DREAM REALITY

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Printed in the United States
LIMITED EDITION
This book is typeset in Calibri, Montserrat
Designed by the author
using InDesign CC 2024
Printed by Blurb
Hardcover Trade Book 6x9 IN
Paper: 70# White Uncoated
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This thesis is submitted in partial fulfillment of the requirements for the degree of Master of Fine Arts in Design and approved by the MFA Design Review Board of the Massachusetts College of Art and Design.

May, 2024

Acknowledgment

To my family and Hsien-Yu Liao my older brother for years of support

To Tim, Abe, Ravi, Jan, Martha, Nataliya for insightful guidance

To Felicia, Maggie, Shozab, Baopu, and Pippa for accompany my DMI journey

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Thesis abstract

Every day, we experience two realities. The first is experienced when we are awake. The second is experienced when we are asleep, dreaming. Dreams are often viewed as experiences that are out of our control. For me, this is not the case.

My thesis is an exploration into the unique realm of lucid dreaming, a state where the dreamer is aware they are dreaming. As a result of this awareness, the dreamer has the ability to influence their own dream narrative. Individuals who lucid dream often wake up with a sharp sense of distinguishing reality from dreams. This can stimulate deep reflection into the dreamer's inner life and place in the world. It is a mysterious and fascinating experience — one I practice myself.

Through designing experiences inspired by lucid dreaming, I hope to understand and examine the impact it has on dreamers and their perception of reality. By exploring different method to create a tangible dream reality, I believe interacting with and contemplating our dreamworlds can encourage critical thinking, self-reflection into our own psychology, and new insights into our waking lives. I hope to highlight the value in understanding dreams as a powerful method for self-exploration, ultimately fostering a self enquiry mindset.

Fig 1: Photo of the DMI Elements of Media class, 2022

Dreams shaped me and made me know what is real and what is unreal.

Intro

Sometimes, our dreams are joyous. Sometimes, they are painful. Sometimes, they are terrifying— the experiences are endless. So, why do we cross this chasm to dream, get hurt again, reminisce, and feel joy? Do our dreams serve us, or do people serve dreams?

Fig 2: MassArt Design and Media Center front

Let us share dreams

When I was ten, my family and I had a discussion that remains with me today. We discussed our dreams.

My dad told me about flying in the air without any help. To my dad, these dreams meant a lot. He told us they made him feel free, adventurous, and different from his everyday life, full of worry and work to make money. My father was stressed a lot of the time, and he would often argue over seemingly small issues. My father's dreams showed me something he wanted: more balance between work and family, which the freedom to fly in his dreams allowed him to do. Like many traditional Asian men, my father rarely talked about his feelings, but his dreams revealed a lot. Looking back, I believe that for my father, the dream of flying was a deeply needed way to calm himself.

As a graduate student in the Dynamic Media Institute at Massachusetts College of Art and Design, this childhood experience got me thinking — What if we shared the dreams we remember more often?

Fig 3: Photo of my older brother Hsien-Yu Liao, me, and my father Yi-Yang Liao

Fig 4: Photo of me, Drew, Joe and Seth after final review

The Dreamers

Would we understand ourselves and each other better? This question became central to the body of work I created over the last two years.

In The Dreamer's Dictionary (Condron, 1994), author Barbara Condron talks about the art of dream interpretation and thoughts and musings around her own dream experiences — a language of the mind. She writes about how the symbols in one's dream can hold deeper meaning. Condron explores her dreams, sharing interpretations with her audience. In one of her childhood dreams, she explains, "My dad was trying to fix some pipes, retrieving a wrench from a toolbox. To a six-year-old, it looked huge and somewhat ominous. He was striving to release a bolt, and I could tell he was having a hard time, for it was very rusty. As he yanked the wrench toward his body, it hit him in the mouth, causing him to bleed. I was scared. I didn't know what he had done to himself. I began to run all through the house, looking for my mother. I turned around, starting up the sidewalk to the house. As I did, Dad appeared in the doorway. In place of his head was a mole-like creature."

When she wakes up, she thinks that her dream is not finished yet, but she can not control her dream plot, which makes her cry and hyperventilate. Condron had an urgent desire to understand the deeper meaning of her dreams. She would ask her high school teacher and friends about the meanings and found the experiences in her dreams to be completely different from the experiences in her "real" world. Why does Barbara try to give the things in her dream a definition? She does it because she feels there is something to discover. There is a distance between her thoughts and her dreams, her waking logic, and her subconscious. Her book is the bridge in-between.

I believe people sometimes feel distant or detached from their dreams because events in our dreams often seem impossible in the real world. Despite this, we are still deeply connected to them in waking life. There is a divide but also a connection. It is like two countries speaking different languages, where the dream understands reality, but reality does not acknowledge the dream. The divide might seem vast, but we bridge this gap more often than we think. For example, people separated in the real world can reunite in their dreams.

Sometimes, our dreams are joyous. Sometimes, they are painful. Sometimes, they are terrifying— the experiences are endless. So, why do we cross this chasm to dream, get hurt again, reminisce, and feel joy? Do our dreams serve us, or do people serve dreams?

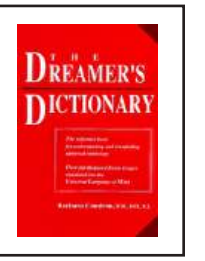


Fig 5: The Dreamer's Dictionary. Author(s): Barbara Condron, Published by: the School of Metaphysics, 1994

"To me, dreams are part of nature, which harbors no intention to deceive but expresses something as best it can."

- Carl Jung

Dreams teach me what is real

I once dreamed that my family was driving a convertible in Taipei City while being chased by a lion. I was holding onto the car's rear as if more speed would throw me off. I dreamed that my family didn't hold onto me. Eventually, I was thrown out of the car, and the lion devoured me. This dream haunted me until I was 12. Although I often dreamt of this plot, it could never happen in reality. I hope.

I like to share dreams because they have shaped my daily dreaming experiences and begun to reshape my understanding of the world. Initially, in my lucid dreams, I aspired to fly, explore urban landscapes, or delve into connecting with people. Yet, these vigorous activities frequently ended in an abrupt awakening.

Fig 6: Stable Diffusion painting of "Lion Dreams" by Harry Liao, 2023

Lucid dreaming techniques

There are many techniques that can help people control dreams (LaBerge, Rheingold, 1991). Let me tell you about these four lucid dreaming techniques and how I experienced them.

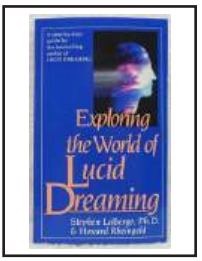


Fig 7:Exploring the World of Lucid Dreaming: by S. LaBerge & H. Rheingold , Paperback.

MILD (Mnemonic Induction of Lucid Dreams)
WILD (wake-induced lucid Dreaming)
FILD (finger-induced lucid dreaming)
WBTB (wake back to bed)

MILD - This technique is the most common way to lucid dream. From my experience, before I sleep, I tell myself, “I’ll remember my dreams.” If I wake up during the night, I usually try to think about the dream clearly and keep repeating thinking about the dream until I dream again. By that time, I will realize I am in a dream and can start lucid dreaming. If you are too sleepy when waking up at night, you should wake yourself up, and sit on the bed just a little. Then, when you get cozy again and say in your mind, “I am going to know I am dreaming.” It is like reminding yourself to remember something when you go to the store. Next, think about your dream and imagine knowing, “I’m dreaming in this dream”. Doing this over and over helps you get ready to know you are dreaming when you sleep. It is a practice of noticing where you are, which is in your dream.

WILD - I have not tried the WILD technique yet. It strikes me as a bit intimidating, but might be easy for others. The idea is to lie on your back without falling asleep. Close your eyes, DO NOT MOVE YOUR BODY. Just ignore everything, thoughts, worries, and lay

Fig 8: Stephen LaBerge, a Stanford Ph.D., legitimized lucid dreaming, invented the MILD technique, founded The Lucidity Institute, and authored key texts on lucid dreaming.

awake. After 20-30 minutes, you will feel a weight on your chest, and you won't be able to speak or move your body (sleep paralysis). At that moment, keep your eyes closed to avoid beginning to dream while your eyes are open. Then, you'll enter a lucid dream.

FILD - What you should do here is, set an alarm 5 hours from the time you sleep. After you awaken, disable your alarm while minimizing movement. Once the alarm is off, remain lying on your back and gently flutter your index and middle fingers, mimicking the action of playing a piano. Imagine you are playing piano, and slowly you'll fall asleep and wake up in your dream.

WBTB - This technique is a bit similar to the previous technique. Set an alarm 5 hours from your bedtime. Turn off your alarm. If you want you can use the bathroom, drink water, or do a quiet activity like reading a book, but DO NOT USE YOUR PHONE OR ANY OTHER ELECTRONIC DEVICES. Then, go back to bed after 20-30 minutes. You can stay up longer if you want, but no more than 50 minutes. Then, when you are about to fall asleep, you will feel like your body has become lighter. Then, slowly, you will enter a lucid dream.

I wish my dreams could last longer

Imagine how we wake up, and when we do, there is always a sense of discontinuity, as if our consciousness is not fully clear.

If we were dreaming just before waking, the moment of waking can feel like crossing into a different world. It is as if our consciousness reboots. We begin to pick up sensory perceptions, think, and reflect.

I wish my dream time could be longer. However, just as the stories in this thesis must come to an end, the stories in our dreams must end when we rise.

As the stories in this thesis, they must come to an end.

Fig 9: Juchen Wang '24 recital visual by Harry and Baopu, 2024

Common Threads

There are three common threads in my thesis projects.
They are Time, Control, and Dream Reality.

Common Threads

There are three common threads in my thesis projects. They are Time, Control, and Dream Reality.

Time

I believe a key distinction between dreaming and waking lies in how we perceive time. Dream do not follow the rules of time that exist in our everyday lives; our sense of time is distorted. In one of my dreams, I was playing poker in a casino. But the dealer took too long to show the cards. Then the manager came, and I said I wanted to see the cards. Suddenly, everything changed—the tables were empty, the dealer lost his job, and everything felt weird. After that, I left the casino and saw nothing but empty land around me. In that dream, my sense of time was distorted, and I felt the time fly during dreaming. Whether a brief moment or an extended one, dream time has a unique way of narrating the dream story.

While sleeping, our bodies are almost completely paralyzed. So, what leads our brain to these dream experiences? Before we dream, our brain goes through a special kind of sleep called Rapid Eye Movement, or REM sleep, which has been described as an "active brain in a paralyzed body." About 3-5 times a night, or about every 90 minutes, we enter REM sleep (Smith, 2024).

Brain activity patterns during sleep fall broadly into two categories: REM sleep and non-REM (NREM) sleep. Since its discovery, the REM phase has been closely associated with dreaming. Waking up people during a REM sleep phase is a common experimental meth-

IT IS TIME TO DREAM

od for researchers to obtain dream reports. A dream report is a description someone gives of their dream after waking up, covering content including visuals, emotions, and thoughts. Table 1. Phenomenological differences between REM and NREM dream reports are represented in a data table in Hobson's dreaming research journal. Sleepers awakened from REM tend to give longer, more narrative descriptions of the dreams they were experiencing and estimate the duration of their dreams as longer. The memory of a dream after REM can be more vivid and memorable than waking up in NREM. (Hobson et al, 2000) After discovering this research, I wondered why these people retained a sense of their dreams' length.

When we awake, our perception of time reconnects and corrects itself, attuning to time as it is followed in

"I have noticed that humans shut down our ability to sense time during dreaming, and we reopen the ability when we wake up."

Tim

the waking world. In my experience, there is a sense of discontinuity—as if my consciousness is not fully clear yet. I have noticed that humans shut down our ability to sense time during dreaming, and we reopen the ability when we wake up.

Fig 10: Visual of time abstract from Freepik

The activity of checking a clock is similar to a GPS system checking the time when it restarts. Somehow, time helps us orient ourselves and navigate through our lives in a metaphorical sense. However, the American Heritage Dictionary defines time as a nonspatial continuum in which events occur in apparently irreversible succession from the past through the present to the future. (American Heritage Dictionary,2022)
It is quite odd that people speak about time with a sense of authority, as if our understanding of it is complete — relying heavily on devices created to measure it. However, clocks— mechanical constructs, can never

me!

Is time as straight-forward as we often assume?

truly capture the richness of our mental experience of life and "time." In a way, they are very simplistic tools when it comes to measuring the complexities of our inner lives. We've all experienced moments where time seems to fly or crawl. This variability may be the true nature of time, something that a clock can never fully capture. This begs the question: Is time as straightforward as we often assume? Hence, when I talk about dreams, I consider time a fundamental element not only for dreams but also for reality, consciousness, and self-discovery.

