

Passing on
Digital Legacies

Service- and interaction design
An explorative and speculative design diploma

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Service- and interaction design

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Institute of Design

The Oslo School of Architecture and Design (AHO)

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Acknowledgement

First of all, I would like to dedicate this page to everyone who has contributed to this diploma, providing the insights and understanding necessary for me to deliver my final design proposal.

Thank you to my supervisor, Ted Matthews, who has guided and supported me throughout the journey of this project.

A special thanks to Dr. Jomy Joseph, who introduced me to various design methodologies for speculative future design approaches.

A big thank you to all my amazing classmates who have made these two years at AHO truly unforgettable. Last but not least, I want to express my gratitude to my friends and family for supporting me through both the highs and lows of this project.

Thank you <3

Abstract

This project explores the role of speculative design in addressing digital obsolescence and enhancing the management and sharing of digital media in the future.

By using speculative design principles, the research aims to conceptualize how future systems, services, and products might impact the way we interact with and preserve our digital legacies in the future.

The speculative design approach was not there from the beginning of the project. But became a necessary step in this design process. After gaining insights particularly about future technology and digital obsolescence.

The study explores existing and potential future trends with scenarios set between 2040 and 2050, providing a foundation to forecast and design for evolving digital legacy needs.

The scenario presents one public service, and one product from the company 'Apple', both addresses the

problem in their own different way, The public service, National Memory Bank, addresses digital obsolescence with a service that encourages people to take accountability and manage their digital waste and legacy. And iMemory, the product from Apple, addresses the technological shifts our society is facing, and how we might share our "media" in the future.

I further developed the scope to design and explore iMemory, using Apple's guidelines for Apple Vision Pro. This phase included a critical reflection on the ethical concerns raised by the speculative product.

This research demonstrates the potential for digital interfaces to adapt to technological changes. The research also adheres to engage potential users in meaningful discussions about their digital legacies. The findings underscore the ability of speculative design to stimulate debate and enhance awareness regarding the management of our digital legacy.

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Background

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Background

This project is an extension of another project also titled "Passing on Digital Legacies," which I submitted for the Storytelling module of the Editorial course, led by Mosse Sjaastad. In this diploma, I have built upon the insights I gathered from that project, which included a survey conducted together with a classmate, who worked on a similar theme. We explored digital habits among the participants, mapping out the vast amounts of media we collect today in contrast to previous generations.

Additionally, I incorporated insights from user interviews and tests conducted for that project, along with reflections from my final delivery in the Storytelling module. When I started this project, my vision was to create a design concept for a digital time capsule platform. This platform would enable people to pass on digital legacies to future generations, encouraging them to share their media of sentimental value within a network of family and close friends. The goal of

the platform was to facilitate users in making their personal media collections more navigable and organized, despite its overwhelming volume.

However, I realized the challenges associated with managing the vast amounts of media, digital devices, competing cloud services, and sentimental objects that we accumulate. This digital "mess" complicates the management and organization of our media. We must also consider which formats are most archive-stable for future archiving. These insights led the project to take a more explorative and speculative direction, where I examined signals and drivers for how we might manage our digital legacy in the future.

This extended exploration aims to deepen our understanding of the complexities involved in preserving digital legacies and to foster a more thorough discussion about potential solutions for the issues identified.

Going into this project

my problem statement was...

"How to encourage people to share and pass on digital legacies of their life to family and close friends?"

My motivation was that...

I'm concerned about how our society will protect our digital legacy from disruptions caused by modern technology.

My goal was to...

Design a service that provides a platform where people can curate their digital afterlife legacy for future generations.

Discover

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Digital Legacy

What is digital legacy defined as in this thesis, and why is it important?

What is digital legacy defined as in this thesis, and why is it important?

Digital legacy is about our identity, our cultural heritage, and our world heritage. Digital legacies is about preserving and pass on digital media such as: photos, videos and other digital content that conveys a person's life story or documents significant cultural events.

By sharing digital legacies with family and close friends, people can strengthen bonds and maintain a sense of continuity across generations, which can help families to maintain a connection to their past and understand their heritage.

Segments of exploration and *why*

Digital Habits

To understand people's habits of managing their digital media.

Genealogy

To understand what engages people in ancestral research.

