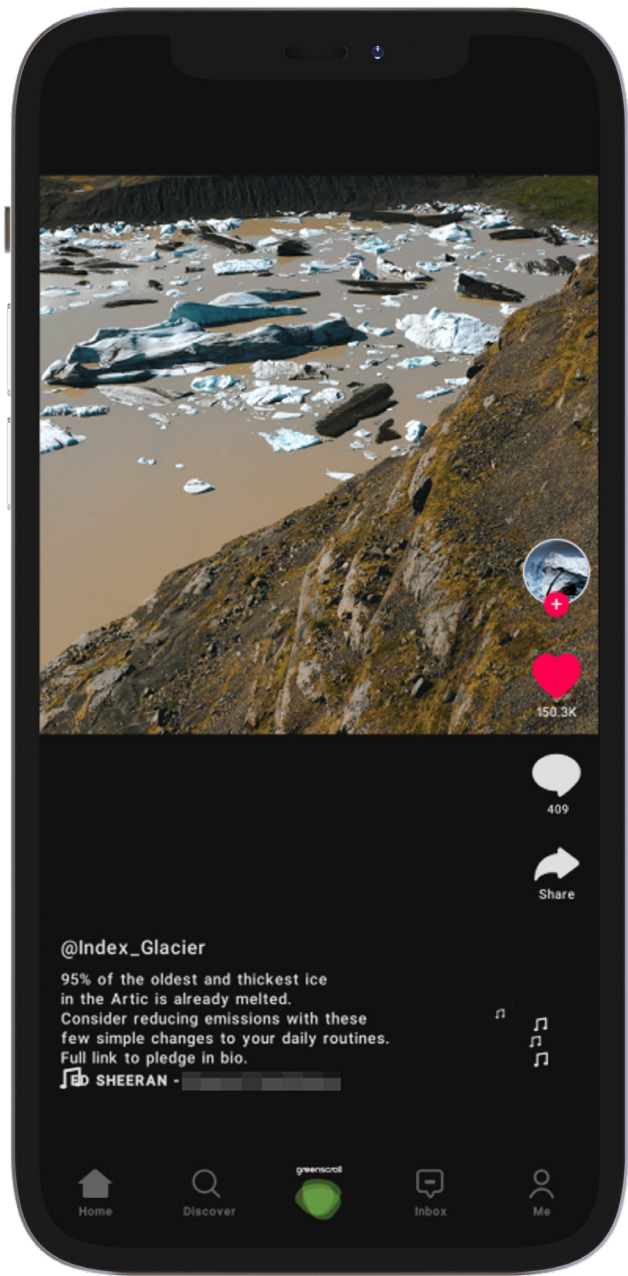
Figure 4.0
Green Scrolling. A parallel model of TikTok
repurposed for videos on climate change with emphasis
on melting glaciers.

PROJECT 01: GREEN SCROLLING

HYPOTHESIS
—

My question was how might the addictive factor of doom scrolling be used to support large, relevant societal changes that are needed, like climate change? Is this just a simple modification of an existing delivery scheme? Would the experience maintain the stickiness of *TikTok*?

PROJECT SUMMARY

The addictive factor of doom scrolling could benefit from being used as a driver to get people to be aware of climate change or large global problems that need attention. Green scrolling rethinks of how we might engage with social media interfaces which motivate its users to take action.
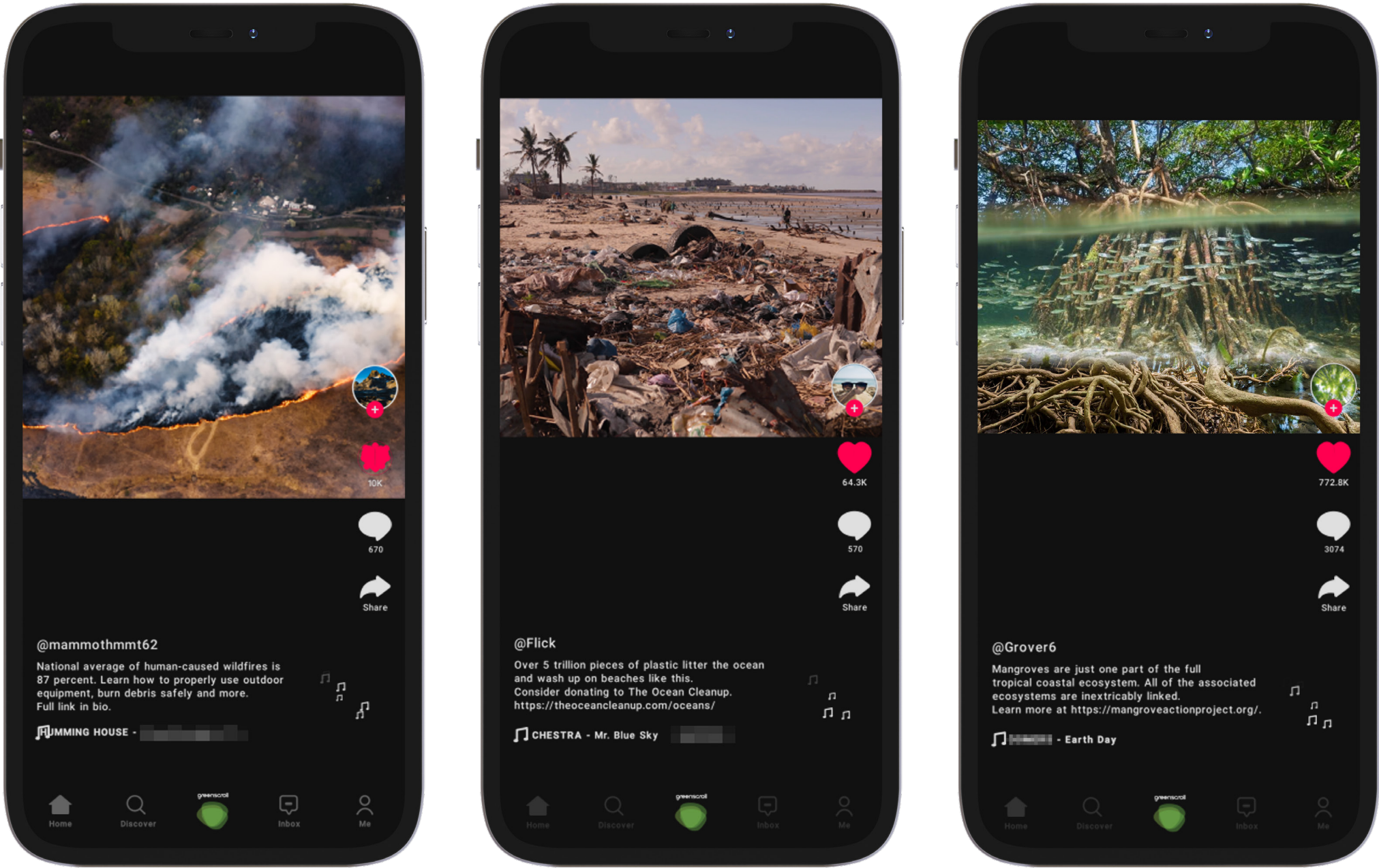
Figure 4.1
Green Scrolling. A parallel model of TikTok repurposed for videos on climate change with emphasis on the California wildfires, beach clean up and mangroves.

Psychology   Human Computer   Behavioral   Precedent   Discursive/
Addiction   Interaction   Design   Study   Recursive Design
                                                                   Effect
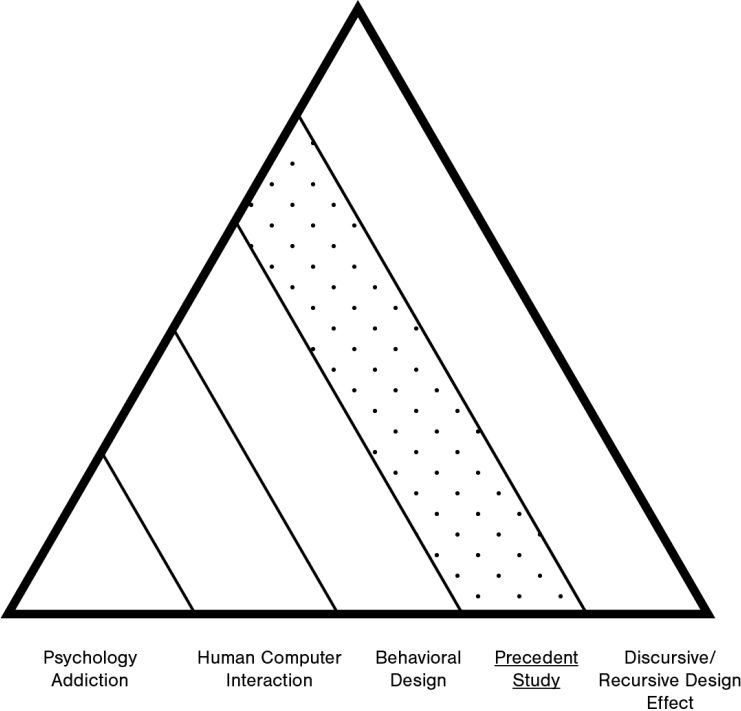
Figure 5.0
Identifying through mental models topics in adjacent spaces, particular to green scrolling.

DEPLOYING MENTAL MODELS
—

To illustrate my thinking, I used mental models as a tool for organizing information in my investigations. The diagram to the left was an early sign of where my interest within interfaces were.

This is relevant in this moment because later on I made a range of mental models to facilitate a range of thinking processes, but take this with a grain of salt as this is my own experience.

Collection of Mental Models
See the dark pink section for a conpendium of models used in part of my method.

Doom Scrolling   **Interest**

Outcome

User Behavior

Mindless
Soothing
Numbing

Addictive

Positive Change

Greenscrolling

pesticides
and farming

cloud
seeding
or alternative
fuel vehicles

Water shortage
in California

Algorithm A
Algorithm B
Algorithm C

Endangered
species

compostable or
bio materials

Global
Ecology/
Enviornmentalism

CTA

protect wildlife society   pres. eco landscapes   conserve water in socal

Specificites

6 videos total
Black Rhino
Orangutan
Amur Leopard
African Forest Elephant
Sunda Tiger
Yangtze Finless porpoise
Bigeye Tuna

glaciers melting
restoring mangrove
plastic waste
wild fires
logging in forests

drought in california
water efficient toilets
fix leaks
water wise plants
installing aerators
use mulch

Figure 5.1
Mapping the effects of doom scrolling overlapped
my interest in behavior and theories of change.

Figure 5.2
Modeling the climate change tangents in which
green scrolling would acquire.

It's not good to be
on your phone
tha tmuch

We can impact how we use media
as a medium to motivate
and communicate

- climate change
- green initiatives
- anything content as long as it's controlled

*Why else should we
solve for this?*

*Why else should we
solve for this?*

it can be used
for a better purpose

It's time-draining
for other activities

This causes depression
for people w/o
copying healthy mechanisms

HCI can be beneficial in
accomplishing more relevant
goals

*Why else should we
solve for this?*

*Why else should we
solve for this?*

*Why else should we
solve for this?*

*Why else should we
solve for this?*

Is trendy and addictive
(pleasure principle)

It's not healthy for people
to engage with over time

*Why else should we
solve for this?*

Why should we
solve for this?

The habit of D.S. is addictive
& has negative ergonomic effects.

*Why should we
solve for this?*

What is stopping us from
solving this problem?

Topic: DOOM SCROLLING

*What's stopping
us from solving
this problem?*

*What else is stopping
us from solving
this problem?*

*What else is stopping
us from solving
this problem?*

It's fun and infectious

*What else is stopping
us from solving
this problem?*

Self-moderation
of behavior

People like it
as a way of finding
new stuff they're
interested in

Accessing Doomscrolling
is free, popular
and proprietary

There are many participants
and the damage is
invisible

*What else is stopping
us from solving
this problem?*

*What else is stopping
us from solving
this problem?*

*What else is stopping
us from solving
this problem?*

Lack of
alternatives
or competiiton

Content creators
benefit montearily
from viral content
production

Social Media blockers
just don't work

*What else is stopping
us from solving
this problem?*

They have an
algorithm that is excellent
at knowing what you
are looking for/interested in

Figure 5.3
Using a challenge map to map out the why
and so what's of doom scrolling.

Figure 5.4
Triangulating how to re-purpose the
addictiveness of doom scrolling.

Human Computer Interaction
Doomscrolling

Specialization
In:

Non-profit/public/humanitarian
Futures/Speculative/Discursive
Experience/Retail space/Exhibitions
Education/Pedagogy

Who is doing this
as a service model
right now?

Usability
Ergonomics
Human Factors
Ethnographic RS

Addiction
Psychology

Figure 5.5
Pique Action's mission is to create videos
on climate awareness (Pique Action).

FEEDBACK
—

The general feedback was that although an app like this is designed to distribute 'green' content in a format that makes the delivey easy, the person would still want to engage in content that is found on *TikTok.* Doom scrolling wouldn't override the feel good and the mindlessness factors.