Fig 13: Photos of 111 Huntington Avenue, a Boston skyscraper, 2022

Time divides our REM sleep

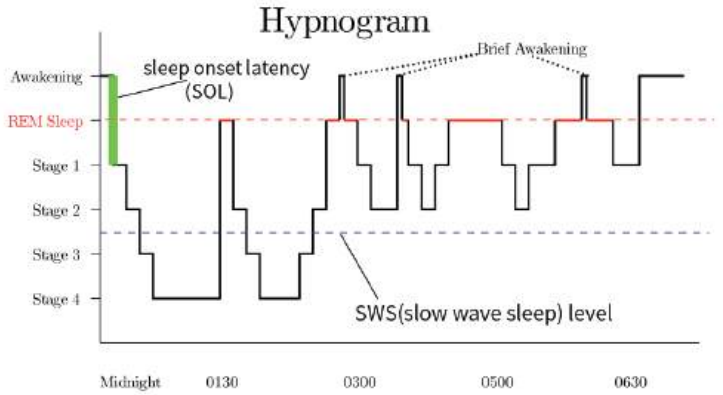


Fig 11: A sample hypnogram (electroencephalogram of sleep) showing sleep cycles characterized by increasing paradoxical (REM) sleep

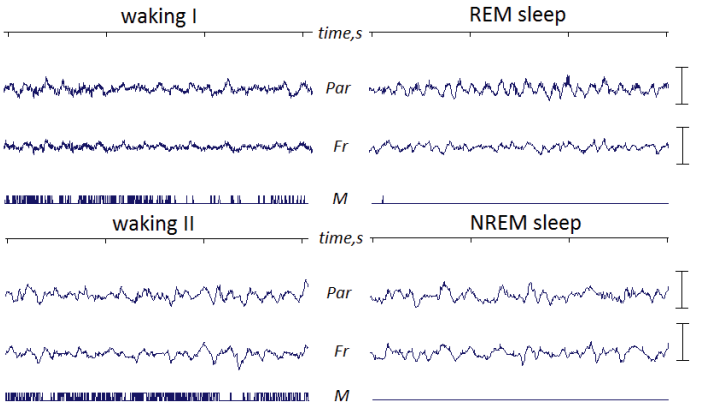
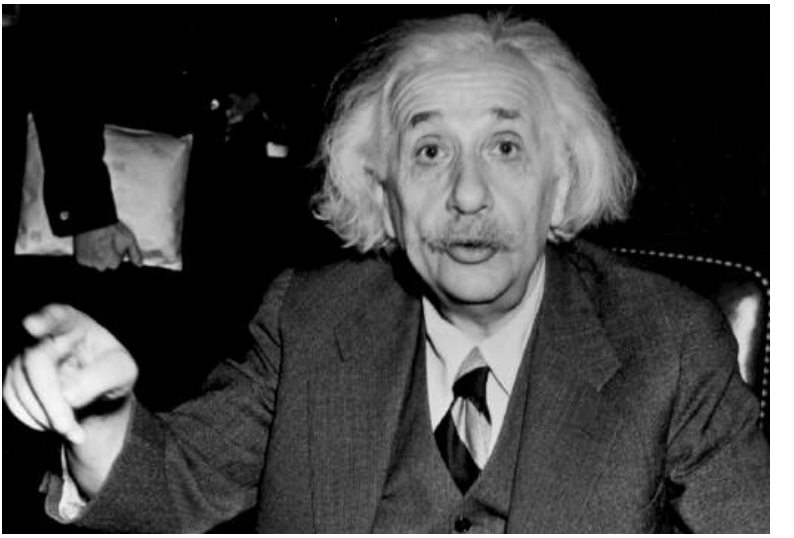


Fig 12: EEG of a mouse that shows REM sleep being characterized by prominent theta-rhythm


HARVARD MEDICAL SCHOOL

“Time is relative; its only worth depends upon what we do as it is passing.”

Albert Einstein



Control

Fig 14: Real-time dialogue between experimenters and dreamers during REM sleep (Konkoly et al., 2021)

In the article "Lucid Dreaming as Metacognition: Implications for Cognitive Science," author Stephen LaBerge shares that during lucid dreaming, the dreamer may gain some amount of "volitional control."

Dreams are often discussed philosophically. However, in the past few years, there has been much more exploration into dreams within the science community. Scientists are digging into how we can interact with lucid dreamers to get more data from the subjects. In this "Real-time dialogue between experimenters and dreamers during REM sleep" (Konkoly et al., 2021) experiment. During dreaming, people undergoing a lucid dream were able to consciously communicate with experimenters via eye movements or facial muscle signals. They were able to comprehend complex questions and use working memory. Working memory is the brain's ability to hold and process information briefly, crucial for tasks like learning, reasoning, and following instructions. It acts as a temporary storage that helps in managing and manipulating information for short periods. If real-time dialogue between experimenters and dreamers is possible, then today's lucid dreamers have been proof that they are able to sense they are dreaming and control part of the brain agency.

"Sometimes while dreaming, we consciously notice that we are dreaming. This clear-sighted state of consciousness is referred to as lucid dreaming."

- Stephen LaBerge

Co


ntrol

Dream Reality

“The ability to control dream reality is powerful. The aspect of volitional control may lead to expanding one’s imagination and insights.” (LaBerge, 1991)

From my own experience, I know that lucid dreaming is an extremely unstable technique for beginners. If I try to do activities that are too intense or different from my waking life, like harming myself or flying too fast, for example, I will wake up immediately. I have found that deviating excessively from conventional norms might lead to a disconnection from the dream itself.

Lucid dreams have the potential to be so powerful because they connect deeper subconscious desires to our conscious waking thoughts. However, I noticed people often specifically avoid talking about them. They worried that discussing lucid dreams might make others think they are losing their grip on reality. I used to carefully talk only about the dreams,

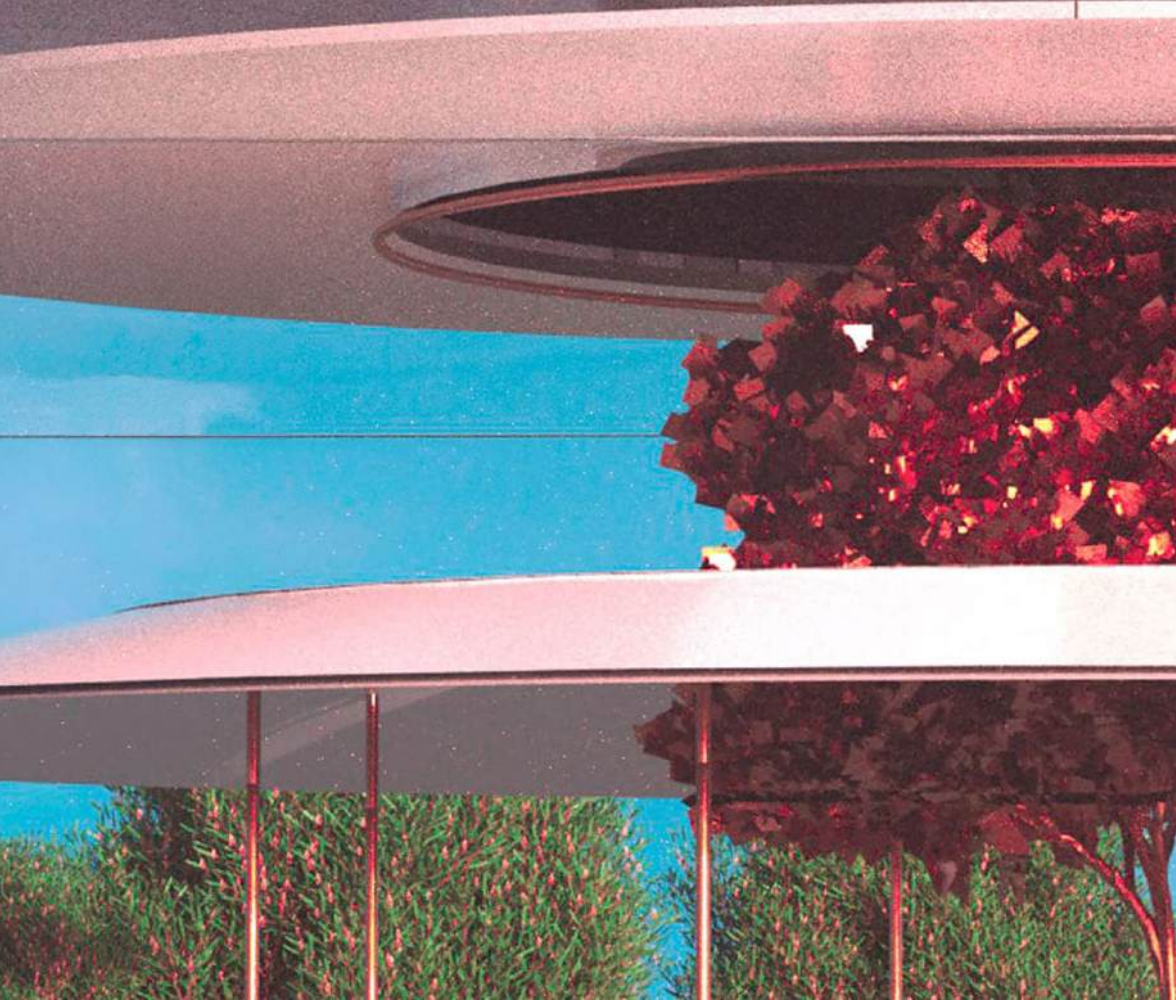
DREAM REALITY

not their importance. But things are changing. Technology and society are evolving, making once mysterious topics more familiar. This shift in perception can largely be attributed to Christopher Nolan's film, "Inception," which illuminated the concept of dreaming to a global audience. Lucid dreams aren't seen as a sign of mental problems anymore in a big way. They still offer a glimpse into a world of things that can not happen in real life, but that's becoming more accepted. In dreams, anything can happen in a big way. Our deepest fears, desires, and secrets can all come to life. Despite being so different from our pretty real world, dreams are a place where creativity thrives. Awakening is a part of the lucid dream. Only after reaching a state of heightened awakening or understanding can we truly realize that everything we have experienced, including what we consider to be reality, is like a dream—a subjective, possibly illusory experience.

A guiding idea in my book is: how dreams or lucid dreams can be brought into reality. Thus, the concept of a dream reality is an important thread in this book.

"During our dreams we do not know we are dreaming. We may even dream of interpreting a dream. Only on waking do we know it was a dream. Only after the great awakening will we realize that this is the great dream."

- Zhuangzi



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Contextual Research

The Phenomenon of the Lucid Dreams

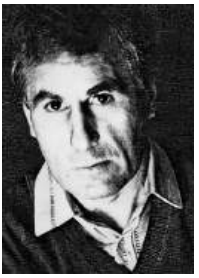


Fig 15: Paul Tholey, a German psychologist and university professor known for his research on lucid dreaming and consciousness.

Dreams versus Lucid Dreams

Dreams and lucid dreams differ primarily in the level of awareness and control of the dreamer's experiences. Psychiatrist Frederik Willem Van Eeden wrote that he divided his dreams into nine different types, lucid dreams being the seventh type.

Dream types by Eeden:
1. Initial dreams, 2. Sick dreams, 3. Ordinary dreaming, 4. Vivid dreaming, 5. Symbolic or mocking dreams, 6. General dream-sensations, 7. Lucid dream, 8. Demon-dream, 9. Wrong waking up.

But how can we define a lucid dream?
Paul Tholey (1977) proposed seven different conditions of clarity that a dream must fulfill in order to be defined as a lucid dream:

1. Awareness of spatial orientation.
2. Awareness of the capacity of choice.
3. Awareness of intense concentration, or awareness of "flow."
4. Awareness of identity (the "I").
5. Awareness of the dreaming environment.
6. Awareness of the meaning of the dream.
7. Awareness of memory.

This awareness can vary from a faint recognition of the dream state to a profound understanding and control over the dream's content, environment, and narrative. (Tholey 175, 1980)

”The seventh type of dreams, which I call lucid dreams, seems to me the most interesting and worthy of the most careful observation”

Frederik Willem Van Eeden

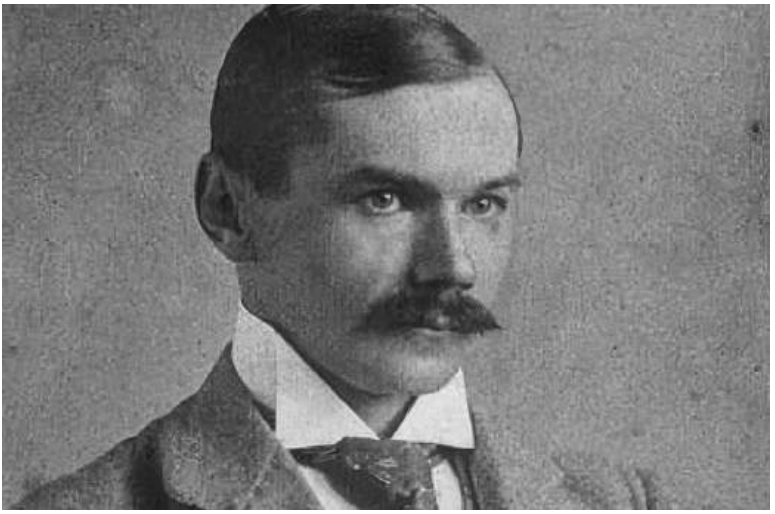


Fig 16: Frederik Willem van Eeden was a Dutch psychiatrist, writer, and poet, best known for coining the term “lucid dreaming” in 1913.

Fig 17: Dream records by Harry Liao, 2020

Lucid dreaming as practice

I learned to dream by keeping a dream journal during my junior high and high school years. I learned how to control the direction of my dreams. In my earliest lucid dreams, I wanted to fly, roam around cities, or experience erotic dreams. However, these intense activities often woke me up quickly. Over time, I developed the belief that an effective system can adjust my behavior, which turns out to be the MILD technique, as described earlier (LaBerge, 1991). Gradually, I started to do calmer activities in my dreams that would nott wake me, such as leisurely walking or letting the dream lead me while I observed everything from a third-person perspective. I began noticing the characters' interactions in my dreams, things I wouldn't pay attention to in my school life. Noticing these interactions and emotional exchanges between characters in my dreams gave me insight into people and relationships in my real life.

The practice of lucid dreaming, as in cultivating the dreamer's ability to be aware that they are dreaming, is central to both the ancient Indian Hindu practice of Yoga Nidra and the Tibetan Buddhist practice of dream Yoga. (Smith, 2024)

Self-enquiry mindset

From my own experience, a self-enquiry mindset means to keep asking questions and answering them constantly. Why does the Self-enquiry mindset relate to lucid dreaming? Realizing we are in a dream while dreaming is the quickest method to lucid dreaming. This aspect might be unfamiliar to most people, as consciousness within dreams seems uncontrollable.

Additionally, the act of becoming lucid in dreams requires multiple attempts, which require a method for testing reality. In dreams, checking a clock, doing math, or reading something are all methods of reality check. (Green et al, 1994)

Through repeated checking, it is possible to achieve the simple awareness that one is dreaming (Zugor, 2016). By continuing to practice lucid dreaming, I eventually achieved the self-enquiry mindset because I questioned the dream to achieve control and realized aspects of myself through the dreams.

"We can carry not only knowledge but also moods from the lucid dream state to the waking state."
- Stephen LaBerge

Artistic Influences

Alice In Wonderland

The classic book “Alice’s Adventures in Wonderland” (Carrol, 2000) serves as a quintessential example of dream story, offering a rich interpretation of dream experiences. In this narrative, Alice’s dream about a fantastical journey in a realm somehow ruled by playing cards symbolizes dreams’ boundless and often surreal nature. In a conversation between Alice and the White Rabbit, Alice asks, “How long is forever?” The White Rabbit answers, “Sometimes, just one second.” Questions like these in the book spurred thoughts around how time and dreams are connected.