Future Technology

To understand which formats are most sustainable for a future platform, ensuring that future generations can access their ancestors' digital heritage.

Identity & Narratives

To understand how people want to be portrayed and their preferred way of curating their afterlife legacy.

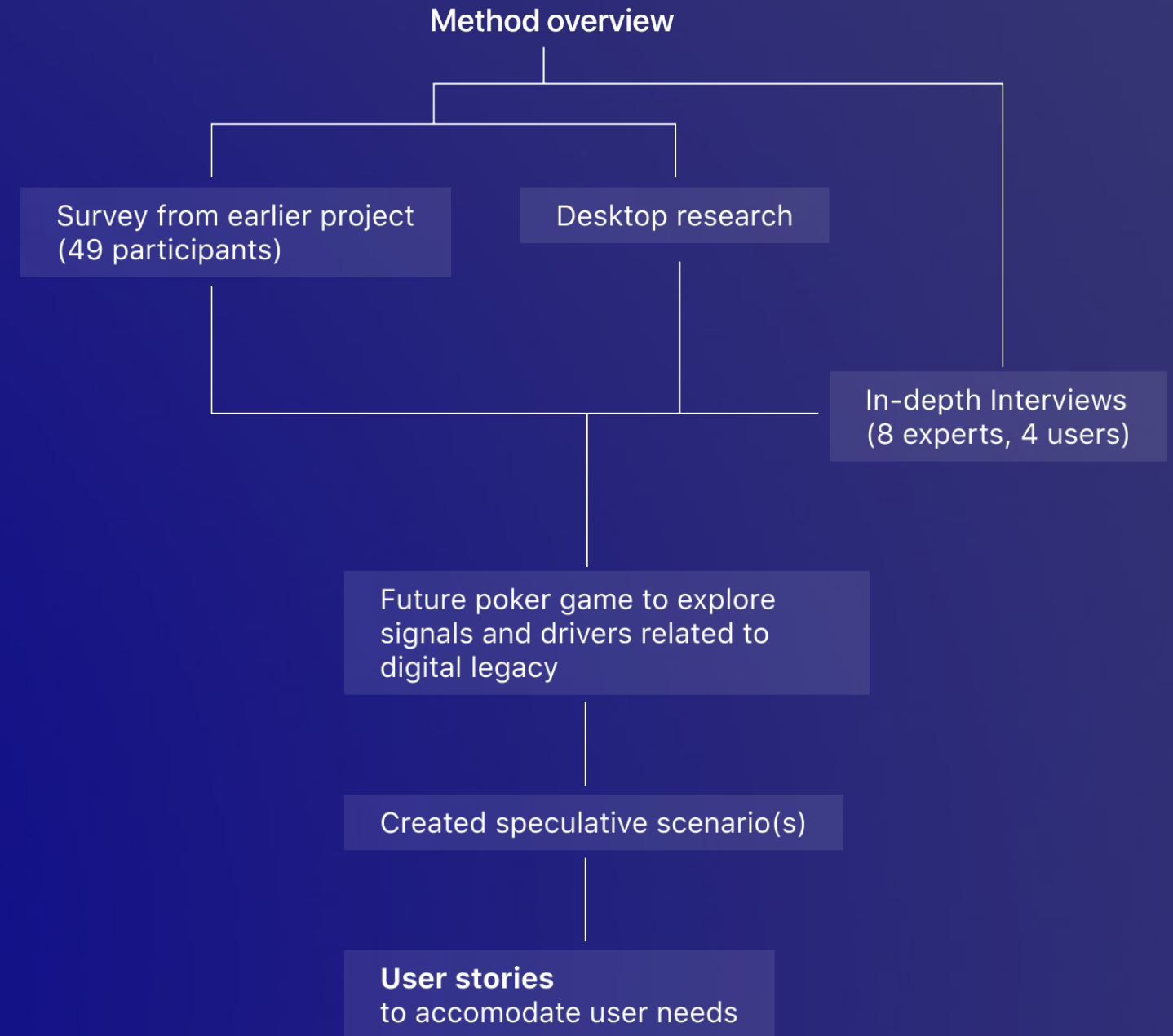
Rituals

To gain insight into how people perform rituals and its importance after someone has passed.