POST RATIONALIZATION

The prototype was completed so quickly I didn't think much about what my deeper intention was, that is to resituate the addictiveness of *TikTok.* I did however find an adjacent space called Pique Action a few days later. They are a company that makes small documentaries about climate change. Their mission is they are the opposite of doom scrolling.

Figure 6.0
Visual nudge in augmented reality.

PROJECT 02: (NUDGE THEORY + AUGMENTED REALITY) X ENVIRONMENTAL PRESERVATION

HYPOTHESIS

—

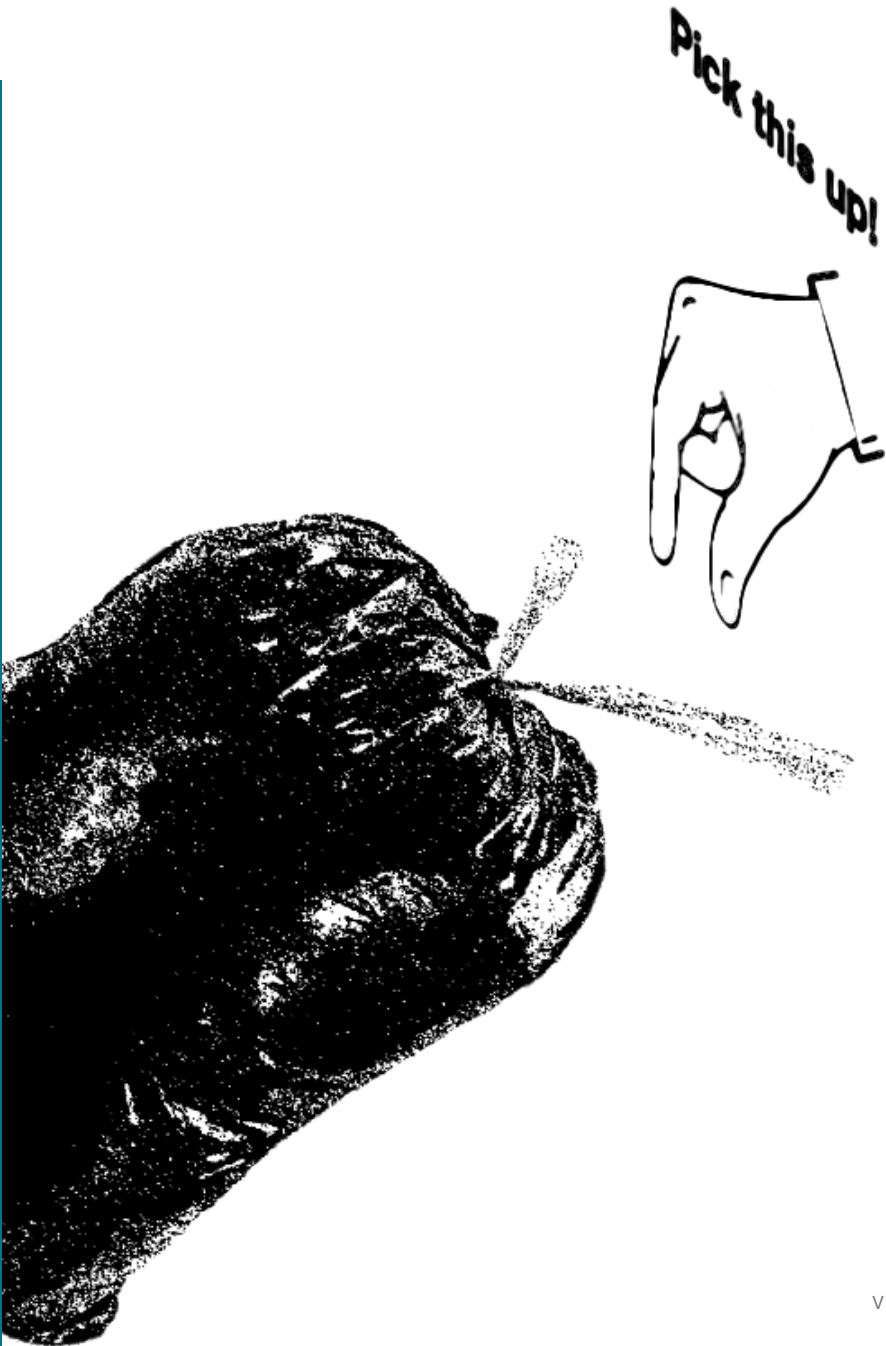How might an environment by design, facilitate or encourage certain behaviors? If so, can the behavioral outcome translate into a computer screen? How can I deepen this interface to call action against climate change by differentiating from a flat screen into augmented reality?

PROJECT SUMMARY

Nudge Theory is the idea that a factor, or nudges can significantly alter human behavior in a predictable way without limiting their choices(Thayer and Sunstein 8). This comes from economist Richard Thayer and law professor Cass Sunstein in their book, *Nudge: Improving Decisions about Wealth, Health and Happiness*. I wanted to know more about how an environment is designed to facilitate or inhibit behaviors and make an application that approaches environmental preservation behaviors in AR, I explored what nudging would look like in the context of picking up litter found in the Rhode Island sand dunes.

PROXY SITE IN SAND DUNES

—

When I heard there were sand dunes in this state, I found this hard to believe.

I heard the sand dunes had a problem with litter and because of the space is so unusual, I saw a design opportunity. I wanted to use this place as a proxy site to test how a nudge could help with the litter problem. This turned out short-sighted in the end, because once I visited the area the litter was minimal.

Litter in the sand dunes
I explored all the dunes. There were no trash cans, however the front gate seemed like the designated area to place litter.

Figure 6.1 [left], 6.2 [above]
Sand dunes. East Greenwhich, RI.

PROXY SITE IN SAND DUNES

—

Figure 6.3
Aerial photo of the sand dunes
using arcGIS.
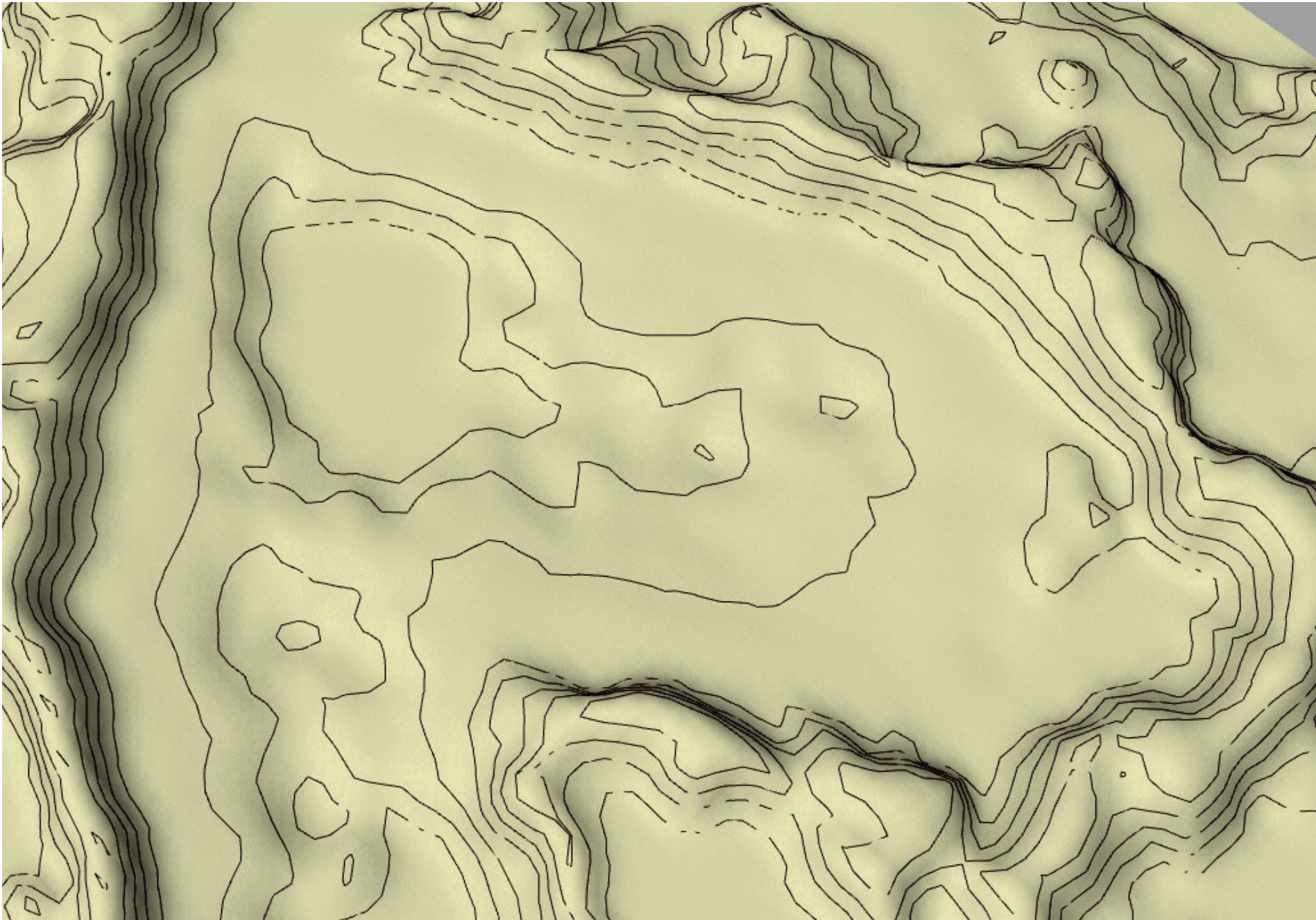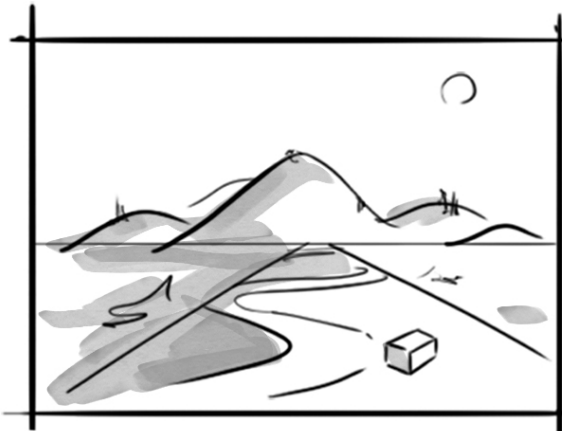
AR scans environment/ground
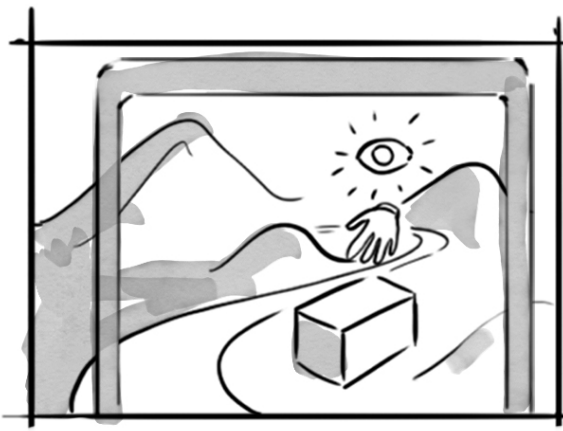
AR scans environment/ground
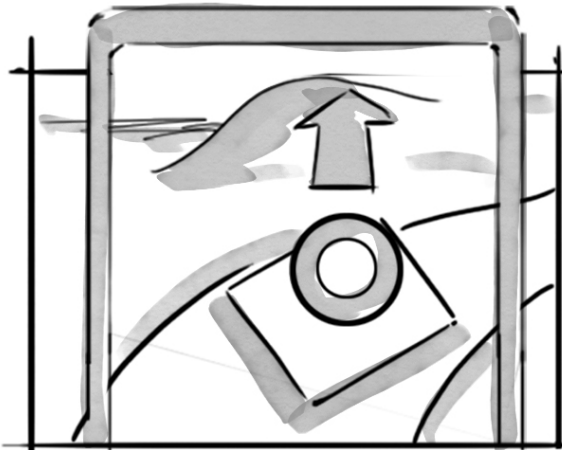
Swipe to confirm at location of litter
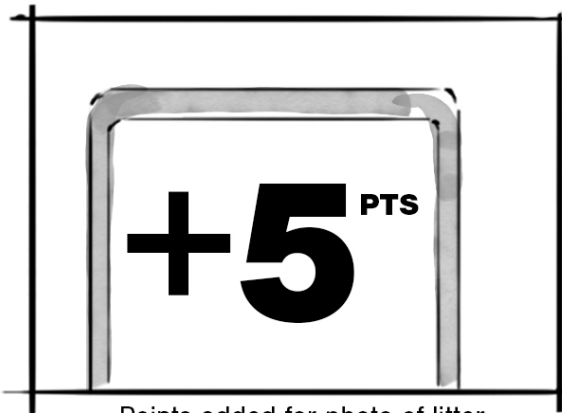
Points added for photo of litter
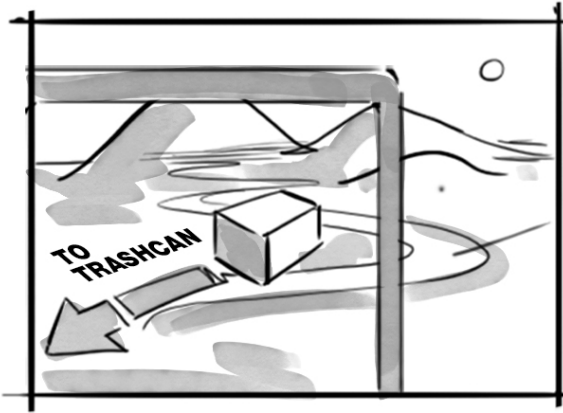
Path to pick up litter is drawn to nearest bin

Path to bin is color coded differentiated by "level path

Storyboards
These scenarios introduce an augmented reality application that uses elements of a mobile game with nudges.