> **“Alice: How long is forever? White Rabbit: Sometimes, just one second.”**
>
> **Lewis Carroll**

Fig 18: Drawing of Alice in Wonderland

Paprika

In “Paprika,” director Satoshi Kon vividly depicts the idea of exploring and giving tangible form to dreams through several ingenious means. First, the film’s stunning dream sequences feature surreal, mind-bending visuals that defy the laws of reality, allowing viewers to fully experience the boundless possibilities of the dream world. Moreover, the introduction of the “DC Mini” technology enables characters to literally enter and manipulate each other’s dreams, blurring the lines between dreams and waking life. Kon further challenges the notion that dreams are mere fantasies by having events in the dream realm directly impact the physical world, suggesting dreams can have tangible consequences.

Fig 19: Satoshi Kon was a Japanese film director, animator, screenwriter, and manga artist, renowned for his influential work in psychological and suspenseful anime and films, such as “Perfect Blue,” “Paprika,” and “Tokyo Godfathers.”

Perhaps most notably, the film explores the concept of lucid dreaming, where one becomes aware they are dreaming and can control the experience - personified brilliantly by the reality-bending character Paprika. Through such imaginative storytelling devices, “Paprika” brings the abstract realm of dreams vividly to life on screen.

Fig 20: Movie poster of Paprika, 2006

Inception

Fig 21: Director of "Inception." Nolan, Christopher

"Inception," — a must-watch film for anyone interested in lucid dreaming, innovatively uses a dream-within-a-dream framework to craft a multitude of imaginative scenarios. In one important scene, the team constructs an elaborate dream world that replicates the target's own subconscious expectations of reality. This includes recreating familiar locations, such as his office, with meticulous attention to detail. The goal is to lull the target into a false sense of security, making him believe he has already woken up and is operating in the real world. The film inspires viewers to envision and construct intricate landscapes in their own dream worlds.

Fig 22,23: Movie posters of the "Inception," Warner Bros. Pictures

Fig 24, 25: Movie footages of the USS Callister, Playtest from Black Mirror TV series

USS Callister - Black Mirror

The “USS Callister” episode of the show “Black Mirror” tells a profound story about a futuristic video game that interfaces with the human unconscious. The episode delves into the parallels between the freedom experienced in lucid dreams and the limitless possibilities within the game, where players can act without physical or societal constraints. It raises poignant questions about the integration of advanced technology in virtual reality, particularly in online gaming, and the ethical implications of treating AI as mere tools devoid of unconscious or self-awareness.

Playtest - Black Mirror

“Playtest” is another episode from “Black Mirror”. This episode explores the concept of unconscious manipulation akin to dream manipulation. Through the fictional game studio “SaitoGemu” latest immersive video games, it highlights the concept between the brief duration of the REM sleep cycle and the seemingly elongated experience of time within a dream. It offers a compelling illustration of the infinite nature of dream perception within a fleeting temporal frame.

Cyberpunk 2077

Fig 26: Video game cover of Cyberpunk 2077, CD Projekt, 2020

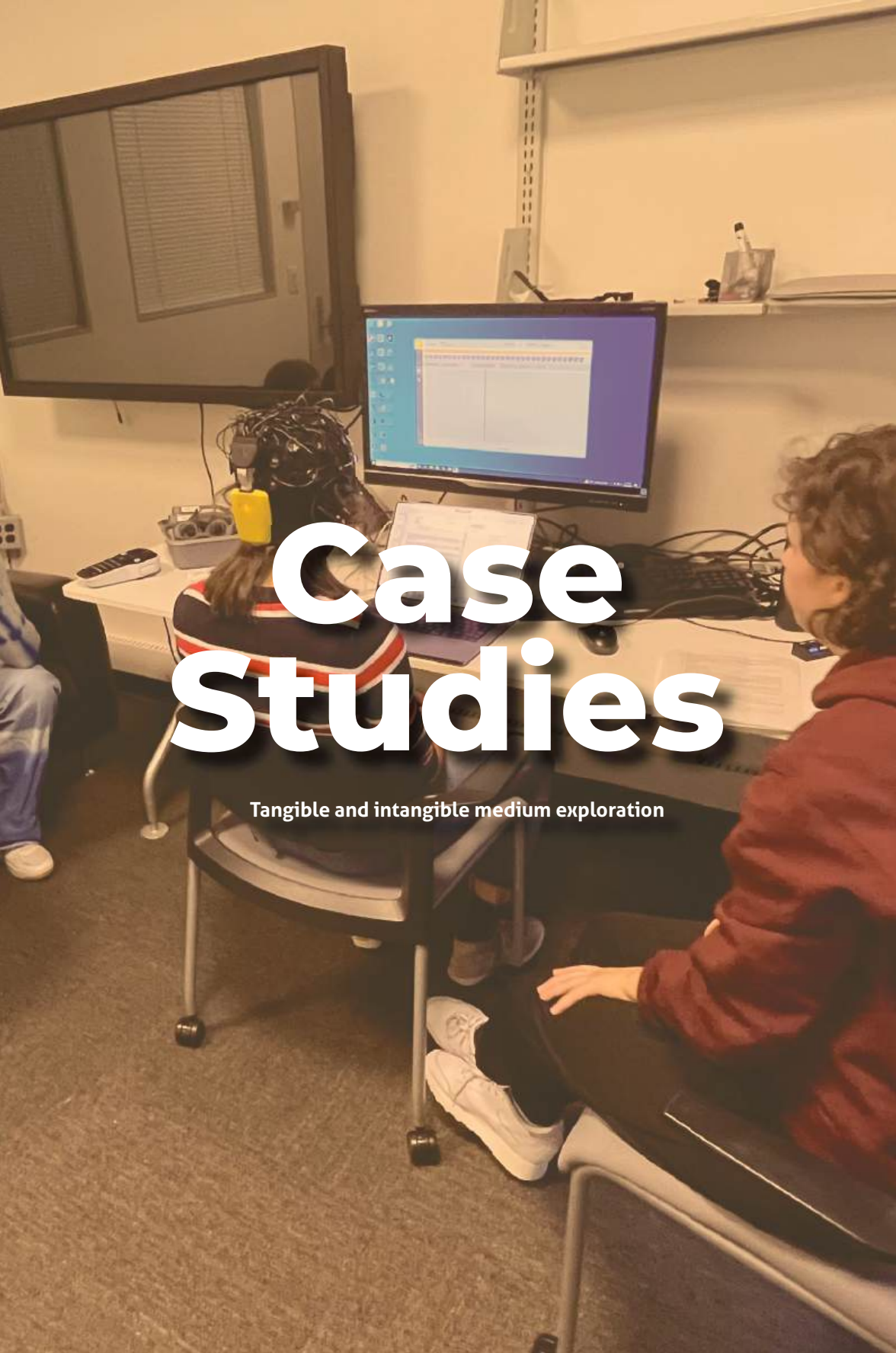
Fig 27, 28 (below and right page): Video game assets of Braindance from Cyberpunk 2077

"Cyberpunk 2077" is a futuristic role-playing video game, introduces a unique concept called "Braindance." Braindance is a revolutionary technology in the game's universe that allows users to experience the memories and sensations of another person. Essentially, it is a form of virtual reality that's incredibly immersive, enabling users to live through the experiences of others - including their emotions, thoughts, and physical sensations.

This technology serves multiple purposes within the game's narrative. It can be used for entertainment, as a form of escapism, or for more practical purposes like investigation and learning. Braindance sessions are depicted as intense and vivid, often blurring the lines between the user's own reality and the experiences within the Braindance

The concept of Braindance in "Cyberpunk 2077" is a fascinating exploration of the potential future of virtual reality and its implications on society and individual psychology. It raises questions about empathy, experience, and the nature of reality itself, as users can virtually "walk in someone else's shoes" in the most intimate and comprehensive way possible in today's technology.


CYBERPUNK
2077



Case Studies

Tangible and intangible medium exploration

About My Four Case Studies

I started my thesis with a deep interest in lucid dreams, sparked by my project "Lucid Dreams History Timeline Exhibition." I am also curious about how we can use things like videos, computer programs, and video games to turn the dream experience from something you can touch into something you can see and interact with digitally.

I looked into this through four projects, each mixing real-world objects you can touch with digital experiences. These projects include digital videos (Project 2), a program that turns dream stories into pictures (Project 3), and a video game (Project 4). Project 1 takes a closer look at dream history and research in a gallery installation way.

Case Study 1: Lucid Dreams History Exhibition - My installations focus on the research and history related to dreams, providing an intangible yet immersive learning experience through interactive formats.

Case Study 2: Dream Handcrank - My project utilizes a digital video player concept, inspired by the tangible action of using a hand crank, to play videos related to dreams, blending physical interaction with digital visualization.

Case Study 3: Dive into the Dream - A software application that generates images from dream descriptions, showcasing how intangible thoughts can be converted into tangible visuals through digital means.

Case Study 4: Aware of Dreams in Dreaming - A video game demo where players control a character's dreams, illustrating the intangible concept of dream manipulation through game control.

During my time at MassArt DMI, I collaborated with several people on different projects; a robot limbs project with Harvard and MIT students, a mobile application prototype user experience project with MassArt MDES students, and a recital visual project for NEC friends. However, as one does when developing a thesis, I had to leave these experiences alone, and move toward building my thesis around my topic, lucid dreaming. This is how I narrowed down the projects to include in my thesis book.

Fig 29: Photo of Harry Liao during the Fresh Media 2023 show


Lucid Dreams
History Exhibition

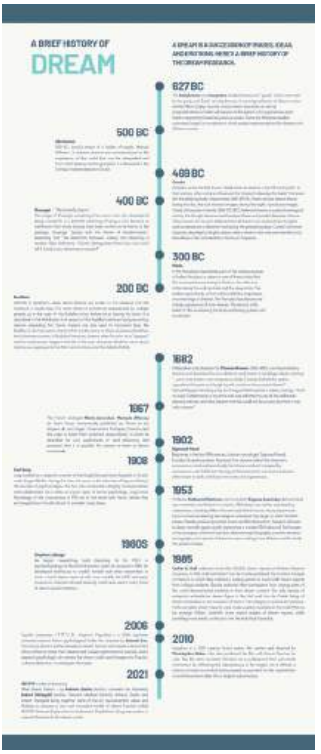
Lucid Dreams History Exhibition

Project duration: September - December 2022

Case Study One

Project Overview

The Lucid Dream History Exhibition took form as a gallery installation that exhibits a "History of the Phenomenon of Lucid Dreams", which I developed myself through research. One of the main purposes of this project was to showcase how people throughout history thought about dreams in general, and to display this information in the form of an educational exhibition in the DMC gallery space at Massachusetts College of Art and Design. In addition, I created an interactive installation at the end of the gallery. It involved a simple laser detector that could switch to different parts of my research video when people walked past.



Scenario

For a Design Seminar course at DMI, I created a timeline of the history of lucid dreaming in order to discover connections throughout history, shed light on this mysterious part of the

Fig 30: Research results, Lucid Dreams History Timeline by Harry Liao, 2022
Fig 31: MassArt Design and Media Center inside

Fig 32, 33, 34: Video screenshots of Lucid Dreams History Exhibition, 2023

human experience, and develop my own theories around the subject. After research and analysis, I went on to speculate about possible future developments in regards to understanding and interacting with the world of lucid dreaming. I also researched the relationship between dream history and its impact on contemporary creation.

We read books and watch online courses to learn specific skill sets and keep ourselves updated with the latest knowledge. I believe learning through immersive interaction is highly effective in understanding and processing new information. Lucid Dream History Exhibition was designed to offer my audience an immersive and interactive style of learning into a topic that is not often explored from this framework. I hoped the installation would allow people to have fun and learn.

Process

At first, I divided the history of lucid dreams into Three different ages: The Religious Age, The Psychological Age, The Computer Science Age.

During the research process, I stumbled upon records of religious literature discussing practices and perspectives on dream states, which is what led me to develop “The Religious Age” as the initial era in the history of lucid dreaming.

The “Psychological Age” section developed as I delved into sociological and psychological discussions around lucid dreaming, specifically focussing on ideology developed by psychologists Sigmund Freud and Carl Jung.

Fig 35: Photo of guest Seth checking the Lucid Dreams History Exhibition, 2023

The research I explored that was the most shocking to me is what led to the creation of "The Science Age". This dove into technological innovations and scientific research methods to learn more about dreaming and lucid dreaming. I could not believe that human beings had begun brain wave exploration experiments in recent years. The development of Neuralink, a newly developed Brain Computer interface, in particular, has helped popularize and commercialize this technology. Even after completing this work and exploring lucid dreaming myself from a technological perspective, I still am shocked by the thought of everyone in the world using this technology in the near future.

While working on this project, I was also attending a course at MIT called "Human 2.0," where I discussed theories, ideas and worked with BCI (Brain Computer Interface) technology. This was an exciting pairing as I was beginning to develop ideas around a speculative future of lucid dreaming.

Eventually, I added the "Speculative" section to my research paper; it was still the most challenging part to develop. I needed to come up with a set of

completely new ideas on how to interact with lucid dreaming based on my own understanding of current development trends and then use those ideas to speculate on the future development of lucid dreaming technology. And, in case you could not already tell, “lucid dreaming technology” is a pretty niche topic. It required not only a deep understanding of current development trends around “lucid dreaming technology” but also a strong ability to analyze and predict future development trends, skills I gained in developing this project.

In the end, I wrote an essay based on my research, which later transformed it into a video script for a video included in the final Lucid Dreams History Exhibition.

Fig 36: Photo of guest Seth checking the Lucid Dreams History Exhibition, 2023

Content Create Phase

Drawing inspiration from TED talks, I delved into video production, mastering the technical part of green screen post-production to enhance my visual storytelling— which I hoped would result in a Ted Talk style educational speech around Lucid Dreaming.

Fig 37: Lucid Dream History Video by Harry Liao

For the video I recorded voice-overs explaining some of the content from my research, ensuring they were fluent and genuine. Finally, I merged the audio with visual elements in the editing phase.

Eventually, I set up a projection format within a gallery space to showcase The History of Lucid Dreams, including a projection of the Ted Talk style research video. I placed a working prototype of a simple laser detector which would switch the video slides when people walked past, making the exhibition, and processing of information interactive. Below is a summary of some of the ideas and information shared in the venue.