Archiving

To understand how public institutions and organizations address our digital legacies.

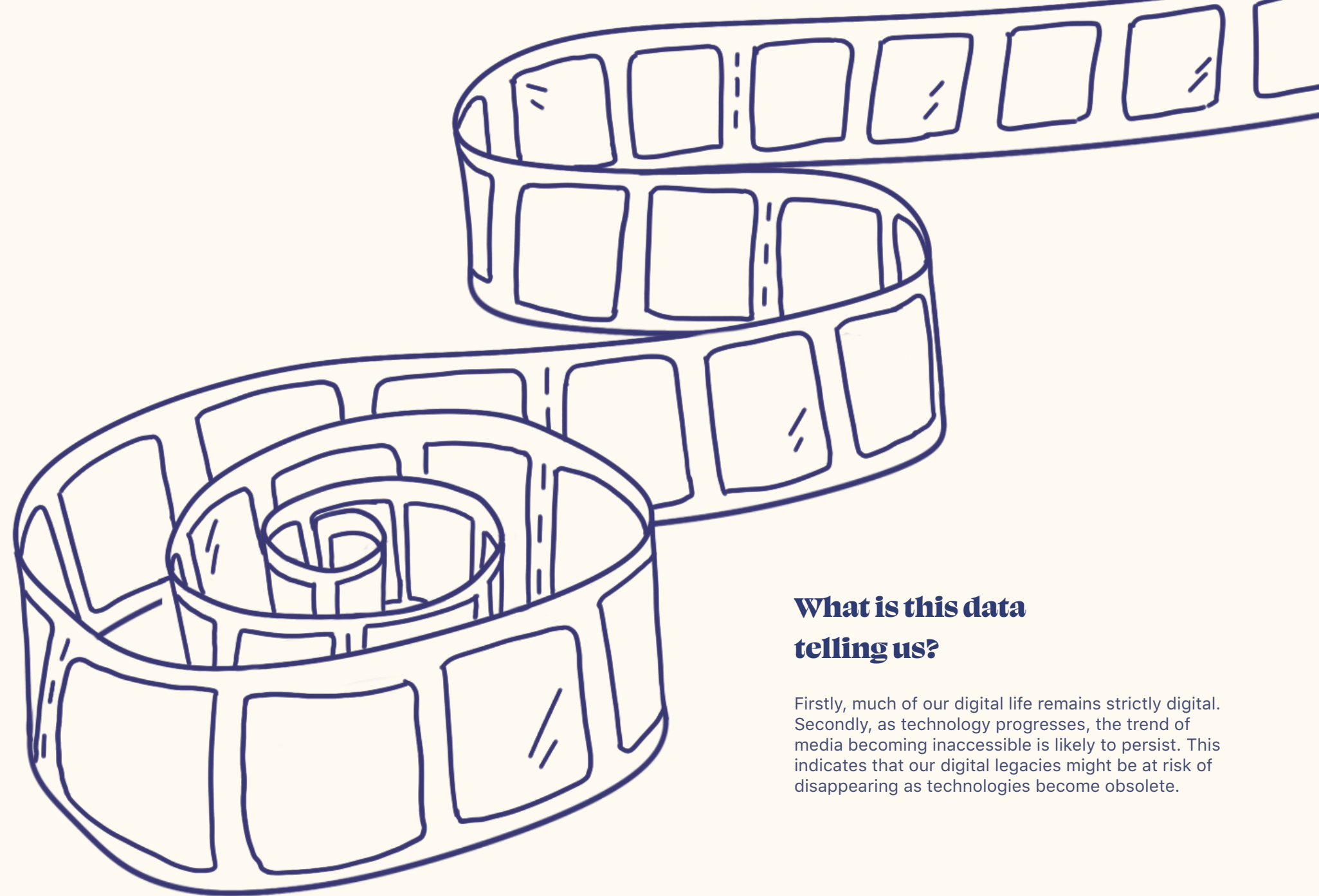
Methods



Survey from earlier project

In the survey I conducted with a classmate, involving 49 participants, we found that 43% of the respondents reported their stored media had become inaccessible due to technological advancements. Documenting significant life events and experiences is universal among our respondents, with 100% using photography as their main go to for documentation. After shared experiences, people often exchange media through various digital means such as email, Airdrop, Dropbox, or messaging apps. When reviewing this media, 83% of the participants reported using the camera roll on their phones to look back at them.