This leads to designated bin area...
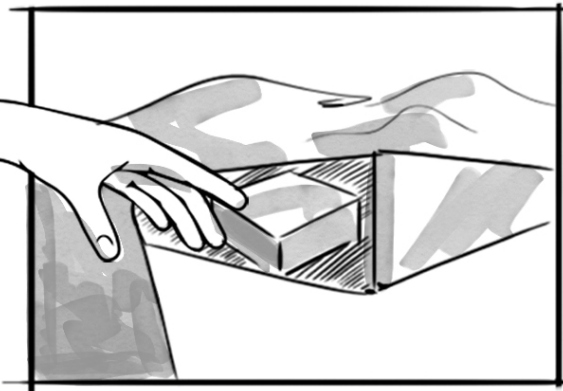
Where litter is put in bin
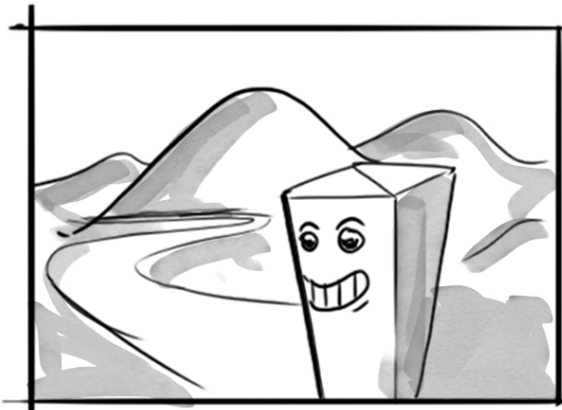
Trash can says "thank you" with "nudged" commentary of preservation + positive reinforcement

KEEP CLEAN

User sees signage on site.
CTA to download app.

Opens app...

KEEP CLEAN

User walks through desert, nudged
along the way with "arrow path".

HOW TO PLAY
1 2 3

"How to Play" instructional screen.

User is nudged along landmarks.

User AR scans/recognition of litter.

Picks up litter and...

Drops off at designated bin areas.

AWESOME!
+7 PTS

NFC-enabled bins transmit
to phone.

LEVEL FINISHED
LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISICING ELIT, SED DO EIUSMOD
NAME   SCORE   RANK

User reaches end of
level, score is calculated
on leaderboard.

social media component?

Figure 6.5
Video storyboard of Nudge Theory x Augmented Reality. Picking up trash.

VIDEO PROTOTYPE

—

Even though the sand dunes didn't pan out, I wanted to illustrate what using a nudge to pick up litter would look like. Upon making this, I realized how cumbersome it is holding a phone in-front of you while walking. Also, when picking up the trash bag, I had to put the phone away in order to use both my hands. I never would've realized these body mechanics are not easy. Trying this out was worth the experience, as these activities revealed how inhibiting a phone was in context.

POST RATIONALIZATION

Sharing this video with my class opened up more questions about what if the trash was heavier, what would you do with your phone? Why do you need your phone in the first place? I think combining nudges with augmented reality posed problems on many levels, so I decided to think of other ways to pursue mobile AR.
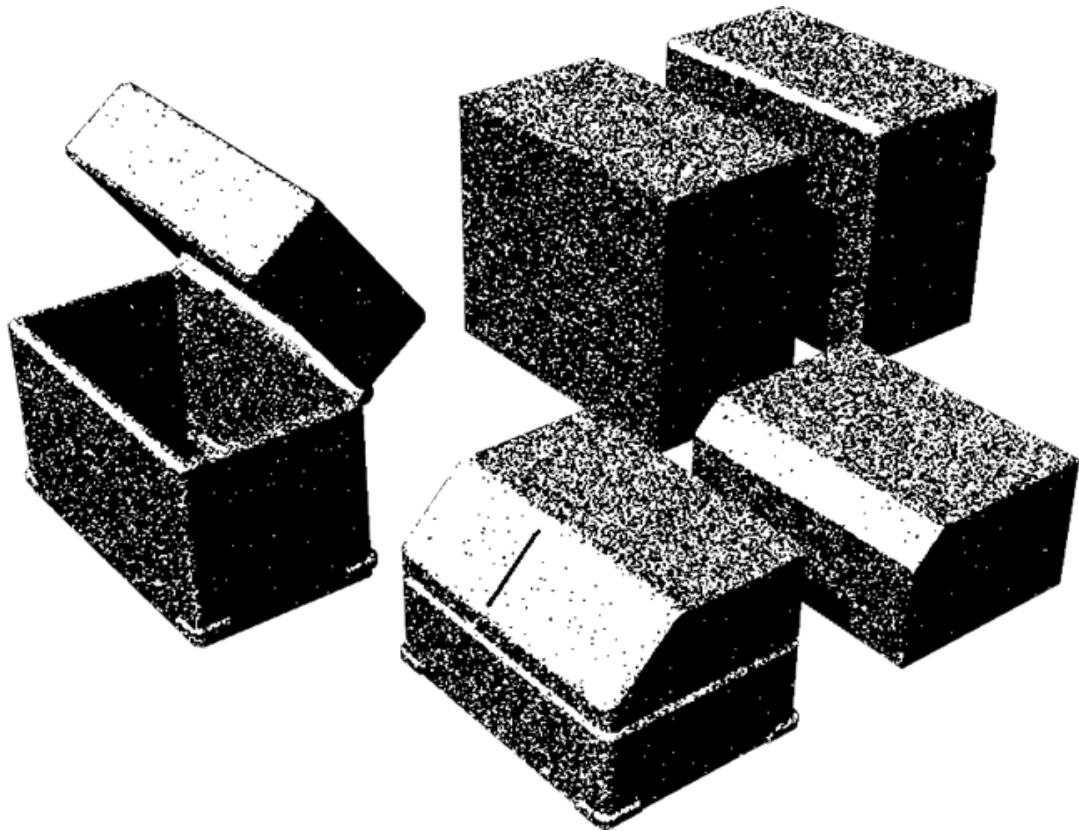
Figure 7.0
Augmented reality in-game chests as an enhanced reward.

PROJECT 03: AUGMENTED REALITY + BEHAVIORAL DESIGN

HYPOTHESIS

—

How might we encourage environmental behaviors by introducing gamification in which AR is offered as a flashy reward?

PROJECT SUMMARY

I explored applications of augmented reality with behavioral change design. Using different methods consisting of peer reviewed experiments, informational interviews and interactive prototypes, I argue that grasping AR applications is important to behavioral change design, and that a way of better understanding the interactions is known through specifying the target behavior with a gamification strategy that rewards AR features through an encouragement and reflection of environmental preservation tasks.

Behavioral Design
A systematic approach for applying behavioural insights to solve design challenges that center on human behavior (Manandhar).

PRECEDENT CHECKS
—

Besides *Pokémon GO*, I wanted to understand what games in augmented reality are being played, what was being offered as a form of gamification. The reward was an area of interest because I argue the game mechanics could be translated toward environmental preservation. *Guardians* uses the addictiveness of gacha games to help with mental health by offering rewards for doing things that create positive feelings of self. *Scavengar* is a scavenger hunt using a phone to look through. *Alba* is an excellent open world adventure game with the theme of conserving wildlife, while *WWF Forests* allows exploration of sights and sounds of a forest. *Piano 3D* that extends a portal into a piano room, in which music can be visualized and heard in augmented space.

A/B TESTING, FEEDBACK

An A/B test to figure out features liked and disliked between *Scavengar* and *WWF Forests* among my peers as participants. I wanted to get a consensus whether they felt either of these offered more replayability as a factor.

The feedback focused more on the issues with said games. The consensus was that the action, movement and scale were things that made these augmented reality games quite cumbersome, so no, 13 of 14 said they would not play these again.

Gaming in AR
I think the overall experiences in these AR games are lacking an overall strategy, but if the basic mechanics don't work the experiment is a moot point. I thought the A/B testing would prove a clear winner.

Figure 7.1 [left]
Participant experimental research, precedents examples of mobile AR and behavioral design games.

User wants motivation to help environmental preservation

Hears about website + campaign + application

Visits Website

Learns about App motivation to preserve

Installs App on Mobile Phone

Opens App

Learns how to play

Goes to Daily Env. Preservation Challenge

Chooses Daily Challenge

Turns In Daily Challenge

User collects Rewards

Waits Until Daily Challenge is Unlocked

App Timer Is Set for 4 mins

App Rewards User

Unlocks after 24 hour timer

User wants to spend reward points

Goes to AR store

Purchases AR item with reward points

User now owns AR item

User looks at purchased AR item

AR item goes into inventory

App stores AR item

Receives Daily Challenge Notification

Opens App

Goes to Daily Env. Preservation Challenge

Chooses Daily Challenge

Easy Challenge

Medium Challenge

Hard Challenge

Targeted Behavior

Turn off lights you are not using

Bring a reusable bag with you

Pick up 3 pieces of litter, put in recycle bin

Turns In Daily Challenge

User collects Rewards

Waits Until Challenge is Unlocked

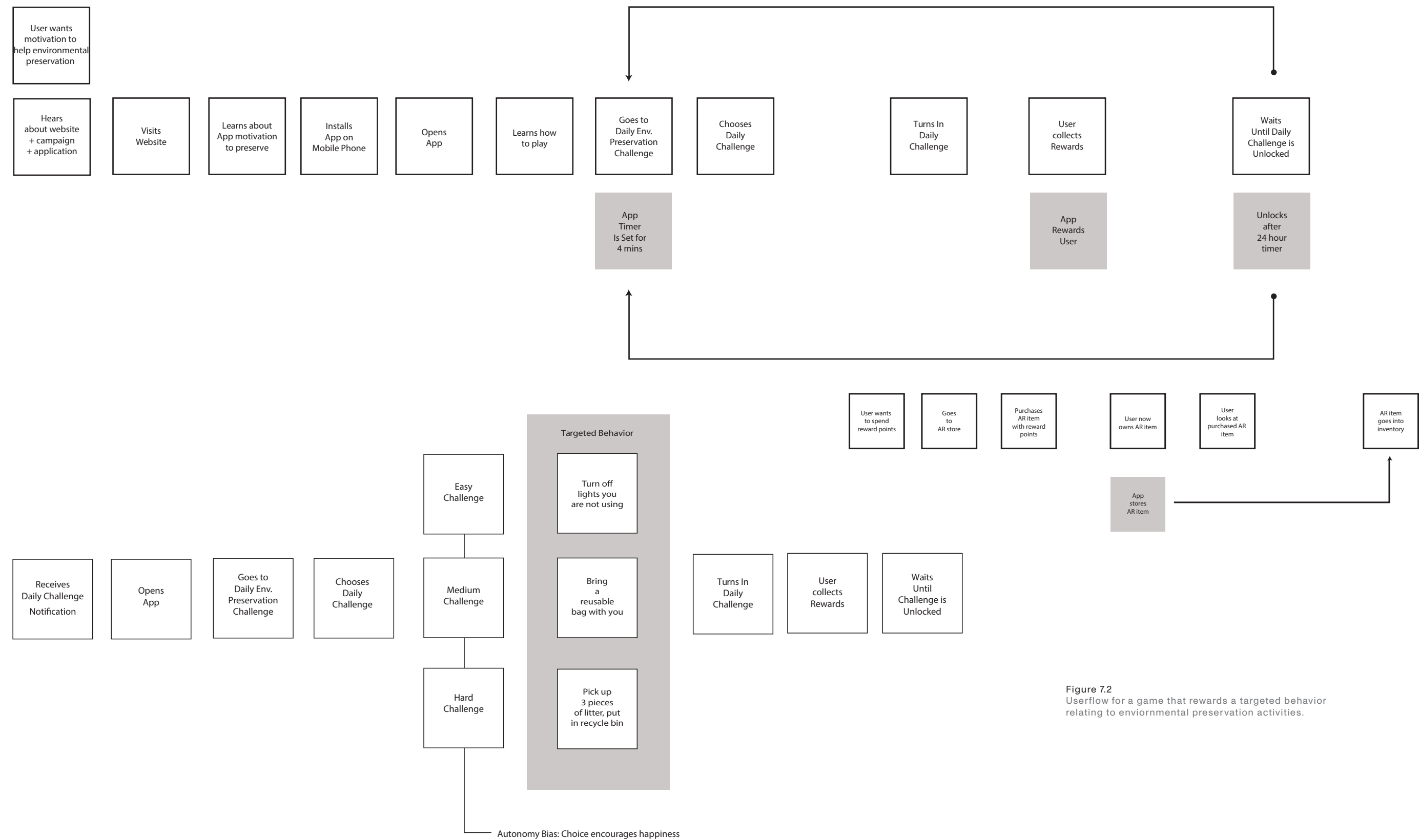Autonomy Bias: Choice encourages happiness

Figure 7.2
Userflow for a game that rewards a targeted behavior relating to enviornmental preservation activities.