Fig 38: Lucid Dream History Research Video, and Venue of Lucid Dreams History Exhibition

Research Video Content

Fig 39: The Dream Book, Iškar Zaqīqu, the ancient Akkadian Epic of Gilgamesh contains numerous examples of dream interpretation, 1595 BCE

People have wondered why we dream and what the meaning of our dreams will be forever. There are many theories and ideas about why we dream, but we still struggle to completely understand. In the following section, I explore the idea of dreaming from a religious, psychological, and scientific perspective. I share perspectives from various cultures and religions around dreams and their purpose. I also explore dreams from a psychological, philosophical, and artistic perspective. I highlight well-known psychologists Sigmund Freud and Carl Jung. Though they are both controversial figures, their theories about dreaming are still some of the most widely known. The information shared below is the research that made up the four eras included in the History of Lucid Dreaming; The Religious Age, The Psychological Age, and The Science Age.

Religious Age

Around 600 BC, the Babylonians, people who lived in Babylon or Babylonia, as well as Assyrians, people living in Mesopotamia. The Interpretation of Dreams in the Ancient Near Eastwith a Translation of an Assyrian Dream-Book. Assyrians believed that dreams could be divided into two categories: “good” dreams, which the gods sent, and “bad” dreams, which were sent by demons. In Iškar Zaqīqu, the book detailed left side, there are records of various dream scenarios, some of which list different possible outcomes based on whether people experienced similar dreams resulting in different insights or thoughts around their meaning. (Oppenheim 179, 1956).
The Dream Book, iškar dZaqīqu (“core text of the god

Zaqīqu"), is an eleven tablet compendium of oneiromancy written in Akkadian, an early Semitic language spoken in ancient Mesopotamia.
In his book, "A Letter that Has Not Been Read: Dreams in the Hebrew Bible," Shaul Bar discusses what dreams meant to ancient Hebrews, Semitic speaking, focusing specifically around 500 BC. Like many other cultures, some of which are explored below, they believed dreams were a way to receive a divine revelation. An example from Bar's book is the Hebrew prophet Samuel, who would "lie down and sleep in the temple at Shiloh before the Ark and receive the word of the Lord."

Fig 40: Talmud Bavli - Yeshivah, Succah Vol.2 (Yiddish)

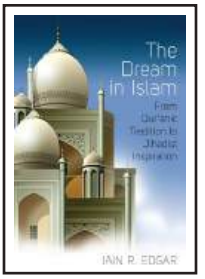
In the Jewish Talmud, dreams are considered part of an experience of the world that can be interpreted, and from which lessons can be garnered. In the Talmud (Berakhot 56b-7, 30 BCE - 200 CE), it's discussed that seeing a well in a dream has significant meaning. According to different sages or spiritual leaders; Rabbi Ḥanina interprets it as a sign of peace, linking it to a biblical story where finding a well leads to peace amongst people. Rabbi Natan sees the well as a symbol of finding Torah. Another way of explaining this is associating it with life and wisdom as the Torah is likened to a "well of living water." Rabbi Natan simplifies the interpretation, suggesting that a well in a dream directly symbolizes life itself (Talmud, Tractate Berakhot 55–60).

אָמַר רַבִּי חֲנִינָא: הָרוֹאֶה בְּאֵר בַּחֲלוֹם — רוֹאֶה שָׁלוֹם, שֶׁנֶּאֱמַר:
"וַיַּחְפְּרוּ עַבְדֵי יִצְחָק בַּנָּחַל וַיִּמְצְאוּ שָׁם בְּאֵר מַיִם חַיִּים". רַבִּי נָתָן
אוֹמֵר: מָצָא תּוֹרָה — שֶׁנֶּאֱמַר: "כִּי מֹצְאִי מָצָא חַיִּים", וְכֹתִיב הָכָא:
"בְּאֵר מַיִם חַיִּים". רַבָּא אָמַר: חַיִּים מִמָּשׁ.

Fig 41: Jacob's dream of a ladder of angels, c. 1690. Michael Willmann

importance to multiple Abrahamic religions, dreams were of a supernatural character. The Old Testament includes frequent stories of dreams with divine inspiration. The most famous of these dream stories is represented in a painting known as "Jacob's Dream of a Ladder". The painting represents Jacob receiving a divine dream, seeing a ladder like structure up to heaven. The image on the left is. Jacob's dream of a ladder of angels, c. 1690. Michael Willmann that stretches from Earth to Heaven.

In "The Dream in Islam: From Qur'anic Tradition to Ji-



hadist Inspiration" author Iain R. Edgar highlights the important role dreams play in the history of Islam. He shares that "By exploring patterns of dreams that dream might foster the Jihadist action, a cross-cultural, psychological, and experiential understanding of the role and significance of such contemporary critical political and personal imagery can be achieved." (Edgar, 2011)

Fig 42: The Dream in Islam: From Qur'anic Tradition to Jihadist Inspiration

Fig 43: Zhuangzi The Butterfly Dream Zhuang Zhou 莊子 286 BC

Around 300 BC, Zhuangzi The Butterfly Dream Zhuang Zhou 莊子 286 BC, in "The Butterfly Dream", assumes that the difference between waking and dreaming is a false dichotomy, or separation. He uses a metaphor— whether the dreamer is dreaming of becoming a butterfly or a butterfly is dreaming of becoming a human. His writing led to an endless conversation between conscious and unconscious in the Eastern world.

In 200 BC, in Buddhist literature, dreams were inter-

preted as precognitive dreams, meaning the dream will happen in the future, because the idea of reincarnation is prominent in the religion. An example of this can be found in the dream of Ashoka's Mother, the story of King Ashoka, as documented by Romila Thapar in "Aśoka and the decline of the Mauryas" (1961), the main character may have experienced it countless times in the same life.

Around 150 BC, Idital - Soura Wall Painting
The Saora tribes of central India paint these Iditals, or pictograms, on the walls of their houses. They are believed to be dream communications from the spirit world. Such images transform the wall upon which they are painted into a doorway between the spiritual kingdoms and the material world.(Malcolm 81, 1994)
Shamanism is a system of religious practice. His-

Fig 44: Illustrative representation of Aśoka and the decline of the Mauryas (Buddhist)

torically, it is often associated with Indigenous and tribal societies and involves the belief that shamans, with a connection to the otherworld, have the power to heal the sick, communicate with spirits, and escort souls of the dead to the afterlife. The origins of Shamanism stem from indigenous peoples of far northern Europe and Siberia. (Malcolm 107, 1994)

In David Jay Brown's book "Dreaming Wide Awake: Lucid Dreaming, Shamanic Healing, and Psychedelics," he highlights the Shamanic idea of being called through dreams or signs. (Brown, 2016) In some traditional Shamanic societies, training to become a shaman varies in length but generally takes years. In essence, the Shaman becomes an interspecies interpreter, a "traveler between worlds," who interposes himself on behalf of his tribe, clan, or people, and the content and mode of his lucid dreaming are very much dedicated to the traditions and needs of the people he or she serves.

Fig 45:Idital - Soura Wall Painting
Fig 46: Shanman, Karadji (Goldwin 106, 1994)

The Psychological Age

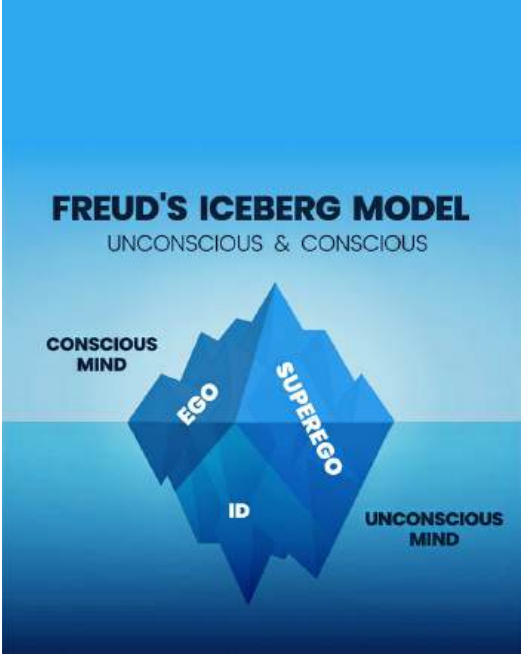
Fig 47: Philosopher Sir Thomas Browne
Fig 48: The French sinologist Marie-Jean-Léon Lecoq

How do Psychologists think about Lucid Dreams?
"...yet in one dream I can compose a whole Comedy, behold the action, apprehend the jests and laugh myself awake at the conceits thereof." (Browne 84, 1642)

The quote above is from philosopher Sir Thomas Browne's book Religio Medici by Sir Thomas Browne - Sec 12. Who held a strong fascination with dreams, describing his own ability to lucid dream above.

In 1867, The French sinologist Marie-Jean-Léon Lecoq proposed that anyone can learn to dream consciously. He mentioned that in his dream, he could dream about the different personalities of his wife, and it felt so real.

Beginning in the late 19th century, the Austrian neurologist and psychoanalyst Sigmund Freud, often viewed as the founder of psychoanalysis, theorized that dreams reflect the dreamer's unconscious mind and dream content is shaped by "unconscious wish fulfillment." (Freud, 1997) He argued that important unconscious desires often relate to early childhood memories and experiences. In Freud's theory, the personality is seen as a psychological mechanism that controls behavior from within, determining a person's behavioral characteristics or patterns in all given situations. Freud believed that the complete personality structure is composed of



"The interpretation of dreams is the royal road to a knowledge of the unconscious activities."

Sigmund Freud

three parts: the id, the ego, and the superego. The id is the instinctive self, entirely in the unconscious. The id is a chaotic world that contains a jumble of disorganized, unstable, suppressed desires that hide various instincts that are not acceptable to modern human social ethics, morals, and legal regulations. The id follows the "pleasure principle," completely unaware of what values, good and evil, or morality are, only knowing that all costs must be paid in order to satisfy its own needs. The ego is the self that faces reality, developed through secondary learning and contact with the environment, a part of the conscious structure.

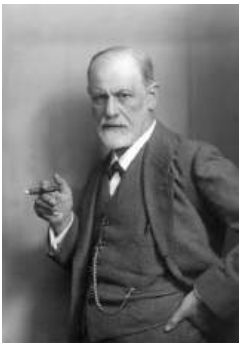


Fig 49: Sigmund Freud's iceberg model of unconscious and conscious

Fig 50: Portrait of Sigmund Freud

The ego is a mediator between the id and the external environment, following the reality principle. It must satisfy the needs of the id and also prevent behavior that violates social norms, moral standards, and laws.

The superego is the moralized self, also differentiated and developed from the ego. It is the identification of the moral behavior of parents during childhood and the imitation of social norms. It is gradually formed through the influence of cultural traditions, values,

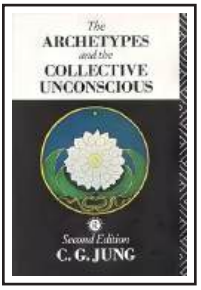


Fig 52: The Archetypes and the collective unconscious by Carl Jung

and social ideals. It is composed of moral ideals and conscience, the judicial department responsible for morality in the personality structure, representing all moral restrictions, and the driving force for higher actions in human life. It follows the "moral principle" and strives to achieve moral perfection. It is also the source of feelings of guilt and a sense of responsibility for wrongdoing. The relationship between the id, ego, and superego is often in conflict, but under normal circumstances, they cooperate with each other to form a complete personality.

Around 1908, psychologist and psychoanalyst Carl Jung had outstanding achievements in dream interpretation. (Jung, 1963) - Dreams reflect the subconscious mind and are highly valued by psychologists. He had estimated that he would interpret 80,000 dreams in total. The most significant difference between Jung's theory and Freud's is that his theory has been more widely examined. In contrast to Freud's view that dreams are an implicit expression of repressed wishes, Jung emphasized that dreams have a compensatory effect.

Carl Jung was a Swiss psychiatrist and psychoanalyst who developed a theory of the unconscious mind that differs from Sigmund Freud. Jung believed that the unconscious could be divided into two parts: the personal unconscious and the collective unconscious. The personal unconscious is made up of experiences, thoughts, and feelings that an individual has had but has forgotten or repressed. The collective unconscious, on the other hand, is a universal, inherited part of the unconscious that is shared by all humans.

Jung believed that the collective unconscious contains archetypes, which are universal, symbolic patterns that can take on specific meanings when they are activated in an individual's life. These archetypes can influence a person's thoughts, feelings, and behaviors in various ways. According to Carl Jung's theory of the unconscious, there are several fundamental archetypes that influence human behavior. These archetypes include the persona, which is the mask or public image that a person presents to the world; the anima, which is the female aspect of the male psyche; the animus, which is the male aspect of the female mind; and the shadow, which represents the unconscious, often darker side of the psyche. Jung believed that the persona is a mask that people use to adapt to their social environment, while the

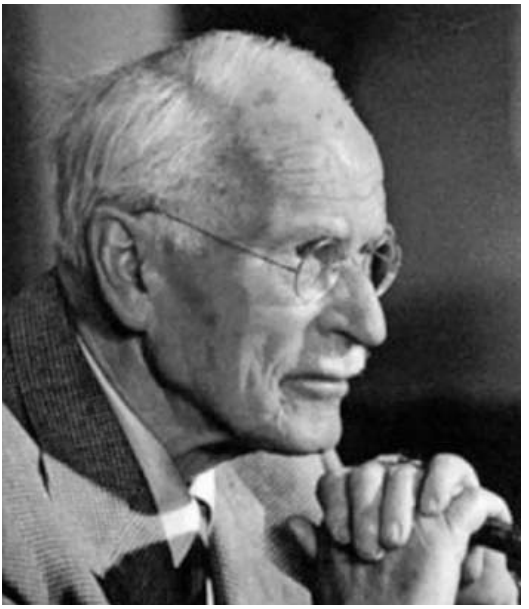


Fig 51: Portrait of Carl Jung

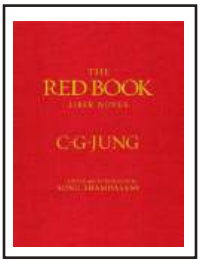


Fig 53: The Red Book by Carl Jung

anima and animus represent the feminine and masculine aspects of the psyche, respectively. The anima and animus can help people understand the nature of the opposite gender and can also influence a person's behavior and attitudes. The shadow is the part of the psyche that is often repressed or excluded, but it can still influence a person's thoughts and actions.

As stated earlier, Jung and Freud were leaders in research around dreams within the field of psychology. Sigmund Freud tended to interpret dreams as scenes of suppressed desire, while Jung emphasized that dreams have a compensatory function. These two theories are frequently cited and discussed to this day.