Regarding preservation of media from older generations, 91% reported having photos or other documentation from their parents' lives, while 76% reported having similar documentation from their grandparents and great-grandparents. The diverse age range among the participants in the survey means that these results should be considered with caution, as they may not accurately reflect broader demographic trends. However, these findings suggest a trend: the older the participants, the less likely they are to have media from their ancestors.



What is this data telling us?

Firstly, much of our digital life remains strictly digital. Secondly, as technology progresses, the trend of media becoming inaccessible is likely to persist. This indicates that our digital legacies might be at risk of disappearing as technologies become obsolete.

The creepy afterlife industry

While conducting desktop research to explore the current landscape and future prognosis of genealogy, I encountered a service called HereAfterAI (HereAfter AI, n.d.), which offers a promotion video on their website that I found quite concerning. This service allows you to feed an AI with data from a deceased loved one. It is reason to state that this service raises some serious ethical and privacy concerns. But among that it might also disrupt people's process in grief of losing a loved one.

This research led me to think about all the data we store from deceased people, prompting me to conduct further research. One finding from this is that within 50 years, it's estimated that there will be more deceased than living users

on Facebook (University of Oxford, 2019). This makes the majority of Facebook 'users' those who have passed away. These statistics underscore the lasting impact of our digital footprints and the possibility that digital platforms may unintentionally become digital memorials.

In exploring the dystopian aspects of digital legacies, I've been influenced by episodes of Black Mirror, such as The Entire History of You, San Junipero, Striking Vipers, and Black Museum. Black Mirror is known for delving into the dark side of future technology. My goal in exploring future technology is to identify platforms and tools that are likely to be used for generations, ensuring that our digital legacies can persist without being lost to outdated technology.

The image shows a screenshot of the Hanson Robotics website. The top navigation bar includes the logo and links for ABOUT, ROBOTS, HANSON AI, RESOURCES, and CONTACT. The main content area features a large image of a robot head with a transparent dome, revealing internal components. Below the image, the text reads "Hanson AI" and "Developing Meaningful AI Interactions". A small button labeled "HANSON AI" is visible. To the right, a news article snippet is shown with the title "Digital graveyards: are the dead taking over Facebook?" and a sub-header "SOCIETY TECHNOLOGY RESEARCH". The article text states: "New analysis by academics from the Oxford Internet Institute (OII) predicts the dead may outnumber the living on Facebook within fifty years, a trend that will have grave implications for how we treat our digital heritage in the future." Below this, there is an advertisement for the "HereAfter" app. The ad features the text "Your stories and voice. Forever." and "Preserve memories with an app that interviews you about your life. Then, let loved ones hear meaningful stories by chatting with the virtual you." It includes download buttons for the App Store and Google Play, and a link to "Create your free account...". A small red arrow points to the text "WATCH THE DEMO (3:37)" at the bottom of the ad.

Interviews

I have conducted four in-depth user interviews and eight expert interviews. From one of my user interviews, the participant was also an amateur genealogist who provided unique insights into the personal aspects of genealogy. A notable aspect of my research was that each expert I interviewed found the topic personally intriguing. This personal interest allowed me to gather valuable insights not just from their professional expertise but also from their perspectives as individual users.

The experts

Designer from Arkivverket and Digitalarkivet

Professor of Cultural Studies from the University of Bergen (UIB)

Developer from a tech consultancy

Designer who has worked on a similar project

Facilitator from a grief counseling group

Designer specializing in concept development, user interface design, and data visualization

Journalist specializing in polyphonic history

Designer futurist with a PhD

I spoke with a service designer from Arkivverket, to learn more about their digital archiving practices. Arkivverket owns a service called Digitalarkivet (The Digital Archive). Digitalarkivet is Norway's largest source website, established in 2018 as a national platform for digitally accessing archival material. Providing the Norwegian public with a single gateway to the society's digital archives.

I interviewed a professor within the field of cultural studies at the University of Bergen. We discussed the roles of narratives and storytelling after someone has passed, and the role social media plays in this context.

A developer from Blank, a tech consultancy based in Oslo, provided me with deeper insights into future technology, which is crucial for understanding how digital legacies might evolve to different formats.