Figure 7.3
Wireframes of the screens in-game.

PROTOTYPES WITH UNITY

—

In parallel, I wanted to learn how to use *Unity*, having some background with coding and *Unreal*. However, I didn't realize how inhibiting this was to my project.

Learning the technical aspects of AR image tracking, GPS triggers, 3D scene recognition and simple spatial menus made me realize that the difference between showing what I want to do with AR is very far from what I can accomplish as a works-like prototype in Unity.

GPS triggers
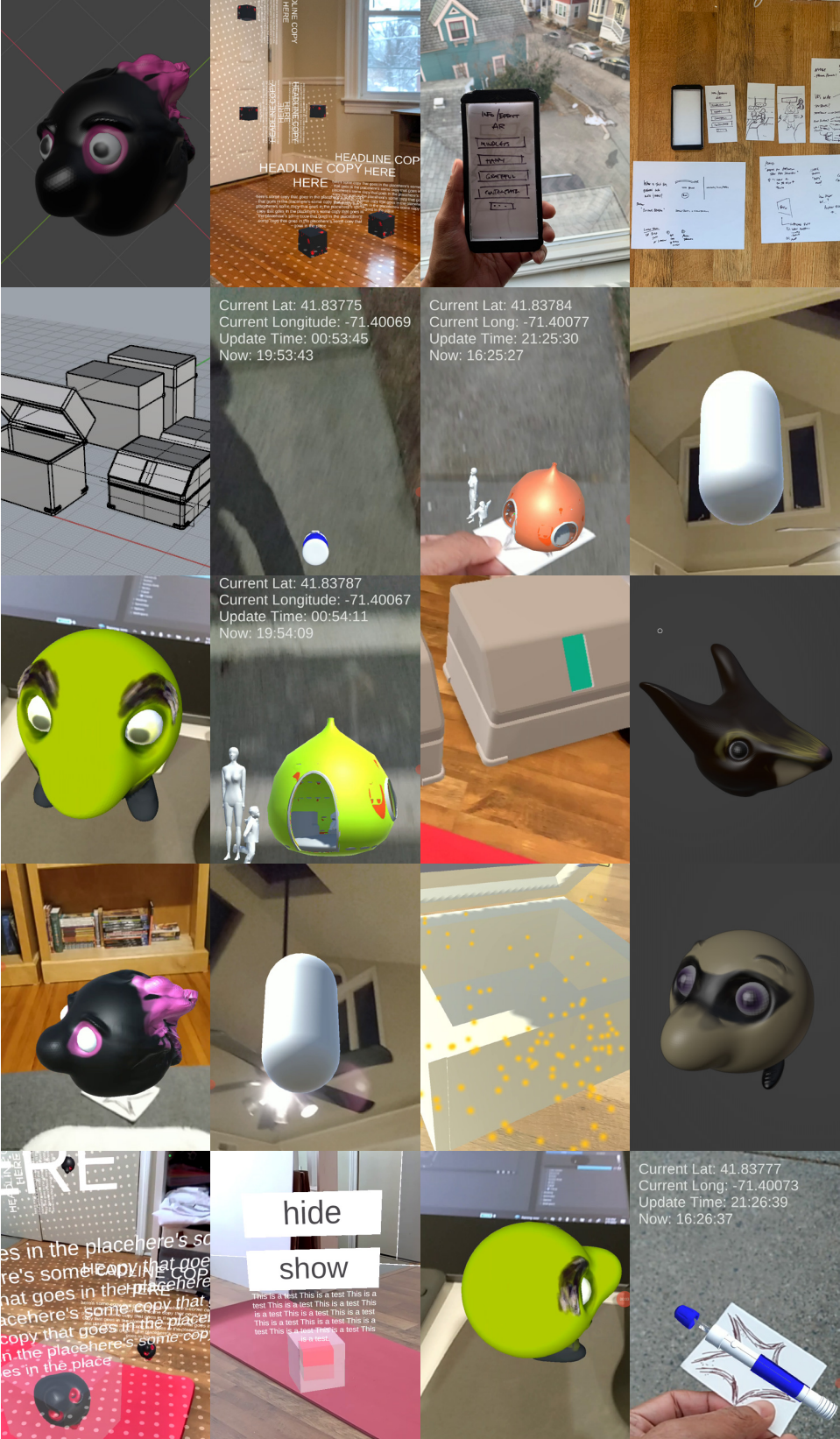A technical feature that triangulates a phone's world position with C# with 3D models.

Figure 7.4
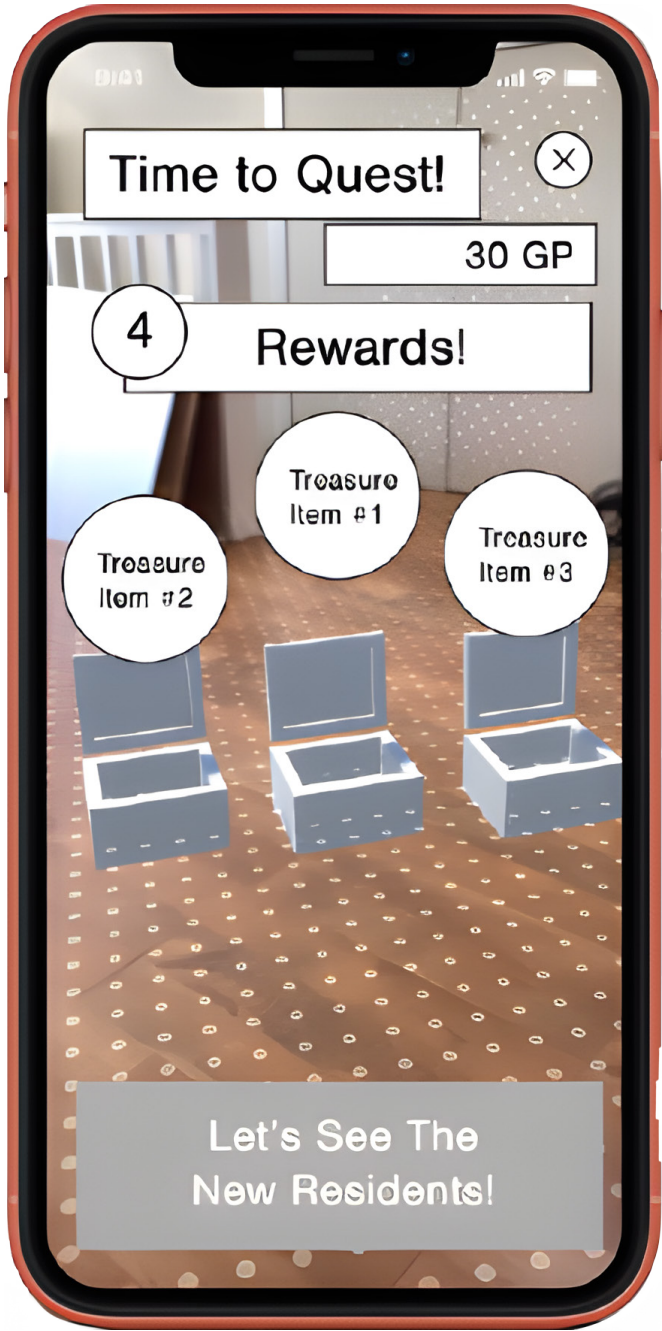3D models in blender imported to Unity for mobile AR prototypes.

Figure 7.5
In-game rewards displayed in augmented reality for the viewport.

VIDEO PROTOTYPE

—

Based on the wireframes, I made a video demonstrating where augmented reality would fit. While the idea was fine the feedback was more about the story of the video game. If I wanted to follow the idea of using behavioral design, the set of behaviors needed to be as specific as possible in order for this to work.

POST RATIONALIZATION

Using augmented reality was ok at best. Gamification of environmentally preservation action was too broad in scope. I had to narrow this, which meant either I focus strictly on a specific set of actions or continue to make prototypes of AR. In the end, I chose the latter because after looking at what type of work behavioral designers do, the interest seems within the realm of policy making.

Figure 8.0
Probes to think about experiences in which AR enriches of space.
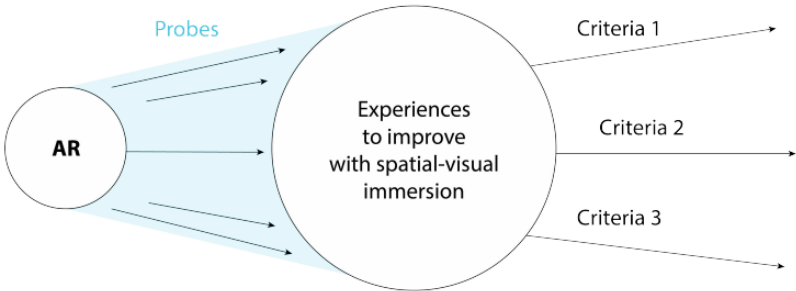
PROJECT 04: AR PROBES TO ENRICH SPACE

HYPOTHESIS
—

How might we use AR to enrich, extend or expand
an experience?

PROJECT SUMMARY

What I wanted to accomplish was to show different ways
in which augmented reality can be used to support that
AR is a tool to extend space. Through a series of
explorations, I made storyboards to illustrate how mobile
augmented reality is used across varying contexts and
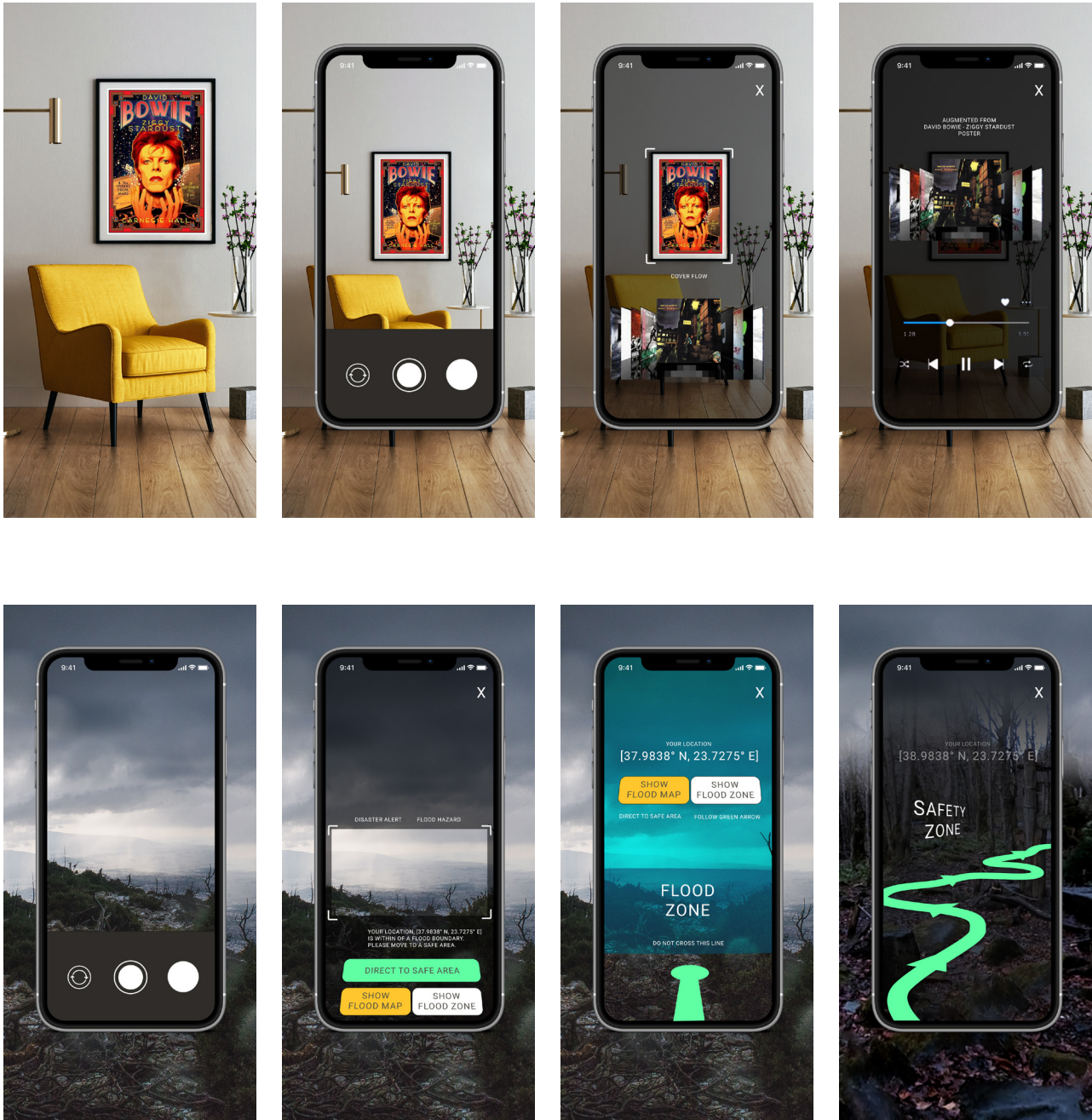how the technology would be the place of interaction.