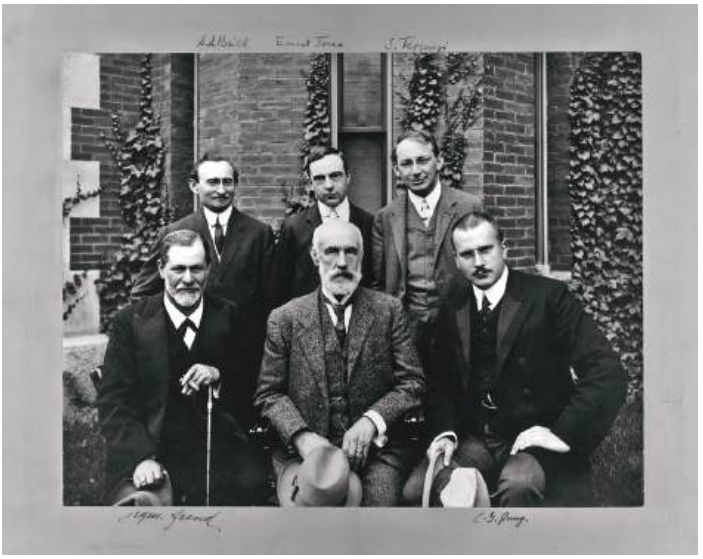


Fig 54: At Clark U. in 1909, from left (front): Sigmund Freud, G. Stanley Hall, Carl Jung; (back): Abraham A. Brill, Ernest Jones, and Sandor Ferenczi.

Carl Jung's interpretation of dreams and approach to his research is especially salient to my work, connecting in particular to the theme of time. He mentions that dreams can be divided into dreams that point to the past (E.g., the usual dreams that respond to past life), dreams that happen in different places at the same time (E.g., something that is dreamed of happening in the corner of reality at the same time), and dreams that point to the future (E.g., prophetic dreams).

Drawing inspiration from the diverse cultural and psychological theories mentioned earlier, my work then focuses on the intersection of dreams and science. Consequently, I am initiating my research into the scientific understanding of dreaming.

Fig 55: Psychologist visual from Freepik

The Science Age

Fig 56: Dreams visual from Freepik

REM (Rapid eye movement)
Hobson and McCarley proposed that the PGO waves characteristic of "phasic" REM might supply the visual cortex and forebrain with electrical excitement, which amplifies the hallucinatory aspects of dreaming. (Hobson 2009)

MILD (Mnemonic induction of lucid dreams)
The Mnemonic Induction of Lucid Dreams technique (MILD) (LaBerge, 1991). is one of the most often mentioned lucid dream induction techniques. Developed by Dr Stephen LaBerge during his PhD dissertation, it is one of the simplest methods available. However, its effectiveness is somewhat sporadic.

The core principle utilizes prospective memory - the ability to remember to perform a future task so as to prepare yourself to remember that you are dreaming whilst dreaming. Therefore, it is wise to develop your prospective memory skills during your waking hours, to increase your chances of success.

In the original text, LaBerge suggested that if you are a very deep sleeper, you should get up after memorizing your dream and stay awake for 10-15 minutes, get out of bed, and go into another room to write out your dream and read it over. In future studies, LaBerge and others found this particular step to be one of the most important for success when the period of wakefulness was increased in length and suggested increasing the period of wakefulness to 30-60 minutes.

Two-Way Communication in Lucid REM Sleep Dreaming
Scientific investigations of dreaming have been hampered by the delay between a dream and when people report on their dream and by a change in state from sleep to wake. To overcome this problem, Konkoly et al. show that individuals in REM sleep can perceive and answer an experimenter's questions, allowing for real-time communication about a dream. (Baird et al, 2021)

BCI (Brain-computer interface)
A brain–computer interface (BCI), sometimes called a brain–machine interface (BMI) or smartbrain, is a direct communication pathway between the brain's electrical activity and an external device, most commonly a computer or robotic limb. BCIs are often directed at researching, mapping, assisting, augmenting, or repairing human cognitive or sensory-motor functions. They are often conceptualized as a human–machine interface that skips the intermediary component of the physical movement of body parts, although they also raise the possibility of the erasure of the discreteness of brain and machine. Imple-

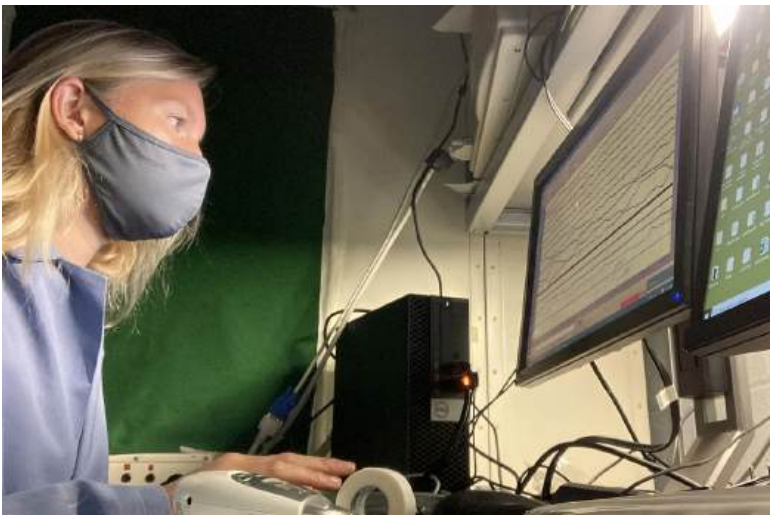


Fig 57: One of the researchers watching brain signals from a sleeping participant in the lab. K. Koncoly

Fig 58: Vidal, J J. "Toward direct brain-computer communication." Annual review of biophysics and bioengineering vol. 2 (1973)

mentations of BCIs range from non-invasive (EEG, MEG, MRI) and partially invasive (ECoG and endovascular) to invasive (microelectrode array) based on how close electrodes get to brain tissue.

Research on BCIs began in the 1970s by Jacques Vidal at the University of California, Los Angeles (UCLA), under a grant from the National Science Foundation, followed by a contract from DARPA. Vidal's 1973 paper marks the first appearance of the expression brain–computer interface in scientific literature. (Vidal, 1973)

EEG (Electroencephalography)
Neural oscillations, or brainwaves, are rhythmic or repetitive patterns of neural activity in the central

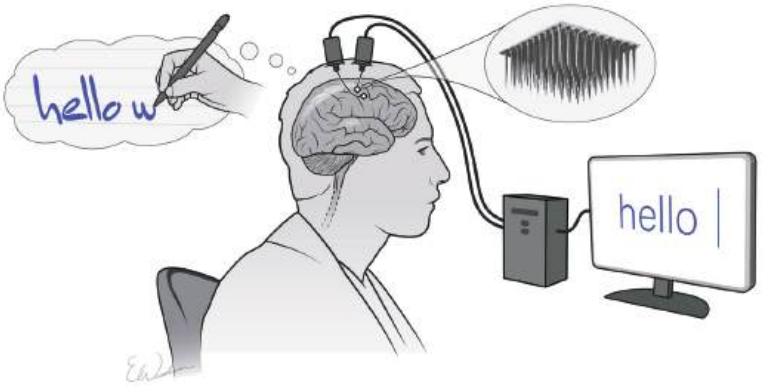


Fig 59: ABOVE: F. WILLETT ET AL./NATURE 2021/ERIKAWOODRUM

nervous system. Neural tissue can generate oscillatory activity in many ways, driven either by mechanisms within individual neurons or by interactions between neurons. In individual neurons, oscillations can appear either as oscillations in membrane potential or as rhythmic patterns of action potentials, which then produce oscillatory activation of post-synaptic neurons.

Fig 60: Portrait of psychiatrist Hans Berger

Hans Berger (21 May 1873 – 1 June 1941) was a German psychiatrist. He is best known as the inventor of electroencephalography (EEG) in 1924, which is a method used for recording the electrical activity of the brain, commonly described in terms of brainwaves, and as the discoverer of the alpha wave rhythm, which is a type of brainwave. Alpha waves have been eponymously referred to as the "Berger wave." (Hass et al, 2003)

Research Video Content Ends

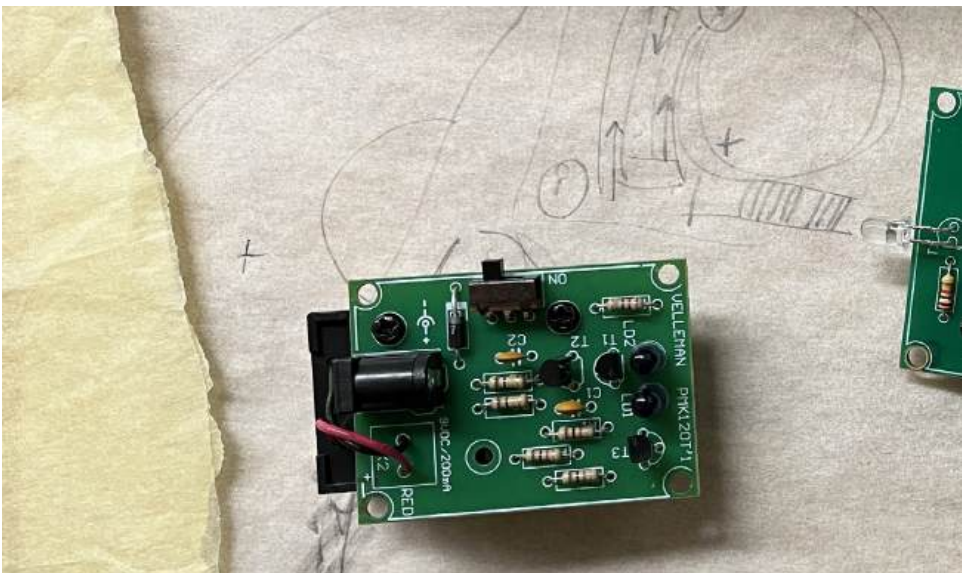
Speculative Age's content is inside the research video

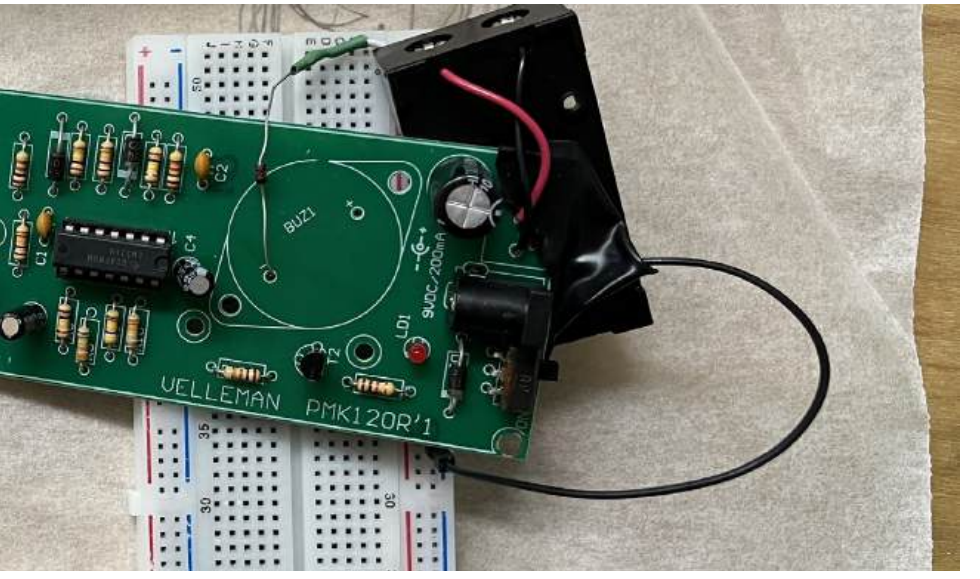
Fig 61: EEG visual from stock image (Freepik)

Interactivity Aid

After I finished the research video, I replaced the video clips in the interactive installation at the last section of the exhibition. This laser sensor senses when someone passes by and switches between different sets of research video timings, prompting viewers to consider the question, “Am I controlling the video?” This adds to the enjoyment of watching the video.

This installation was completed by Fred and me together. I am very grateful to Fred for helping me complete many interactive design works.




BUZI
VELLEMAN PMK120R'1

Code

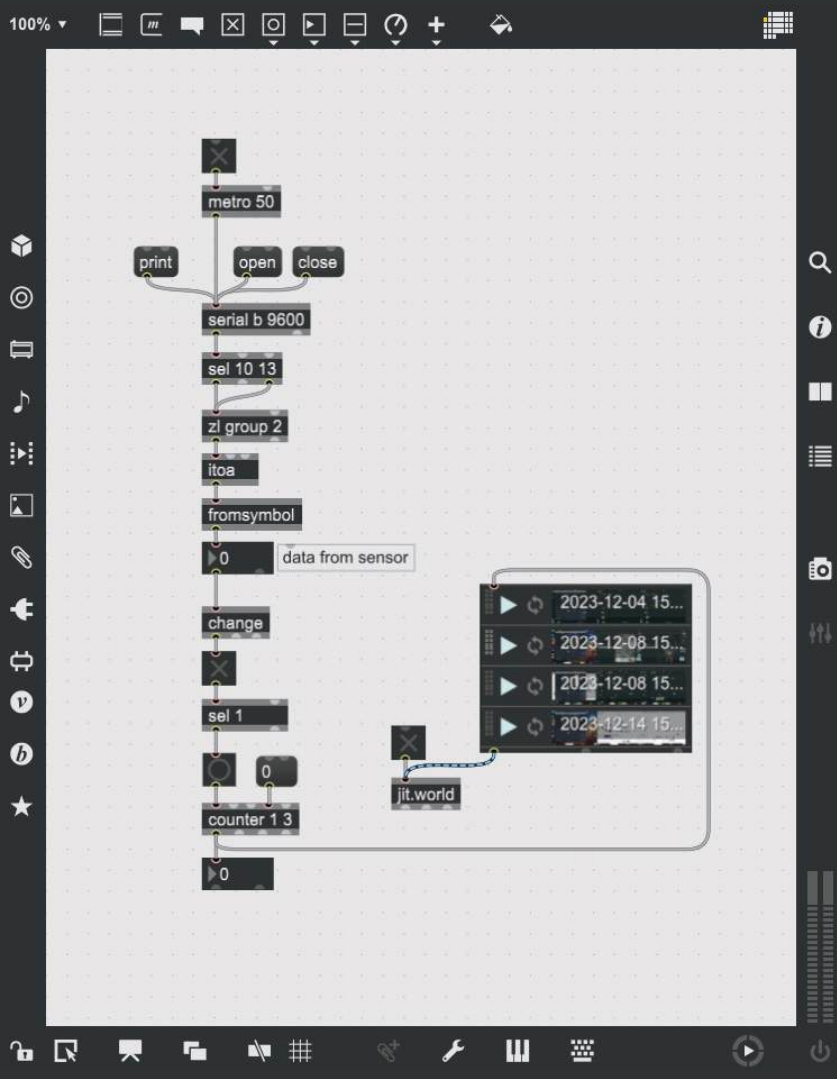
```
// constants won't change. They're used here to set pin numbers:
const int sensorPin = 3;     // the number of the sensor pin
const int ledPin =  13;      // the number of the LED pin

// variables will change:
int sensorState = 0;         // variable for reading the pushbutton
status

void setup() {
  // initialize the LED pin as an output:
  pinMode(ledPin, OUTPUT);
  // initialize the sensor as an input:
  pinMode(sensorPin, INPUT_PULLUP);
  Serial.begin(9600);
}

void loop() {
  // read the state of the pushbutton value:
  sensorState = digitalRead(sensorPin);

  // Check if the dsensor is triggered. If it is, the LOW.
  if (sensorState == LOW) {
    digitalWrite(ledPin, HIGH);      // turn LED on
    //Serial.println("Sensor Triggered");
    Serial.println(1);
  } else {
    digitalWrite(ledPin, LOW);       // turn LED off
    //Serial.println("Sensor Not Triggered");
    Serial.println(0);
  }
  delay(100);
}
```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itoa
fromsymbol
0
data from sensor
change
sel 1
0
counter 1 3
0
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2023-12-04 15...
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2023-12-08 15...
2023-12-14 15...