VISUAL IMMERSION WITH MUSIC
—

Using the camera on your phone, the lens detects a poster of a concert poster on the wall. The visual is detected and brought into an experience that connects audio, visual and tactile senses. The poster is brought to live with animations as a flow of album covers allow you to browse from your device. The visual and audio immersion is brought to your fingers and fills the air with a in-depth way of browsing and listening to music in space.

FLOOD ALERT GUIDANCE
—

As you are walking along the coastline, you notice a swarm of clouds building 400 yards away. You get a notification on your phone that says: Warning! You are in a zone that is predicted to flood. Using your camera, the lens reads your location and guards a turquoise space where the flood zone is. As you turn around and head the opposite direction, a highlighted path is drawn for you in real time to guard you back to safety.

Storyboards + Probes
Indefinitely lighter than the previous method of using Unity to express ideas.

Figure 8.1
Music immersion and flood warning augmented reality probes on mobile.

Figure 8.2
Retail experiences in the grocery store with mobile augmented reality using object recognition and touchless screen.

TOUCHLESS KIOSK

—

At the checkout kiosk in the grocery store, there are smudges, grime and dirt all over the touchscreen. You hold up your phone and the camera lens pairs with the check out machine. Its buttons are now augmented to your phone, so you have operation of the kiosk touch free. As you weigh your produce, the lens notices these are bananas and prompts if you want to add to bag. You finish and the payment module is a seamless follow through.

Access for the vision impaired
Two unnamed MID alumni are working on using mobile AR to help people with vision impairments. With this technology it allows for accessibility.

AR PROBE: MEDITATION

—

As you calmly center yourself, you set your gaze on this small grayish space looking through your phone.

I mocked this probe after reading about a certain meditation technique I gleaned from *Zen-Brain Horizons: Toward a Living Zen*. Using a visual stimuli to help gently guide one's gaze, this type of meditation is used for strengthening bottom-up attentive systems, which is linked with opening bare awareness and advanced insight, the allocentric areas.

In contrast, an app like Headspace or Calm use techniques associated with the top-down attentional systems. Some of the meditation techniques they teach in these are synchronized breathing and guided audio meditation.

I want to state this is an augmented reality meditation tool. What makes this tool distinctive from the other meditation techniques in which the human is "close" to the screen is the following:

This app involves setting a distance between the person and phone. Rather than looking *at* a screen for stimuli, the person is looking *through* it, so their gaze is not distracted with a phone's contents but looking into reality.

My interest in this is because of what meditation can do. I chose this probe over the others because the effects it can have is a more useful asset than a person shopping or listening to music.

Attentional Processing Systems
Please refer back to page 30.

Figure 8.4
Paper prototypes simulating allocentric, egocentric and reflective states.

PAPER PROTOTYPES
—

Using the paper prototypes was a light way of exploring interactions and noting the mechanics of the meditation technique. By narrating, or using the Wizard of Oz testing, I was able to discern the experience to get useful feedback on this idea.

Wizard of Oz testing
A process that allows the tester to interface with something without knowing the responses are human-based (Harwood).

USER TESTING, FEEDBACK

The feedback I received was holding a phone at an arm's length and looking at a gray spot is just too heavy. This feedback was consistent across all tests. In order for this experience to work, there needs to be a stand so the phone is in the right position.

What was revealing was that my own biases when designing things involves just screen content and yet, none of this mattered during the test. What mattered was paying attention to what the body was doing in relation to the phone while trying this technique.

The paper prototypes worked because the testing pointed out the screens were only part of the equation.

Figure 8.5
After realizing the upright posture was uncomfortable with
the phone, I asked them to adjust to a position they can hold.

A State of Unfocus
The technique to unfocus is based on a description of a technique
I read in *Zen-Brain Horizons: Toward a Living Zen*. Sitting with
an upright posture and your eyelids open, gently bring your gaze
downward at an angle of 30 degrees, approximately 3 feet away to a
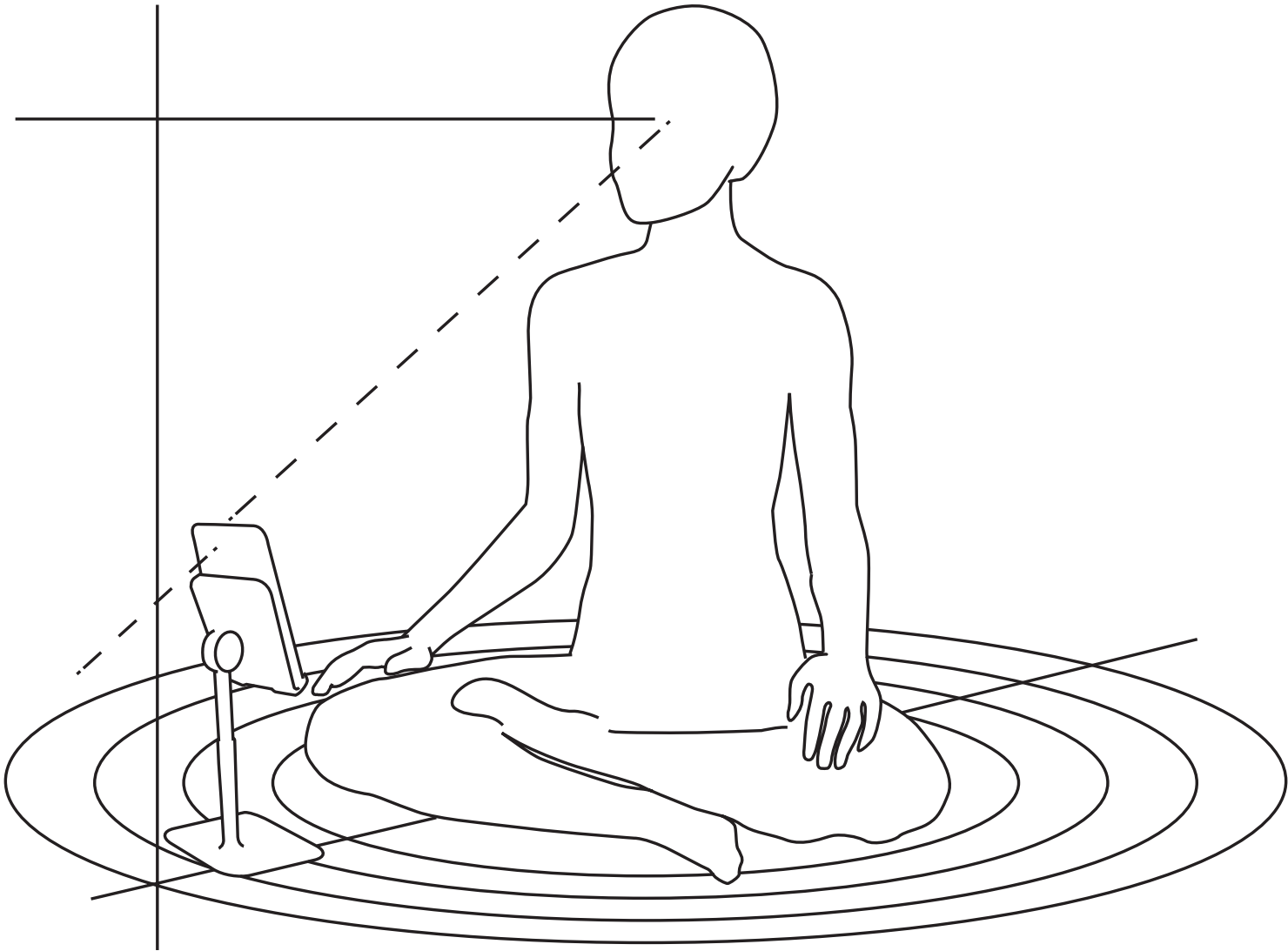5 millimeter spot (Austin 126).
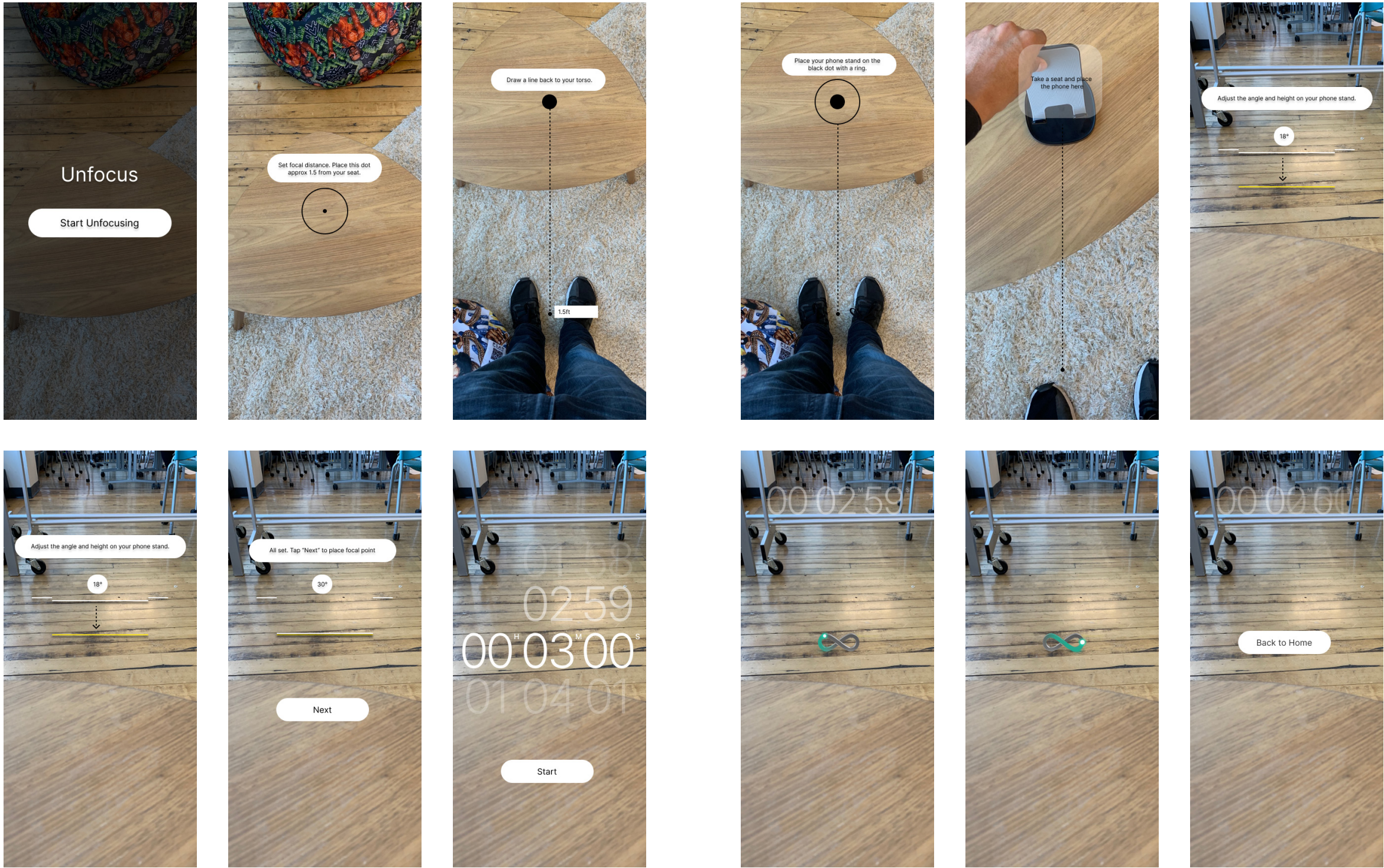

Figure 8.6
A depiction of unfocus.

Figure 8.7
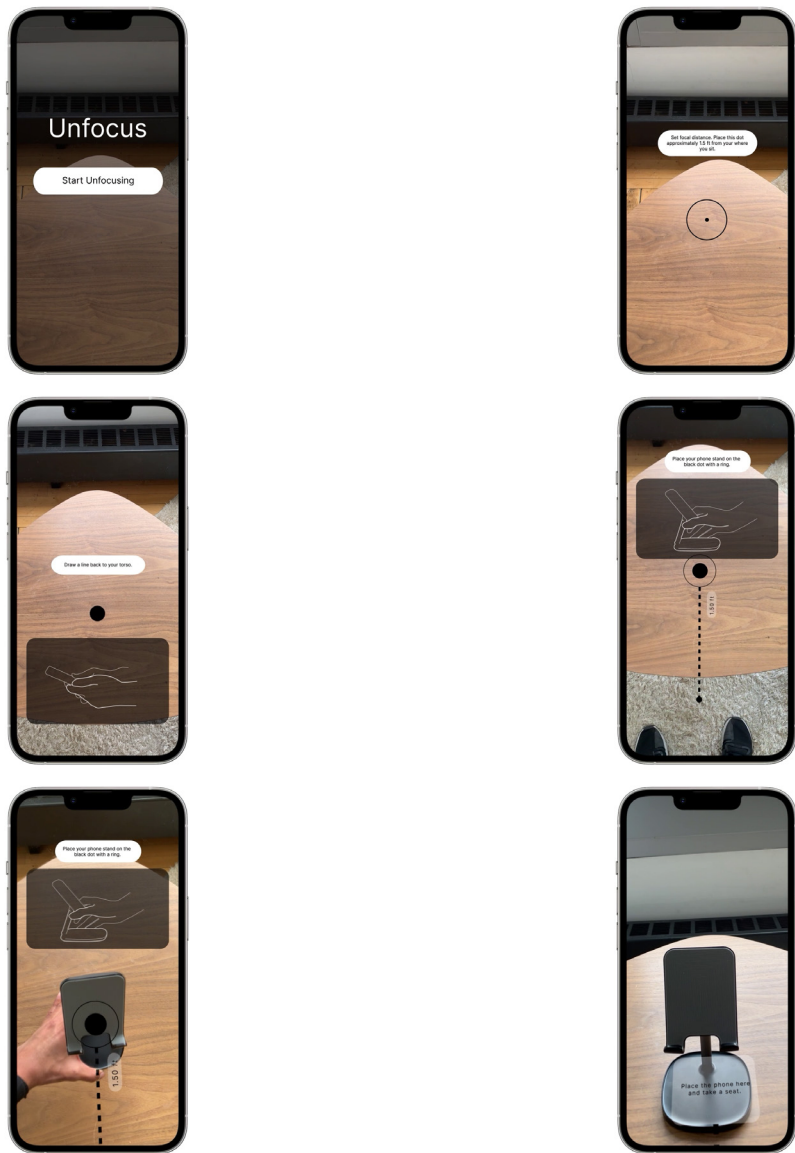Post paper prototyping. Includes instructions for a phone stand to meditate.

Figure 8.8 (above and right)
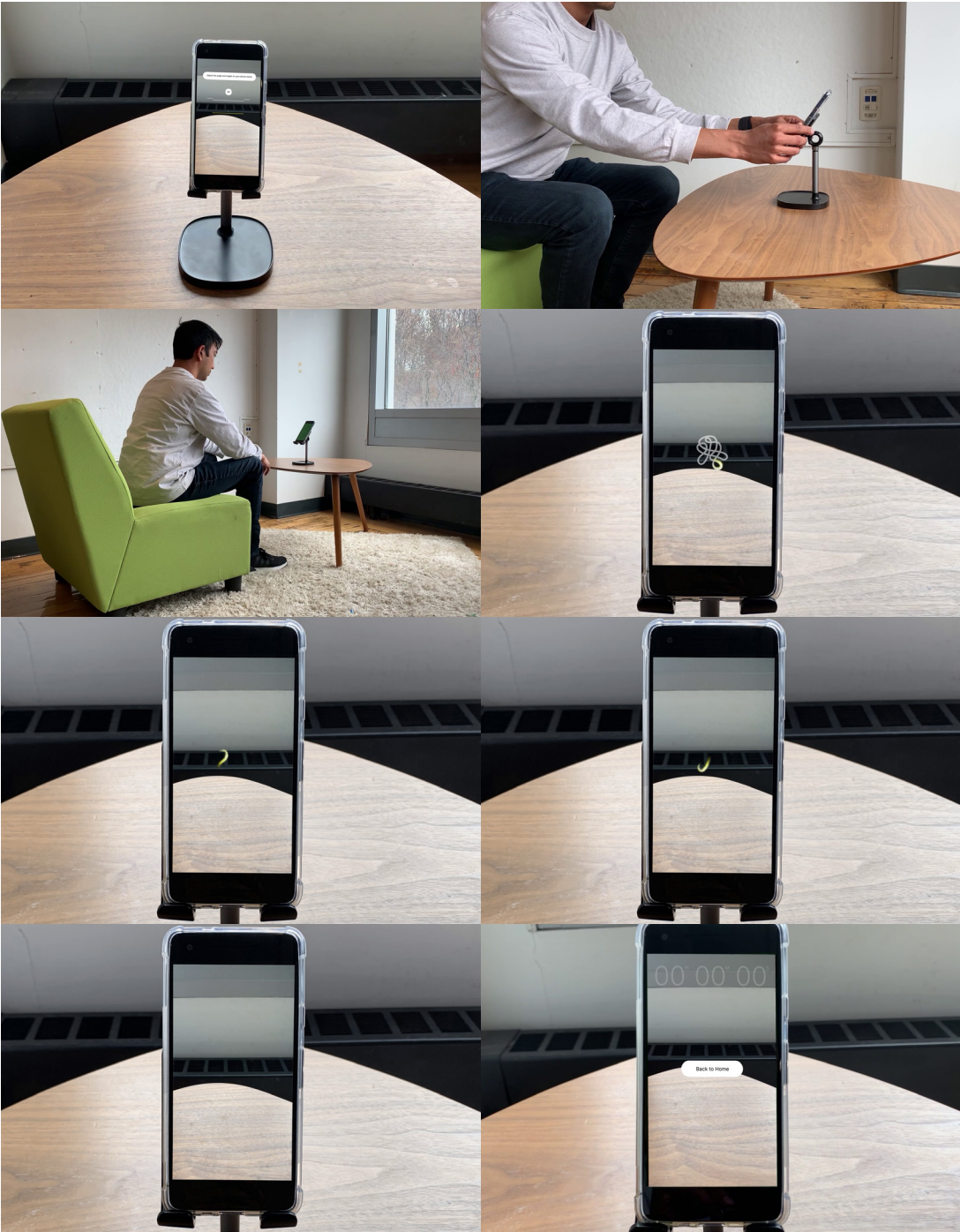Video prototype of Unfocus.
https://youtu.be/98x6dcoZyrw

Conclusion

INVERSION

The journey of going through the thesis always involved what was beyond the point of this abstraction space, which was a constant struggle as my priorities slipped between augmented reality, nudge theory, behavioral design and environmental preservation. By reading about attentiveness systems along with my pre-RISD practice in meditation, I was able to find something worked. I noticed the majority of my thinking comes from top-down and that may be my biases—and a source of inhibited thinking. However, paying attention to how attentiveness itself can be designed into an experience made me opened my mind about my thinking.

It is important to notice how these apps are pulling attention and what it does to people, so by inverting the way I was thinking about my approaches, this helped my thesis outcome.

TAKEAWAY + NEXT STEPS

If it weren't for learning about this Zen meditative technique, I'm not sure if I would have been able to think about the relationship between technology and people the same way with green or doom scrolling. I now notice the difference between approaching bottom-up to

address issues at the right scope or distance or using a top-down, prescriptive approach.

Learning about allocentric attention has helped me think about a direction in which technology, space and humans could shape user experiences. I could see a shift going in the opposite direction from all the attention pulling products: human connection with others, but the contexts are detached from screens. The software and hardware, which require us to use executive functions to operate these interfaces are commonplace, so I'm curious about making spatial experiences as pieces of industrial design that don't pull us toward computer screens, but blend in with their environment.

EEG Sensor
While I'm aware this is narrow technical focus, I think exploring more into meditation, specifically unfocusing with an EEG sensor would be an avenue.

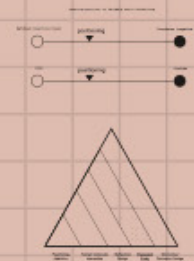One idea is a visual feedback loop, so when your gaze drifts away the screen has a way of notifying you.

If allocentric and egocentric attentive processing systems can be measured and I could think about behavior design through meditative practices.

The Returning User
An aspect for the returning user involves further developing Unfocus along the timescale of how the app becomes less instructive over time, meaning eventually they won't need the app to meditate. In other words, Unfocus is teaching the user the technique to practice on their own.

Figure 9.0
Buddha Mahavairocana at RISD Museum.

chaos
memory fwd
variance
memory bk
irrational

CHAOS
MEMORY FWD
VARIANCE
MEMORY BK
IRRATIONALITY

Problem
Doom Scrolling | Research

Mindless
Soothing
Numbing
Activity

Addictive

Green Scrolling

behavioral design
doom scrolling
human comp.
interaction
addiction
psychology
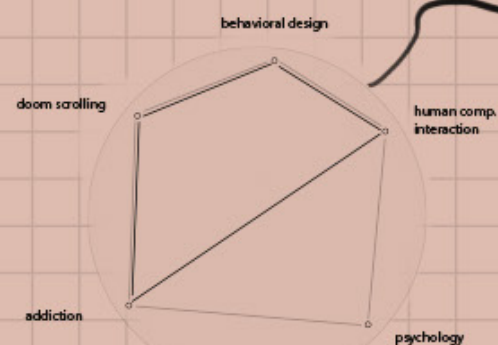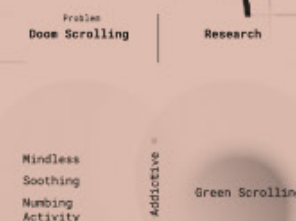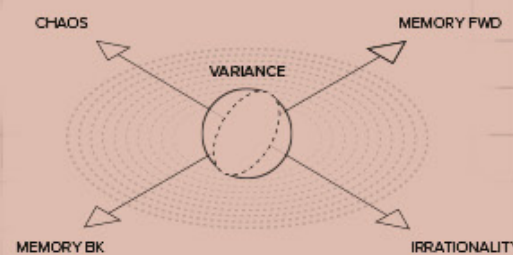
AUGMENTED
REALITY

NUDGE
THEORY

LESS
RELEVANCE
MORE
RELEVANCE
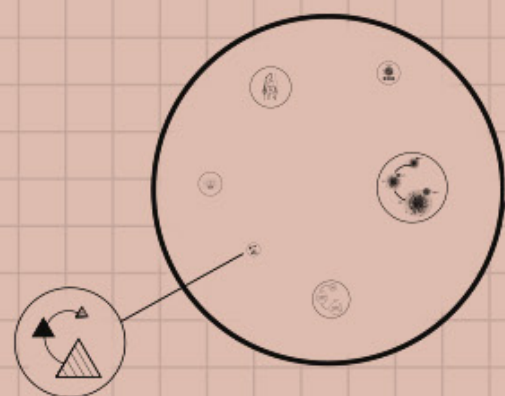
Method

With no particular hierarchy, these worked for me:

• Mental models
• Paper prototypes
• Visual prototypes
• Meditation
• Reading non-design literature

Reading non-fiction literature outside of design, like philosophy, economics and storytelling was a secondary method to process language, which helped influence my writing form.

The ability in which I was able to choose between modalities or deep thinking was through making a series of mental models. These gave way to navigating the narratives of thesis research taking into account multiple perspectives.