Reflections

I started off confused about my topic choice. It felt big and sometimes overwhelming. But as I dug in, and with help from a lot of amazing people in DMI community, things began to click. Jan's guidance turned my doubts into strengths for my project.

This project was very challenging. I had never done anything like this — developing research into lucid dreaming history, creating an engaging video based on the research, and finally, expanding on it, to develop an entire video gallery installation. In the process of researching information, the biggest challenge was actually having a conversation with myself.

I had to constantly stimulate my own thinking and try to connect these scattered stories into a complete article. As for the topic of lucid dreaming, I was initially worried about the incompleteness of the information material and the difficulty of focusing on the key points when organizing the timeline. However, this challenge was overcome, and I organized lucid dreaming into three different time groups.


Dream
Handcrank

Dream Handcrank

Project duration: January - April 2023

Case Study Two

Project Overview

Dream Handcrank is an interactive piece that includes a wooden box with a hand crank attached to the top. When the hand crank was used, unique animated visuals appeared, each visual morphing into something else while the crank was turned. The user is in control of the animation, a metaphorical dream. It was designed to inspire people to think about having the agency to control their dreams, an opportunity to lucid dream during waking hours.

Fig 62: Photo collage of Dream Handcrank in Fresh Media show at Boston CyberArts Gallery

Objective

My objective for this project was to investigate the idea of dream consciousness. How can I present the phenomenon of lucid dreams through the element of time? How do people usually think about the time in dreams? How does the time sensitivity change while dreaming?

My Dream Handcrank project explores the control over dreams, but also over time. I use the hand crank

Fig 63: Final form of Dream Handcrank

Fig 64: Boston Cyberarts Gallery

Fig 65: Neil Mendoza's piece, "Disruptive Devices"

Fig 66: Dream Hand-crank sketch

to manipulate the dream to speed up, slow down, or even reverse. I explored what will happen when people can stretch or compress the dream, and I tried to create the opportunity to manipulate the sense of dreaming. As discussed in my earlier "Time" section, it is impossible to tell how long a dream is, but we have the ability to feel the time slowly passing or speeding up. This was the experience of Dream Hand Crank; an experience to control time and walk through my dreams.

Sharing my story

At the beginning of the spring semester of 2023, an awesome opportunity presented itself: a chance to showcase our creations at the Boston Cyberarts Gallery. This was the kickstart I needed for my project. At first, I had so many thoughts - I knew I wanted to create interactive art, but pinning down what that meant to me was tough. Then, a classmate shared a simple idea with me, saying, "Even a button is interaction artwork." This made me think a lot about the spirit of interaction art. My 'eureka' moment came when I saw Neil Mendoza's piece, "Disruptive Devices." It is a digital artwork that lets viewers interact with virtual animals, and it ultimately drew me in. Inspired by Mendoza, I decided to use a hand crank in my installation. I chose it because it is simple to use and invites people to interact with the art, transforming viewers from passive observers to active participants in the artistic experience. This felt like the perfect way to share my vision and connect with others through my artwork.

Fig 67: Photo of Dream Handcrank installation

Fig 68: Photo of Fred Wolflink and Harry Liao at Boston CyberArts Gallery

Process

My development process was broken into two phases: developing a prototype and creating video content. I first built the hand crank video player with Professor Fred Wolflink with Arduino and Cycling '74 MAX. Then I worked on the video content and input into the prototype. Finally, I tested the Dream Hand-crank during the Fresh Media.

The video content has two versions: A Trajectory of Human Evolution and Dream Story. The first version was the human evolution video, and it is not directly related to my thesis. Therefore, I change the video content to the second version.

The second version of my video was an animation of my dream. I had a dream where I was showering at night in my new home and realized that the blinds were visible from the building next door. Suddenly, I woke up from a dream within a dream and chatted with friends in a car. The driver took us to a night market, and after roaming around, we returned to my new home. In this dream, I felt my dream's time flow had been speeding up rather than the regular sense of time that I felt.

Fig 69: rotation sensor

Prototype

The audience can experience the narrative of the dream story on the screen. The hand cranking is an interactive element that engages the audience. When the audience rotates the hand crank, the video will be played, and the narrative of this dream event can be slowed down or sped up.

Arduino / MAX

With Fred Wolflink's help, we ideated two ways to make the physical work, such as using a trolley to turn or gears to rotate the entire handle. In the end, we used a rotation sensor to detect where the handle had turned, and that gave us the reading. Fred and I started using a rotation sensor to get the rota-

Fig 70: Dream Handcrank

tion number to achieve the concept of a hand crank to control the speed of the video.

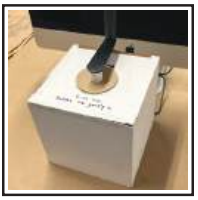


Fig 67: Hardware / Software Design

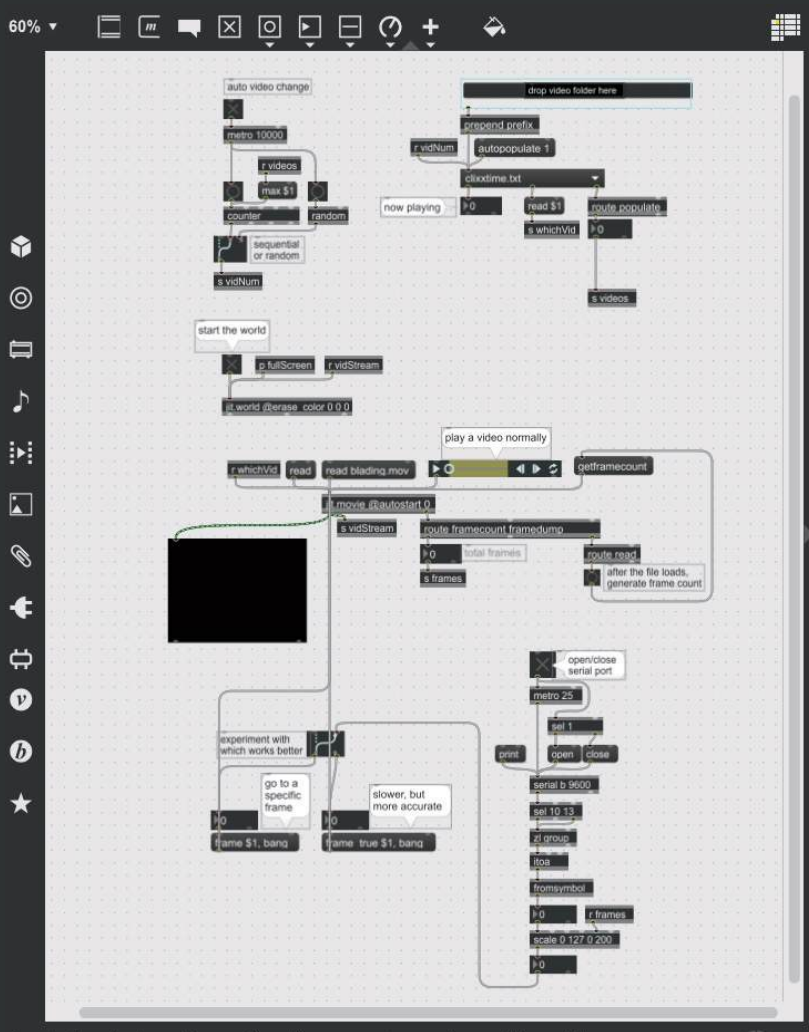
Wooden structure
Thanks to Simoné Schwartz for helping make the box. When I was thinking about how to pack the handle, I had some ideas: boxes made by 3D printing, cardboard, wood, and plastic. While talking with my classmates, Simoné talked about her past tries with boxes. Together, we put pieces of wood together to make a small wooden box and finally put the electronic parts inside it.
Video

Creating video content
At the beginning of my project, I didn't realize what kind of video I wanted to make. Eventually, I thought about using my previous dreams to demonstrate how time can stretch and shrink in dreams. I also considered adding some elements that would allow the audience to understand intuitively. In the end, I designed an animation that allows the video characters to experience dreams and control the speed through a hand crank.

Fig 72: Video content of Dream Handcrank

Code

```
/*
  Rotary Encoder to control video
  5 wire: by Dejan Nedelkovski, www.HowToMechatronics.com
  wiring:
  https://howtomechatronics.com/tutorials/arduino/rotary-encoder-
works-use-arduino/
  https://www.youtube.com/watch?v=v4BbSzJ-hz4
      fred@massart 02/21/2023
*/

// rotary encoder pins
#define outputA 6
#define outputB 7

// internal timing variables
int counter = 0;
int aState;
int aLastState;

// interface values
int minVal = 0;
int maxVal = 127;

void setup() {
  pinMode (outputA, INPUT);
  pinMode (outputB, INPUT);

  Serial.begin (9600);
  // Reads the initial state of the outputA
  aLastState = digitalRead(outputA);
}

void loop() {

  aState = digitalRead(outputA); // Reads the “current” state of the
outputA

  // If the previous and the current state of the outputA are
different, that means a Pulse has occured
  if (aState != aLastState) {

    // If the outputB state is different to the outputA state, that
means the encoder is rotating clockwise
    if (digitalRead(outputB) != aState) {
      if (counter < maxVal) {
        counter ++;
      }
    } else {
      if (counter > minVal) {
        counter --;
      }

    }

    //Serial.print(“Position: “);
    Serial.println(counter);
  }
  aLastState = aState; // Updates the previous state of the outputA
with the current state
}
```


auto video change
metro 10000
r videos
max $1
counter
random
sequential or random
s vidNum
drop video folder here
prepend prefix
r vidNum
autopopulate 1
clixxtime.txt
now playing
0
read $1
route populate
s whichVid
0
s videos
start the world
p fullScreen
r vidStream
jit.world @erase_color 0 0 0
play a video normally
r whichVid
read
read blading.mov
getframecount
jit.movie @autostart 0
s vidStream
route framecount framedump
0
total frames
s frames
route read
after the file loads, generate frame count
open/close serial port
metro 25
sel 1
print
open
close
serial b 9600
sel 10 13
zl group
itoa
fromsymbol
0
r frames
scale 0 127 0 200
0
experiment with which works better
go to a specific frame
0
frame $1, bang
slower, but more accurate
0
frame $1, bang

Fresh Media

I placed the Dream Handcrank V1 at Fresh Media for nearly a month in 2023. During this time, I and other DMI classmates showcased our work. This exhibition is an anual DMI tradition, where every year, all students must display their designs for friends and family to see and interact with. I also presented this work during the period. Seeing the audience interact with my work was actually quite unique, as this was my first time exhibiting an interactive design piece. It greatly enriched my experience in interactive design.

I have found that the simpler and more intuitive the interaction design, the easier it is to interact. As one of my classmates, we discussed what interactive art is, and we came up with a result that even a button can be an interactive art. Therefore, I think letting the audience take control of some of the elements of the design will be a great way to create interactive art.


FRESH
MEDIA

Reflections

This project connects to all three of my common threads; time, control, and reality. For this reason it is an essential piece in my work and this thesis.

Dream Handcrank went through several iterations. We built the hardware, and developed content for the show. The whole experience was like product design, but interactive design, as if delivering an experience was the product. Most of the audience gave me feedback that they keep thinking, “Am I time control this dream video?” while interacting with the piece. When I look back, I see clearly that his project was an attempt and example of offering people the opportunity to experience spontaneous self-enquiry behavior.


BECOME AN AIR VJ
READY TO MIX!
GRAB
CIRCLE
Change colors
Change particle shape
MOVE
TILT/TURN
Follow movement
Crossfade tilt as you tilt


BECOME AN AIR VU

Dive Into The Dream

Dive Into The Dream (DITD)

Project duration: September - December 2023

Case Study Three

Project Overview

My project merges Brain-Computer Interface (BCI) technology with Stable Diffusion, a deep learning text-to-image model to craft interactive designs and artwork inspired by individuals' dream experiences. It aims to transform dreams into immersive visual experiences, leveraging BCI, text-to-image models, and artistic principles to foster deeper engagement with one's subconscious. Also, I created a logo (iMagine) for my project as a visual aid branding identity.

Fig 73: Dive into the Dream branding logo "iMagine"

Objective

My goal with this project was to explore a method to generate images from one's brain waves. I did this because I began contemplating on how once could materialize a person's dreams. Perhaps I may not be able to fully achieve this kind of research, but I hope to provide an inspiring concept for people to elaborate on in the future. In this project, the user must lie on a comfortable chair inside the gallery and put on a brainwave sensor. It will generate a series of manipulated visuals to look like the user's dream.

Fig 74: Pippa Lei with the images system

Fig 75: Photo of Eye-Writer

Sharing my story

The concept originated from my exploration of lucid dreaming expression and overlapped with a challenging period when my older brother was recovering from brain surgery and aphasia. This personal background motivated me to integrate BCI technology into my creative process. I utilized an EEG headband to capture brainwave data, inspired by projects like EyeWriter by Members of Free Art and Technology (FAT), OpenFrameworks, the Graffiti Research Lab, and The Ebeling Group communities, which empowers ALS patients to create art using eye movements.

My older brother, whom I deeply respect, is a scientific researcher and a fascination nurtured by my family ties. He graduated from National Taiwan University with a degree in Physics and further pursued his M.S. in Electrical and Computer Engineering from the University of Texas at Austin, which has consistently been my bridge to the scientific realm. Because of this reason, I am often influenced by all kinds of the latest technology, and this led me to think about not only the art and design aspect but also the science aspect when working on my personal projects.

Fig 76, 77: Sketches of the Dive into the dream system

Technology

My prototype is built on the Muse2 and Stable Diffusion API. Muse2 analyzes Brainwave information and sends that data to Stable diffusion, and then Stable diffusion makes the real-time data visual through ComfyUI. This project was coded by using ChatGPT, and the whole coding process is much easier when I try to connect the Stable diffusion API using Python.

Process

Initially, I experimented with the Muse2 EEG headband, overcoming its limitations in accuracy and application. I adapted the device to trigger prompts in the Stable Diffusion model once certain brainwave thresholds were met. The Muse2 EEG headband uses five different channels to track the brainwave.

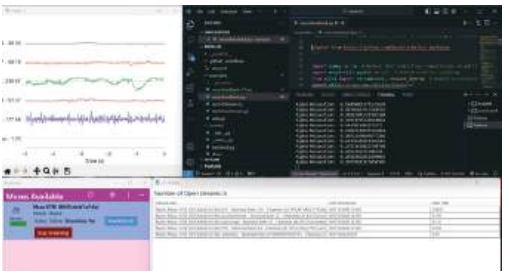


Fig 82: Brainwave numbers and graph in the Visual Studio Code

Fig 78: Photo of Harry wearing the Muse 2

Fig 79: Photo of Harry wearing the Enobio EEG headset
Fig 80: Poster of the Muse 2

Fig 81: The user interface of the BlueMuse receiving the Brainwave numbers from the Muse 2

After the first iteration, I was influenced by a project, Real-time Generation of Panoramic Scenes from Voice from Bmolab at the University of Toronto. After examining the methodologies employed in this project, I reached out to the project developer with a series of inquiries. I found out the technique they are using is a name called SDXL. After research from the internet, there is a new method to generate images faster than SDXL. SDXL-Turbo is a fast generative text-to-image model that can synthesize photorealistic images from a text prompt in a single network evaluation.

Fig 83: Real-time Generation of Panoramic Scenes from Bmolab at the University of Toronto

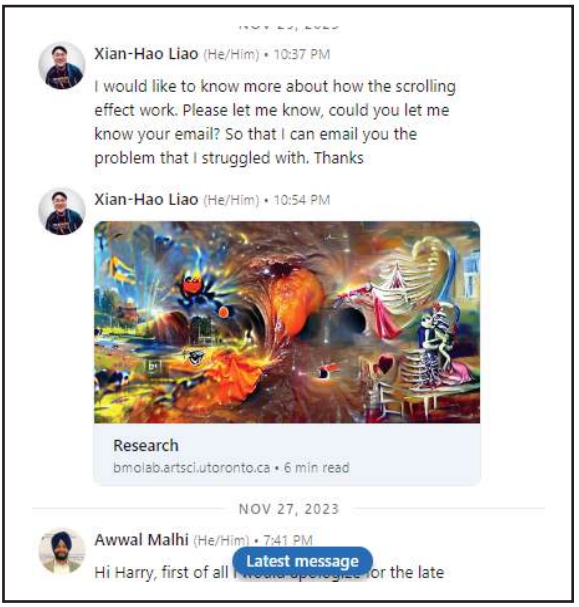


Fig 84: Screenshot of the conversation between Harry and the team member in Bmolab
Fig 85: SDXL Turbo (1 step), LCM (4 steps), SDXL Turbo (4 steps), SDXL (50 steps)

Iterations 1 and 2

I have tried a few experiments about connecting Brainwave to SDXL. I also tried to recreate the project: real-time generation of panoramic scenes from voice from Bmolab at the University of Toronto in Iterations 2.

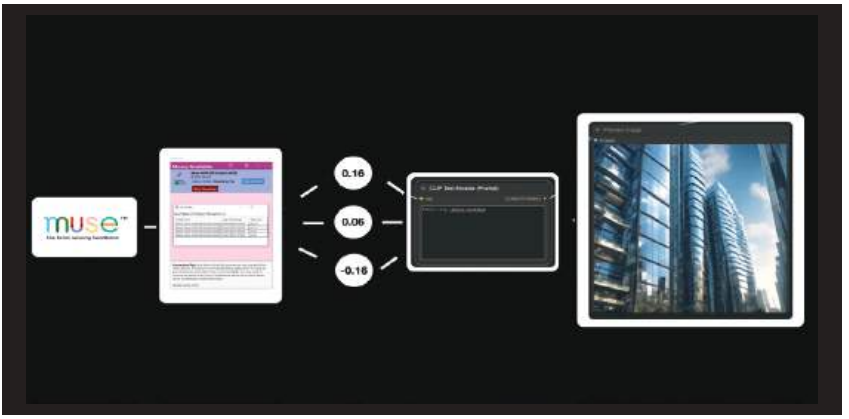
However, Muse 2 has its own limitations. It usually gives out inaccurate numbers and can only be used in simple tasks. For example, log brainwaves and analyze them after we pause recording, detect the eye blink, and focus thinking. In the end, I basically changed my application so that once the brainwave number hits the threshold, it prints prompts that I set up first and sends them to the AI text-to-image model (Stable Diffusion).

Fig 86: Iterations 1, the simple slideshow application of the DITD images

Fig 87: Iterations 2, the demo for the panoramic scenes of the DITD images

Final Form

However, this result was not satisfying to me. I was looking for a realtime generator. At the same time, ComfyUI showed up. It was a good way for me to solve the problem. But this does not support API when they just came out. Therefore, I basically wrote a code that speaks to the prompts and lets ComfyUI listen to the speaker and generate images in real time.



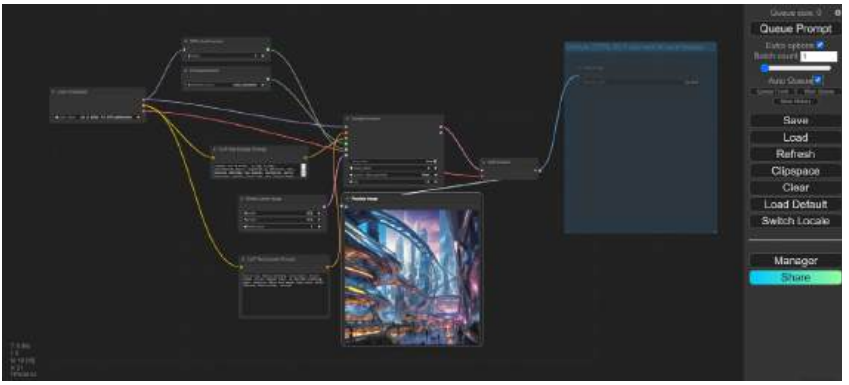


Fig 88: Algorithm of the DITD System
Fig 89: ComfyUI connect to the DITD System

Test

To evaluate the effectiveness of our dream2img application, with the help of my professor, Nataliya Kosmyna, we organized a demonstration at the MIT Media Lab. My colleague, Pippa Lei, assisted in this demo. The setup showcased the ComfyUI system processing brainwave-induced prompts to generate real-time imagery akin to a live video feed. Yijia shared her experience, remarking, “The test was breathtaking. Initially, I did not look at the screen. When I finally did, the dynamic images felt like a visual representation of a dream. It was overwhelming yet profoundly coherent at the same time!”

Fig 90: Nataliya Kosmyna, Ph.D, who taught me the BCIs and my independent study at the Media Lab. Nataliya is a research scientist at the Massachusetts Institute of Technology (MIT) who focuses on creating AI and human intelligence, a fusion of a machine and a human brain.

Fig 91-93, Photos of Pippa and Harry using DITD system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5:105.26


1.0
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TERMINAL
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Gamma: 0.00207506062300683 63
Gamma: -0.00556879134552836
Gamma: -0.01782132993773091
Gamma: 0.019732545046629184
Gamma: -0.02098259316944855
Gamma: -0.1587760767167175
Gamma: -0.21040191358813398
Gamma: -0.16927935646143072
Gamma: -0.07487478771368968
Gamma: -0.0009964060666264824
Gamma: 0.022589883096167628
Gamma: -0.05100358109979967
Gamma: 0.004805416548993459
Gamma: -0.01208605029731998
Gamma: 0.056369155183352455
master*
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0
Refresh

Code

```
import json
import requests
import io
import base64
import os
import webbrowser
from PIL import Image, PngImagePlugin
from datetime import datetime
import time
from http.server import SimpleHTTPRequestHandler
import socketserver
import threading
import shutil

# Define the URL of the API server
url = “http://127.0.0.1:7860”
output_folder = ‘C:\\Users\\harry\\OneDrive\\Desktop\\Code\\API_IMG\\’
prompt_path = ‘C:\\Users\\harry\\OneDrive\\Desktop\\Code\\prompt.txt’
blink_path = ‘C:\\Users\\harry\\OneDrive\\Desktop\\Code\\blink.txt’
PORT = 5500

def get_encoded_image(output_folder):
    with open(os.path.join(output_folder, ‘latest-image.txt’), ‘r’) as file:
        latest_image_filename = file.read().strip()

    with open(os.path.join(output_folder, latest_image_filename), ‘rb’) as
image_file:
        encoded_string = base64.b64encode(image_file.read()).decode()

    return encoded_string

def get_payload(prompt_value, blink_value, threshold, encoded_image=None):
    “””Generate the payload based on the given conditions.”””
    payload = {
        “prompt”: prompt_value,
        “negative_prompt”: “EASYNEGATIVEV2, text”,
        “steps”: 5,
        “checkpoint”: “sd_xl_turbo_1.0_fp16.safetensors”,
    }

    add_values = “\”prompt\”:  \”dreamcore,blue_sky,scenery,blurry foreground,
building\”,”
    string_dict = eval(“{“ + add_values + “}”)
    merged_payload = {**payload, **string_dict}

def delete_excess_images(folder, max_files):
    files = [f for f in os.listdir(folder) if os.path.isfile(os.path.
join(folder, f)) and f.endswith(‘.png’)]
    if len(files) > max_files:
        files.sort(key=lambda x: os.path.getmtime(os.path.join(folder, x)))
        for i in range(len(files) - max_files):
            os.remove(os.path.join(folder, files[i]))

def serve():
    os.chdir(output_folder)
    Handler = SimpleHTTPRequestHandler
    with socketserver.TCPServer((“”, PORT), Handler) as httpd:
        print(f”Serving at port {PORT}”)
        httpd.serve_forever()

threading.Thread(target=serve, daemon=True).start()
time.sleep(1)
webbrowser.open(f’http://localhost:{PORT}’)
```

```
last_copied_prompt = ""

while True:
    with open(prompt_path, 'r') as file:
        prompt_value = file.read().strip()

    if prompt_value != last_copied_prompt:
        shutil.copy(prompt_path, output_folder)
        last_copied_prompt = prompt_value

    with open(blink_path, 'r') as blink_file:
        blink_value = float(blink_file.read().strip())
    encoded_image = get_encoded_image(output_folder)
    payload = get_payload(prompt_value, blink_value, threshold=0.5, encoded_
image=encoded_image)

    try:
        response = requests.post(url=f'{url}/sdapi/v1/txt2img', json=payload)
        response.raise_for_status()
        r = response.json()
    except requests.RequestException as e:
        print(f"Error: API request failed due to: {e}")
        time.sleep(1)
        continue

    for index, i in enumerate(r['images']):
        if index == 1:  # Skip saving the second image
            continue

        encoded_data = i.split(",", 1)[1] if "," in i else i
        image = Image.open(io.BytesIO(base64.b64decode(encoded_data)))

        png_payload = {
            "image": "" + i
        }

        response2 = requests.post(url=f'{url}/sdapi/v1/png-info', json=png_
payload)
        pnginfo = PngImagePlugin.PngInfo()
        pnginfo.add_text("parameters", response2.json().get("info"))

        current_time = datetime.now()
        formatted_time = current_time.strftime('%Y%m%d%H%M%S%f')
        image_filename = f"output_{formatted_time}.png"

        image.save(os.path.join(output_folder, image_filename), pnginfo=pnginfo)
        print("Image saved as:", image_filename)

        with open(os.path.join(output_folder, 'latest-image.txt'), 'w') as file:
            file.write(image_filename)

        actual_add_value = "dreamcore, scenery, blurry foreground, building"
        combined_prompt = f"{prompt_value}\n{actual_add_value}"

        with open(os.path.join(output_folder, 'latest-prompt.txt'), 'w') as file:
            file.write(combined_prompt)

        with open(os.path.join(output_folder, 'latest-prompt.txt'), 'r') as file:
            content = file.read()

        print(content)
    time.sleep(1)
```

Reflections

In my quest to find a novel medium for articulating lucid dreaming experiences, I realized that my focus was heavily skewed toward the technical aspects. Going forward, the primary challenge I aim to address is enhancing user engagement. This includes devising interactive methods that allow users to actively contribute their prompts, thereby making the experience more personal and immersive. Most of the participant gave me the feedback that they keep thinking what will go next question. I believe this project is also to let people build up their spontaneous self-enquiry behavior.
“Am I video-recording my dream?”

Other than the thesis project, I also builded a website prototype for this Brainwave to images technology application as a user interface. iMagine is a side project using brain-computer interface and Stable Diffusion to convert dreams into visual, interactive art.

Aware of Dreams in Dreaming

Aware of Dreams in Dreaming

Project duration: February - May 2024 (Demo)

Case Study Four

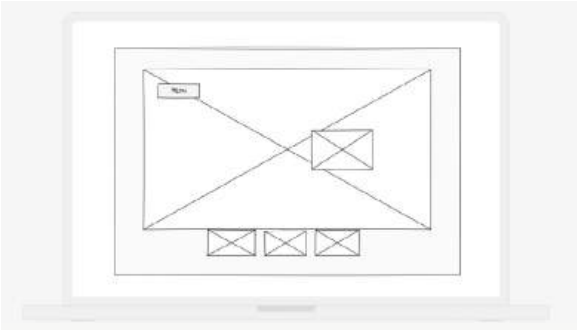
Project Overview

Aware of Dreams in Dreaming is a game I developed. In this game, the game player can choose to play, skip, or speed up three different buttons to affect the game character's dream.