ROTATE
—

With this lack of experience comes discomfort of knowledge gaps, and the learning of how to navigate through these spaces. Tools like this operational modality model are essential to my practice. Its' how the effect of processing the data is hard to recall why I forget. Chaos and irrationality are parameters I think are spaces I found recurring in my own thinking. I think the underlying meaning is recurring "why?" in a series to force a particular quality of discourse.
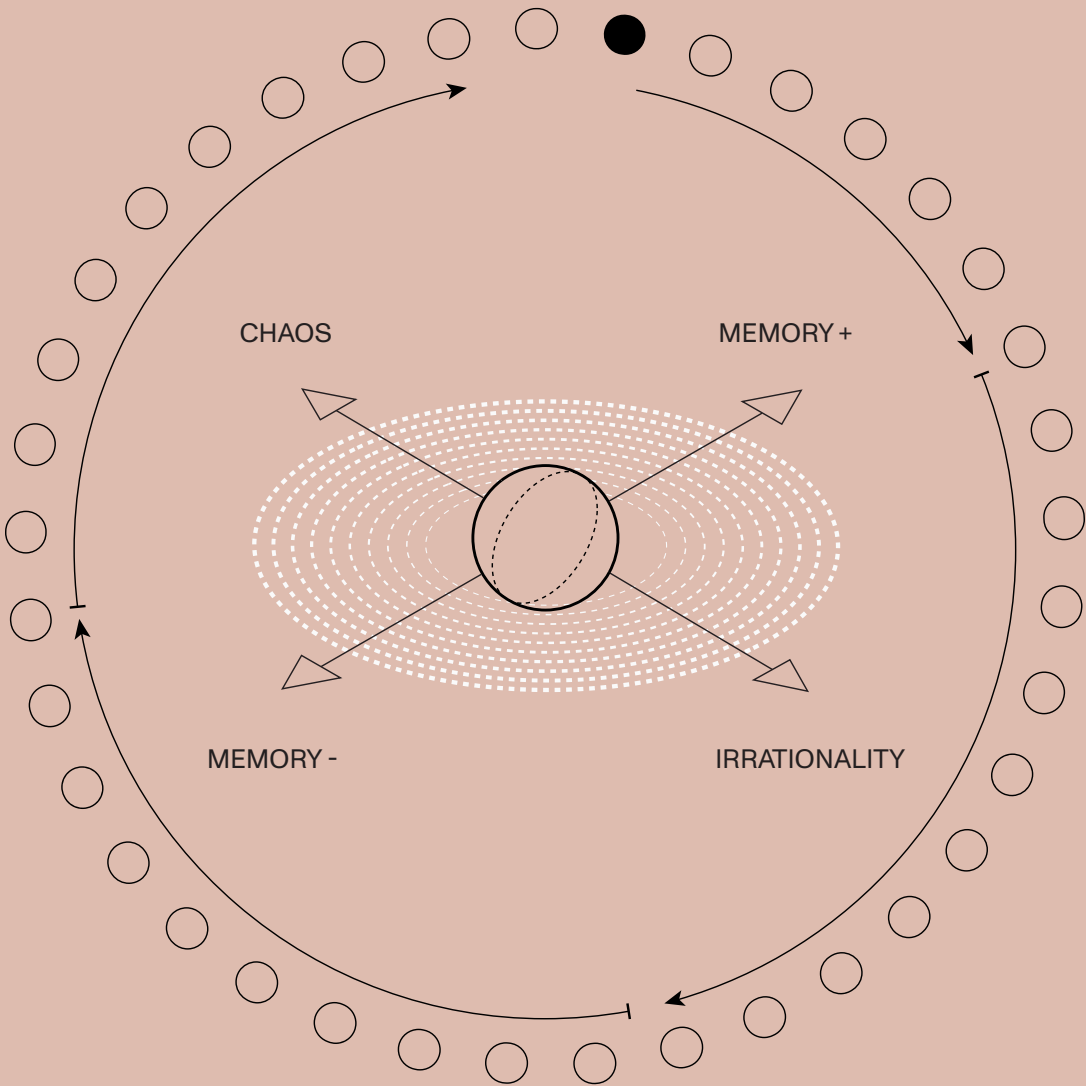
OPERATIONAL MODALITY

CHAOS

MEMORY +

MEMORY -

IRRATIONALITY

Figure 10.0. Rotate.

RELEASE

—

Follow the subcurrents of your work. Don't be too precious. I think creating a modality that probes into whether the work is a contribution to the field of existing projects is always a good, but much needed reality check. Is the case for the design proposal significant and meaningful? What is the impetus that is powering the design and the trajectory? At what point does the differential become too similar to other projects that have a similar outlook? Does their line of thinking and perhaps modeling come from a different angle?

As it relates to the "release" modality, this proves as a multi directional tool to deploy when analytical "driving", data and the inherent structures that come about. These are useful for the purposes of determining whether the leaps in logic can be used to frame an argument and defend a position. In terms of pitfalls, this can also be subjugated to scope creep, in that factors that were/are outside the narrative can work against the process, but perhaps test the robustness of the leap.

Figure 10.1. Release.

NEST

—

Showing how the larger part is related to the smaller part. Sometimes this works in a straight forward direction and other times this is a reversal. The parent child relationship is the common metaphor as the smaller always has some type of connection with the larger category. In this regard, a differentiation or expansion of "kinds" of this topic is the form. From a communications and analytical perspective, this is semiotics — reading and writing as a series of symbols which its' interpretations are rich with meaning.
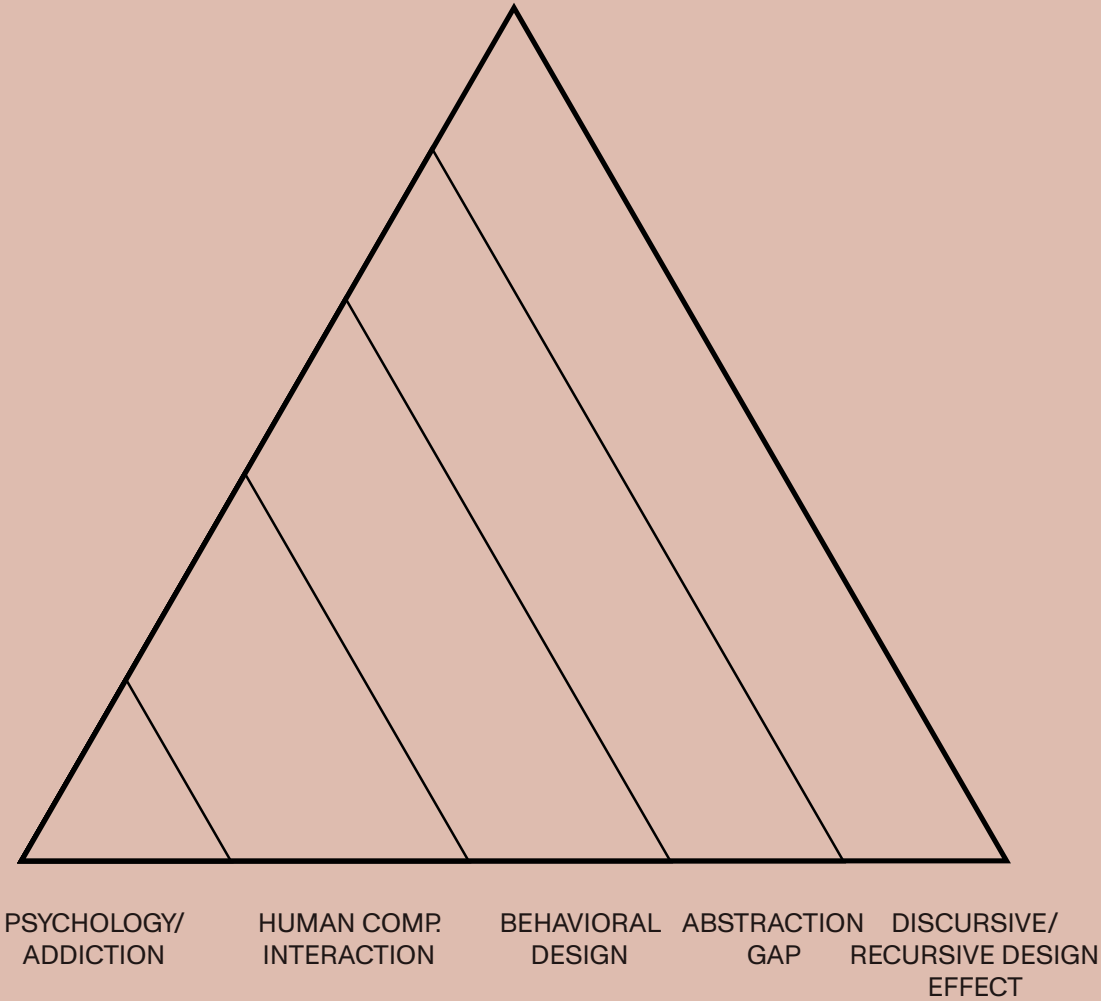

PSYCHOLOGY/ ADDICTION   HUMAN COMP. INTERACTION   BEHAVIORAL DESIGN   ABSTRACTION GAP   DISCURSIVE/ RECURSIVE DESIGN EFFECT

Figure 10.2. Nest.

CLUSTER
—

The details of which are relating to these mental models become divergent and familiar. Augmented Reality and Nudge Theory. Each dot is a variation of a use case. Each of these cases have their own language, but are structured to have a common theme which gives an adjacent topic to ponder and give meaning. Establishing a range of relevance helps connect the data point to the "centrality" of the topic, but also quantifies and makes the two areas distinct from each other. This model promotes divergent thinking, so thinking about adjacent ideas while sorting information.
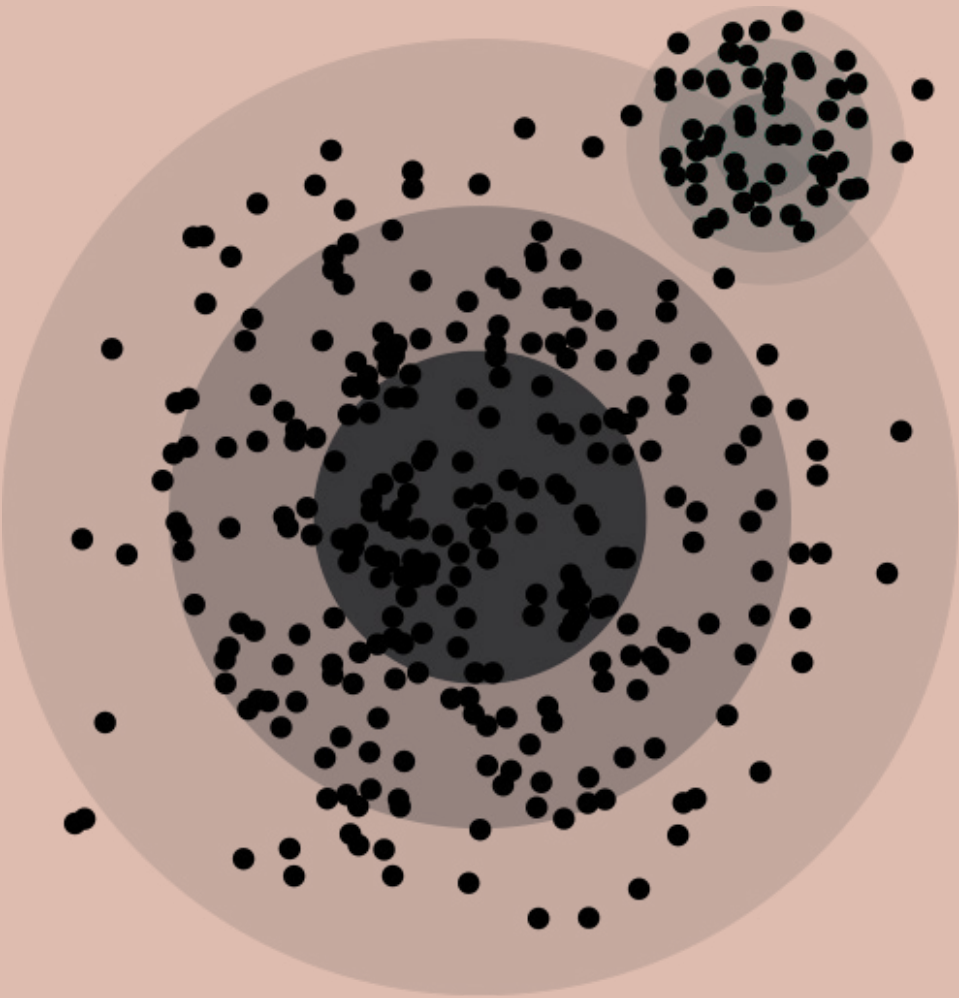
Figure 10.3.Cluster.

PARAMETRIC

—

Defining different modalities of thinking by threading these through a network of constellations. The large circle is representative of major moments in my research — isolated with their own sub-models, which are composed of smaller stars or units I can see parametrically. This serves for placing three to five variable factors.