Fig 94: Game concept art of Aware of Dreams in Dreaming

Objective

My goal is to immerse players in a world where they influence dream outcomes and inspire them to think about decision-making. My project allows the player to control the speed of the game character's dream. This game is a challenge for me to integrate storytelling with gameplay.



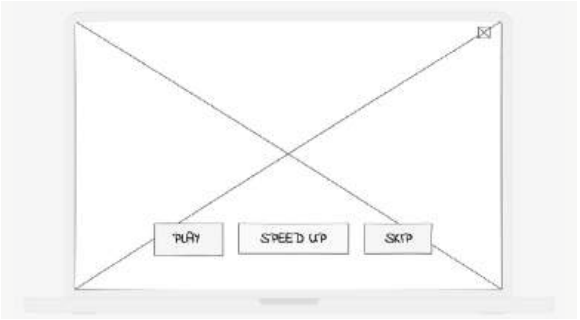


Fig 95, 96: Sketches of the game interface

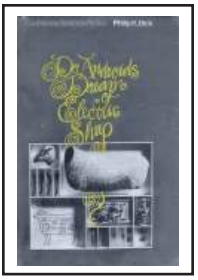


Fig 97: Do Androids Dream of Electric Sheep? by Philip K. Dick (1968)

Fig 98: Storyteller is a puzzle video game designed by Daniel Benmergui and published by Annapurna Interactive. (2023)

Sharing my story

Inspired by the novel, "Do Androids Dream of Electric Sheep?", my game explores themes of dream reality and decision-making, inviting players to question their own existence. When users play, I want them to feel how time affects the character's dreams. If the time sequence is distorted in dreams, it involves a person's thoughts. My initial intention for creating this project was that I often experience a sense of time distortion in my dreams.

For example, I had a dream where I was showering at night in my new home and realized that the blinds were visible from the building next door. Suddenly, I woke up from a dream within a dream and chatted with friends in a car. The driver took us to a night market, and after roaming around, we returned to my new home. In this dream, I felt my dream's time flow had been distorted rather than following a regular time speed and I was likeautopilot mode. It feels like, in the middle of the dream, someone clicked the skip button. Therefore, this dream led me to think that allowing players to play as a god who can control the time of a game character's dream could be an exciting experience.

The game "Storyteller" inspired me to think of a new gameplay method. "Storyteller" is a brief puzzle game in which the player browses through a book - divided into thirteen distinct Chapters, completing its pages as if they were a blank canvas. Using a pointer, the player should be able to craft different tales by dragging and dropping different scenes and characters into a limited number of vignettes, with the objective being to come up with a story like the one shown on the Title of the page.

Technology

My game is an unfinished project, it currently still needs a nice visual user interface and art illustration. I originally tried to use Twine as the game engine. However, because I had tried to code the game by myself, I started to code the card game fundamentals using Pygame, a Python module. I made the game algorithm by giving each button plus one value, and after three dream plots, the number adds up and shows up to 27 different results on the screen.

Concept process

I face challenges in creating a responsive dream world and intuitive mechanics, which I plan to overcome through decision-making. Players interact with dreams using three buttons to speed up, play, or skip, leading to various narrative outcomes.

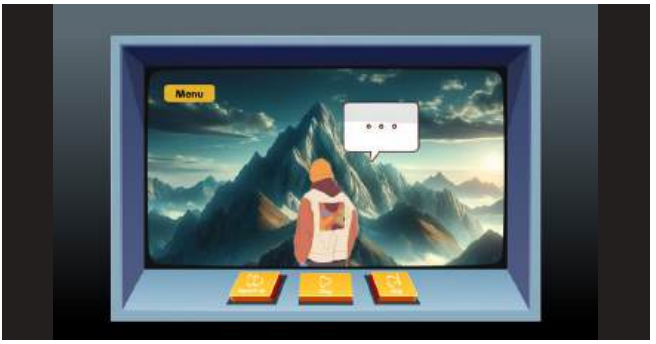
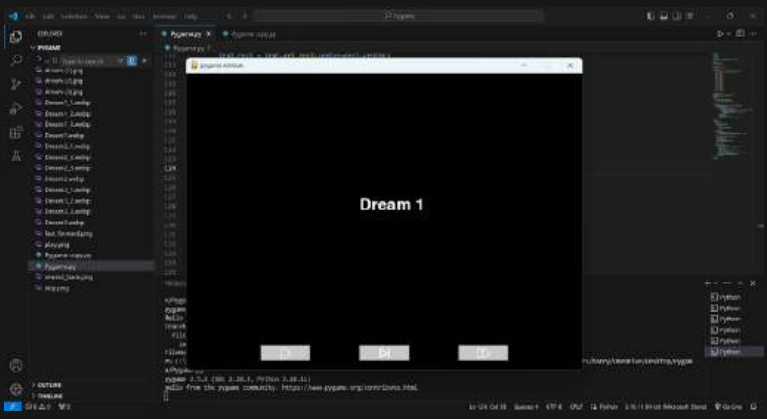


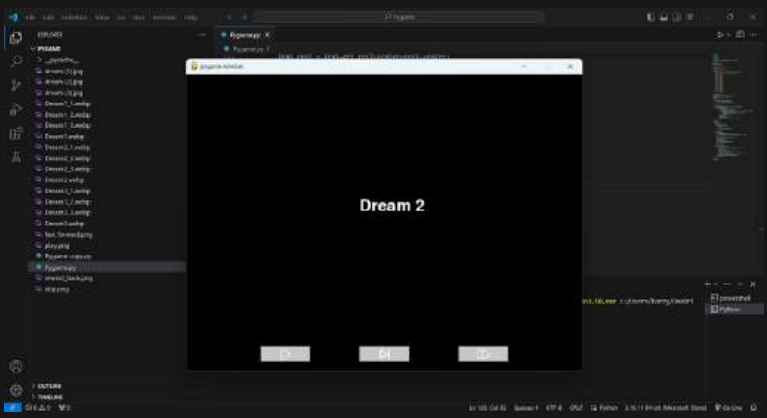
Fig 99, 100: AI illustrations of the game interface

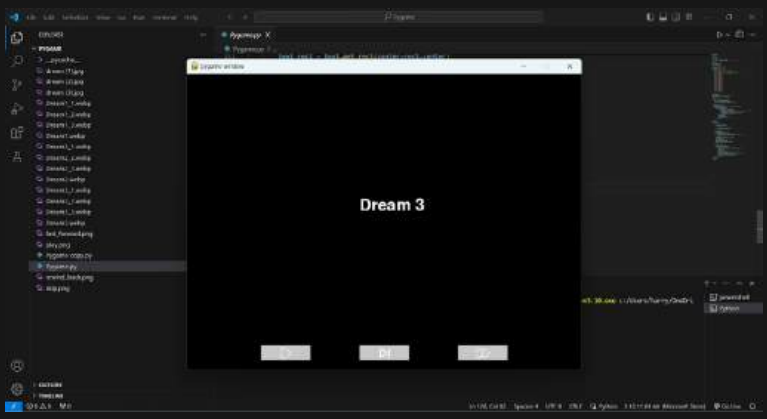
Next Step

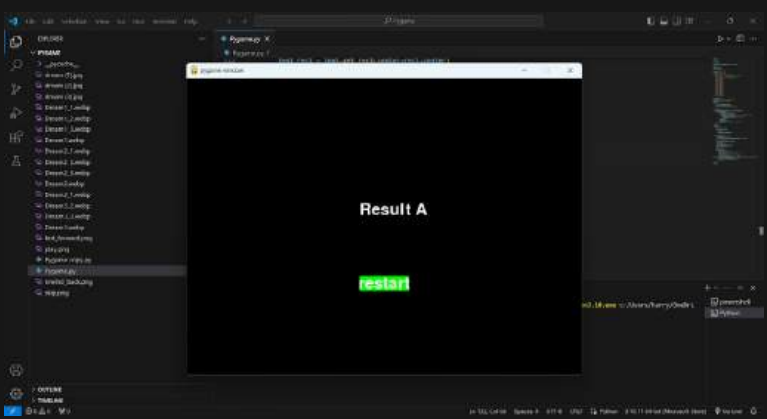
In the next step, I will complete this work as a side project during my future work period. Currently, the content of my dreams is not yet suitable for forming the elements a story should have. Therefore, I plan to continually polish the story to complete this work. Through these simple structures, I intend to develop more visual styles and effects.

> **“Maybe there was once a human who looked like you, and somewhere along the line you killed him and took his place. And your superiors don’t know.”**
>
> **Philip K. Dick, Do Androids Dream of Electric Sheep?**


Dream 1


Dream 2


Dream 3


Result A
restart

Code

```
import pygame
import sys
import json
pygame.init()

screen_width, screen_height = 800, 600
screen = pygame.display.set_mode((screen_width, screen_height))

BLACK = (0, 0, 0)
WHITE = (255, 255, 255)
GRAY = (200, 200, 200)
GREEN = (0, 255, 0)

dream_numbers = [“1”, “2”, “3”]

# Load results from JSON file
with open(‘results.json’, ‘r’) as file:
    result_texts = json.load(file)
# Convert string keys from JSON to tuple of integers for keys
result_texts = {tuple(map(int, key.split(‘,’))): value for key, value in
result_texts.items()}


current_dream = 0
dream_choices = [-1, -1, -1]
current_result = None
show_end_options = False

buttons = {
    “play”: pygame.Rect(150, 550, 100, 30),
    “skip”: pygame.Rect(350, 550, 100, 30),
    “fast_forward”: pygame.Rect(550, 550, 100, 30),
    “restart”: pygame.Rect(350, 400, 100, 30),
}

def check_button_click(pos):
    global current_dream, dream_choices, current_result, show_end_options
    for name, rect in buttons.items():
        if rect.collidepoint(pos):
            if name in [“play”, “skip”, “fast_forward”]:
                if current_dream < len(dream_numbers):
                    dream_choices[current_dream] = {“play”: 0, “skip”: 1,
“fast_forward”: 2}[name]
                    current_dream += 1
                    if current_dream == len(dream_numbers):
                        current_result = result_texts[tuple(dream_choices)]
                        show_end_options = True
            elif name == “restart”:
                current_dream = 0
                dream_choices = [-1, -1, -1]
                current_result = None
                show_end_options = False
            return True
    return False
```

```
running = True
while running:
    screen.fill(BLACK)

    for event in pygame.event.get():
        if event.type == pygame.QUIT:
            running = False

        if event.type == pygame.MOUSEBUTTONDOWN:
            if check_button_click(event.pos):
                continue


    font = pygame.font.SysFont(None, 48)
    if not show_end_options:
        if current_dream < len(dream_numbers):
            text = font.render(f"Dream {dream_numbers[current_dream]}", True,
WHITE)
            screen.blit(text, (350, 250))
    else:

        text = font.render(current_result, True, WHITE)
        screen.blit(text, (350, 250))
        rect = buttons['restart']
        pygame.draw.rect(screen, GREEN, rect)
        text = font.render('restart', True, WHITE)
        text_rect = text.get_rect(center=rect.center)
        screen.blit(text, text_rect)

    if not show_end_options:
        for name, rect in buttons.items():
            if name == 'restart':
                continue
            pygame.draw.rect(screen, GRAY, rect)
            if name == 'play':
                img = pygame.image.load('play.png')
            elif name == 'skip':
                img = pygame.image.load('skip.png')
            elif name == 'fast_forward':
                img = pygame.image.load('fast_forward.png')
            img = pygame.transform.scale(img, (30, 30))
            screen.blit(img, img.get_rect(center=rect.center))

    pygame.display.flip()

pygame.quit()
sys.exit()
```

Reflections

My game project transcends traditional gameplay by offering players the ability to influence dream sequences through distinct controls: play, skip, and speed up. It stands as a testament to the integration of multifaceted gameplay elements explored in prior initiatives: narrative depth, player choice, time manipulation, and interactive storytelling. By enabling players to alter the flow and outcome of dreams, the game provides a nuanced platform for reflection on choice and consequence. Interacting with the game's temporal dynamics encourages players to engage, respond, and perhaps rethink their strategies, mimicking the contemplative nature of real-life decision-making.

This project is an immersive journey into the subconscious aimed at challenging conventional gaming norms. It fulfills my objective of blending rich storytelling with player agency, making the game's environment an extension of the player's decisions. The game's design encourages players to feel connected to the virtual dream world, attributing a sense of responsibility and creativity to their choices. The emotional engagement and decision-making process become central to the gaming experience, adding a layer of depth that goes beyond mere entertainment.

Moving forward, I plan to delve deeper into this concept, enhancing the game's interactivity and narrative complexity. By refining the mechanics and introducing more sophisticated decision pathways, I aim to offer an even more immersive and thought-provoking experience, pushing the boundaries of traditional gaming. Last but not least, my project is to let people build up their spontaneous self-enquiry behavior.
"Am I disturbing the game character's dream?"

My visual project for the Design Seminar class

Conclusion

Explored various media experiments to rebuild my dream reality

Conclusion

Despite Lucid dreaming being a prevalent theme in modern narratives like “Inception”, and “Cyberpunk”, where futuristic, technology-driving settings are common, I see a challenge in integrating dream elements into everyday discussions and environments. Perhaps it is because we are afraid people will have a window into our psyche, but if we forget or do not acknowledge our dreams ourselves, we will never discover the lessons they hold.

Projects like “Dream Handcrank”, “Dive into the Dream”, and “Aware of Dreams in Dreaming”, all aim to validate the concept of dream reality, one of the most important common threads. If we do not see the reality in dreams, how can we consider what they teach us in our other reality? The waking world. In my projects I brought the concepts of time, control, and reality into the designs through physical elements and interaction. Engaging with these concepts facilitated experiences of spontaneous self-enquiry.

My time at DMI has been invaluable in learning to prototype concepts across various media, maintaining perseverance through multitasking challenges such as the design process, graduate assistantships, job applications, and fostering both self-trust and belief in my capabilities. This master program has been filled with a lot of fun and adventure— a wild dream. Experiences like these can be hard to find. This is what makes them so special. We probably would not remember the bad times as much as we will the good.

... and the story eventually will end.

But, this journey is kind of cool.

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