BEHAVIORAL DESIGN

DOOM SCROLLING

HUMAN COMPUTER INTERFACES

ADDICTION

PSYCHOLOGY

Driving Change

Addiction

Habit

Neuro

Behavioral

Behavioral

Esteem

Cognition

Psychoanalysis

Social Media

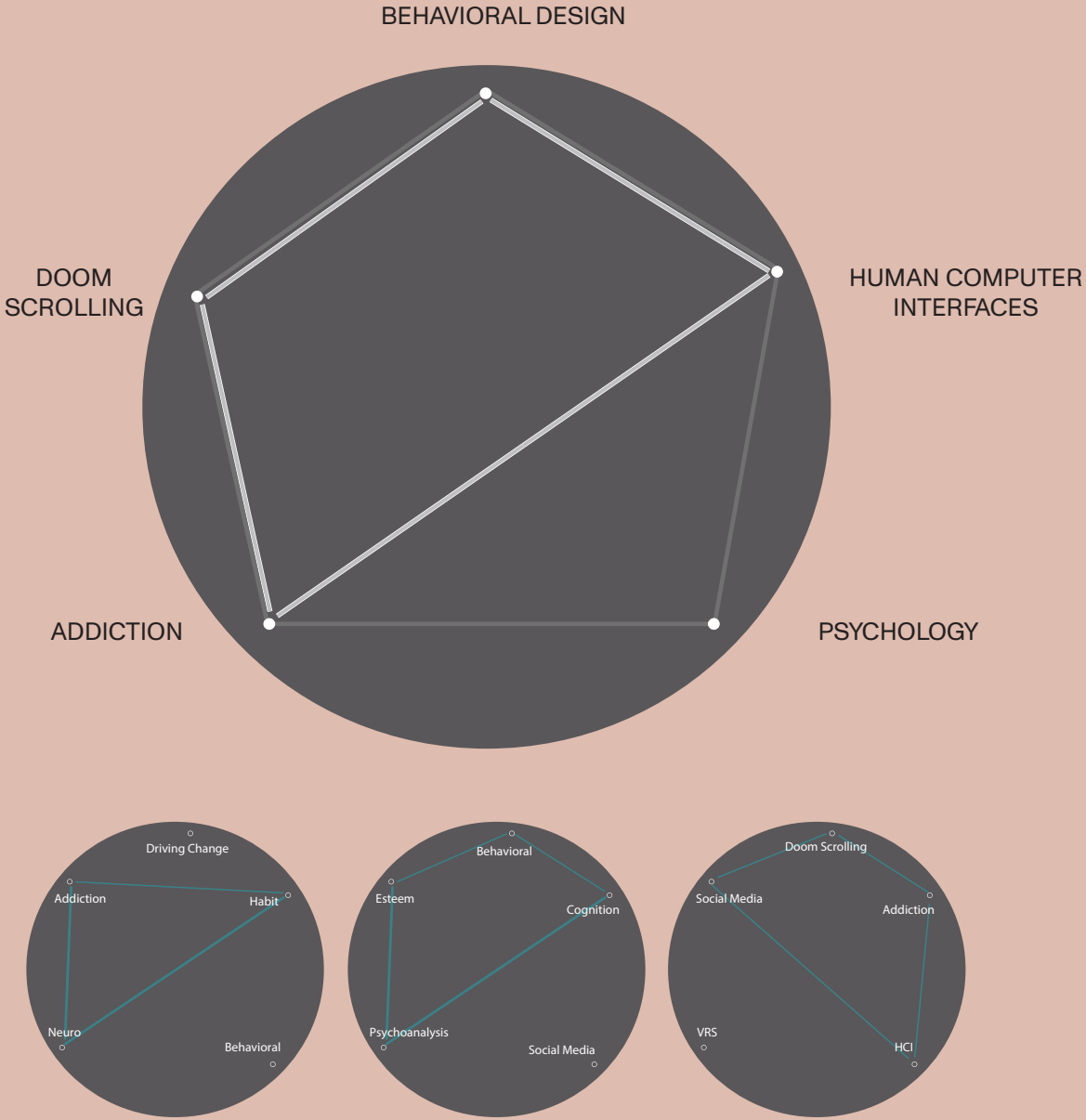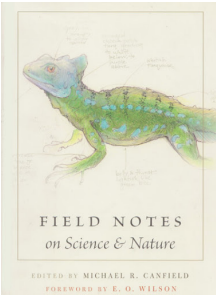Doom Scrolling

Social Media

Addiction

VRS

HCI

Figure 10.4.Cluster.

ANNOTATED BIBLIOGRAPHY
—

Canfield, Michael. Field Notes on Science and Nature. 1st edition.
Harvard University Press, 2011.

In brief, this book informs my work in the context of looking at examples of scientific journals, analyzing their structures and fodder to experiment with as paths of new formats. Where this is useful to me is the meta structures to organize complex data I see in their scientific findings and translating those fragments perhaps in a way for my research process.

Date Added: 10/28/21

Alison, Jane. Meander, Spiral, Explode: Design and Pattern in Narrative.
Catapult, 2019.
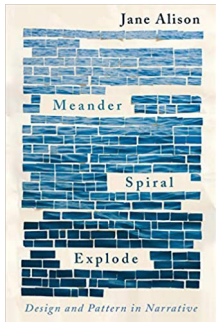
How this informs my work is looking at narrative structures non-linearly, and perhaps a modality of thinking and telling stories that doesn't follow a traditional story arc. This informs a style to write diptychs, specifically narratives that are metaphors or shapes that can include unusual aspects in my practice as stimuli or threads to "weave". To summarize: the content is written is about creating space and structure I didn't know existed, this facilitates another shape to package and communicate abstract thinking.

Date Added: 10/28/21

Thaler, Richard. Nudge: Improving Decisions About Health, Wealth, and Happiness
Penguin Books, 2009.
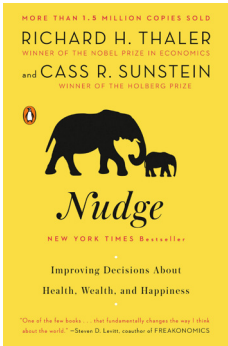
This has informed and been a strong influence in my work. As my focus relates to HCI, this is a different lens of thinking about how decisions are shaped through design. The authors come from Economics and Law, and they have one excerpt about design. In particular, these book serves as a way to look at different cases of how nudge theory works as a point of positive and negative influence, and what is the impetus for these decisions, who is making them and why. In terms of thinking the ideas of choice architecture and libertarian paternalism nest these two concepts well. This provides me clarity across a broad scope.

Date Added: 10/28/21

Wittgenstein, Ludwig. Tractatus Logico-Philosophicus. 2011.
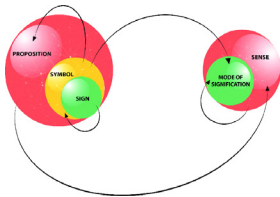
This philosophical work serves as a reminder as the limits of language. Through the premise of declaring a series of facts, this establishes the relationship in how symbols are connected in that the relationship is exactly how they relate to each other, but declaring in specific to facts the relationship is not what can be formed into what Wittgenstein would call a truth function. I think in terms of logic or value proposition this is a very clear method of building cases.

Date Added: 11/03/21

Tufte, Edward. Envisioning Information. Graphics Pr, 1990.
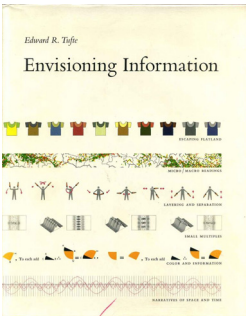
The examples of graphic design in this book serve as a benchmark of how minimalistic graphics can communicate dense quantities of information. This quality takes precedent as a pillar to lean on and part of the theme: Complexity through Simplicity. I think the balance of complexity and simplicity is harmonious.

Date Added: 11/03/21

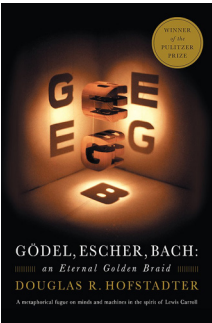Hofstadter , Douglas R. Gödel, Escher, Bach: An Eternal Golden Braid.
    20th Anniversary edition. Basic Books, 1999.

Looking at the topic of machine learning and automation, I read this as inspiration for my inquiries on recursive processes work as a means of discriminating from discursive ones. This serves as an alternative perspective of looking at thought processes within my own practice, with a programmatic view.

Date Added: 11/03/21

Cico, David. Behavioral Insights Toolkit. Deloitte Development, LLC, 2016.

This toolkit has helped inform how institutions like the IRS are addressing the design of filing taxes using behavior insights to make the experience easier to comply. In part of my analysis of choice architecture and nudge theory, this describes how Behavioral Insights can be applied in helping an organization achieve its' goals.

Date Added: 11/10/21

Norman, Donald. Emotional Design: Why We Love (or Hate) Everyday Things.
    1st edition. Basic Books, 2005.
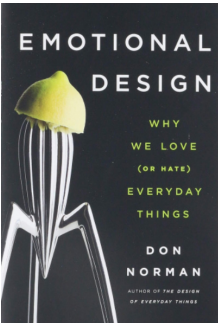
Reading this is a reminder to consider the evocations that can come from an object's appearance or form. The "3 Levels" of is something I want to consider as a point of reference in terms of shaping an experience and the emotional aspect of design.

Date Added: 11/10/21

Norman, Donald. The Design of Everyday Things. Basic Books, 2013.
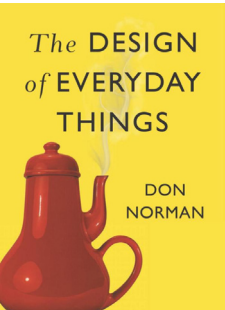
This serves as a reminder to think about design from a usability and visibility lens. Sometimes, an object can be too complicated to figure out at its' immediate encounter. Donald Norman's dissection into the psychology of the design of everyday things is a nod to the complexity that can go into a single object, which serves as a modality of thinking and my work.

Date Added: 11/10/21

Various Authors. Reasons to be Cheerful. https://reasonstobecheerful.world/

This serves as a reminder to reframe my thinking and question how this would look in a positive tone. The format of the content is a blog and each article drives to make a point of the name of the website. Also, I love nearly everything David Byrne creates.

Date Added: 11/18/21

Norman, Donald. Living with Complexity. The MIT Press, 2010.
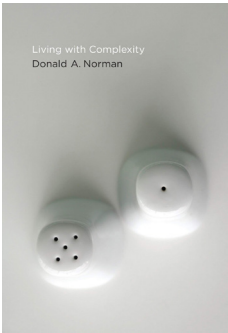
Informs me that maturity and patience when tackling complexity and the tools we have developed as a consequence is sometimes a must. Simplicity can be misleading.

Date Added: 11/18/21

Monteiro, Mike. Ruined by Design: How Designers Destroyed the World, and What We
Can Do to Fix It. Mule Books, 2019.

Monteiro claims that designers need a code to follow in their practice similar to how doctors in their medical practice as it relates to ethics and the relationship between the product and target user.

Date Added: 11/18/21

Papanek, Victor. Design for the Real World: Human Ecology and Social Change.
2nd Revised ed. edition. Academy Chicago Publishers, 2005.
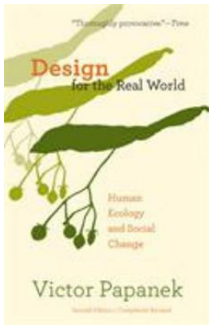
I wish I could write with as much articulation. Papanek's writing style is an aspiration of mine, in the sense that what he's saying is grounded in reality, as opposed to "high art"... He dispels confusion.
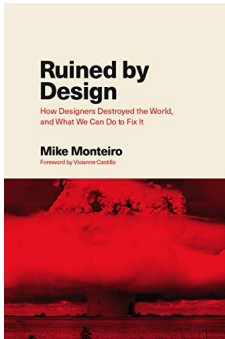
Date Added: 12/02/21

Lakoff, G., & Johnson, M. Metaphors We Live By. 1st edition.
University of Chicago Press, 2003.

The language and semantics used in this book offer a strong vantage point of looking at my work as it relates to the structures I've created with language. The concepts in this book serve as fodder for revisiting my concepts as a means to extract metaphors from the abstract.

Date Added: 12/02/21

Chandler, Daniel. Semiotics: The Basics. 1st edition. Routledge, 2001.
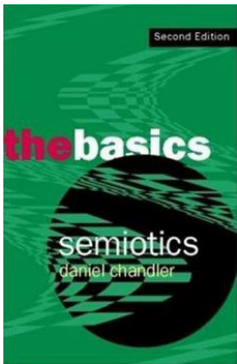
This informs my thinking and work by pivoting my thesis narrative through a multisensory lens, that is perhaps an application of semiotics or the use of symbols as a representation to push the constraints of language through certain channels used as an attempt.

Date Added: 12/02/21

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    https://www.udemy.com/course/augmented_reality_with_unity/.
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    a-wildlife-adventure/id1528014682.
Alison, Jane. Meander, Spiral, Explode: Design and Pattern in Narrative. Catapult, 2019.
Envato Elements. "All the Templates You Can Download." Accessed May 17, 2022. https://elements.
    envato.com/tiktok-intro-premiere-pro-TZF4WQR.
"Aroma Therapy Phytoncide." Accessed April 4, 2022. https://www.google.com/search?q=aroma+
    therapy+phytoncide&rlz=1C1CHBF_enUS942US942&oq=aroma+therapy+phytoncide&aqs=
    chrome..69i57j0i8i13i30j0i390l3.3389j0j7&sourceid=chrome&ie=UTF-8.
"Attentional Processing — David LaBerge." Accessed May 16, 2022. https://www.hup.harvard.edu/
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COLOPHON

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The text of *Attuning the Viewfinder* is set in Monument Grotesk, a typeface drawn by Larissa Kasper and Rosario Florio in collaboration with the Swiss foundry Dinamo. This book was designed by Ian de Silva. Composition by Ian de Silva, Providence, Rhode Island. Manufactured by Blurb on 100# matte paper.