I had a meeting with a facilitator from a grief counseling group called Fransiskushjelpen to gain a wider understanding of grief, and how people perceive and interact with digital legacies of the deceased.

I met with a journalist who specialise in polyphonic history, a practice that empowers people to share their personal stories, thereby enriching the historical narrative for future generations.

Highlights from expert interviews

The professor I interviewed described the narratives we construct of a deceased loved one as a patchwork quilt, where everyone tries to piece together parts of an entire life that was lived.

During the interview with the developer, he highlighted practical concerns about future technology platforms, saying, "Considering which technology should be used for a future platform, one must think about practicality: can it be opened and read, and can one trust where it comes from?" "Has it been edited?" He also referred to cryptography and noted that while the technology to create a platform facilitating for future technology exists, most people lack the know-how to use it.

The journalist highlighted that the ownership of these oral histories is a highly debated topic, made particularly challenging due to GDPR constraints. She further pointed out that there is a "missing link" between private and governmental handling of such data. Emphasizing the importance of these efforts, she noted that collecting oral stories isn't just research; it's an act of democracy. Additionally, she underscored the critical need to separate between what is considered private and what is personal, a distinction essential for preserving legacy.

Highlights from user interviews

An amateur genealogist expressed that his interest in genealogy stemmed from a desire to learn more about his grandparents' life stories, explaining, "**I guess it's something about wanting to know who I am and where I am from.**"

Another user, when asked about the future of her digital legacy, stated, "I hope what I have doesn't get shared; there are only a few people I want to have a look at it." "The issue is that what's secret and sensitive is mixed with what I, for instance, want my partner to see – **I want to sort things out before I die.**"

Key takeaways from interviews

Heritage Connection

Users want to understand their ancestry and identity through family stories.

Selective Sharing

Concerns about sorting sensitive and private information for digital legacies.

Cultural Context

Memory reconstruction can be seen as a collective effort, similar to creating a "patchwork quilt" of a loved one's life.

Tech Feasibility and Trust

Importance of practical, trustworthy technology platforms.

Ownership and Privacy

Essential to distinguish between private and personal data for privacy and democracy.

Define

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Initial challenges and complexities faced.

Change in direction

Shifts in project focus.

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Incorporating speculative design into the project.

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The audience

Who am I doing this project for?

Further exploration

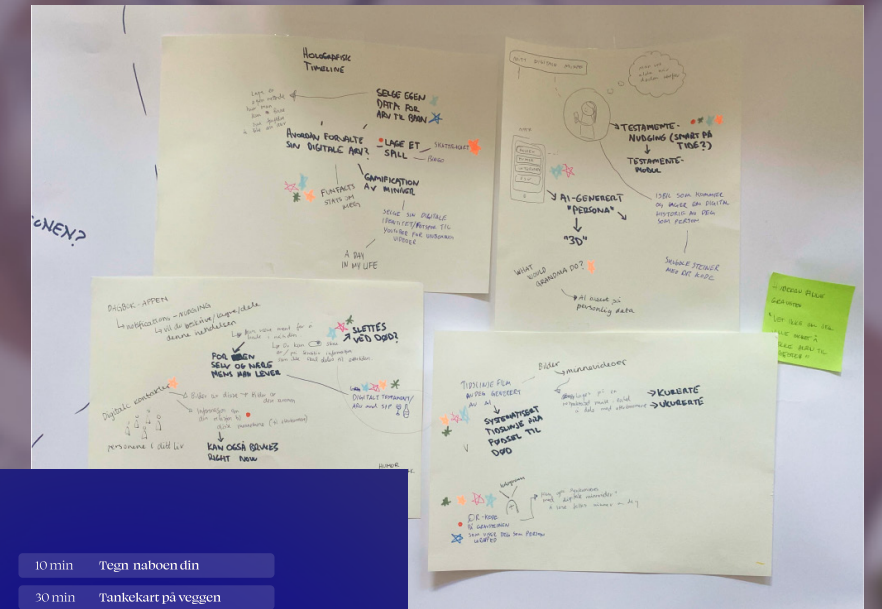
Additional areas for research.

Future trends

Projected trends impacting digital legacies.

Workshop

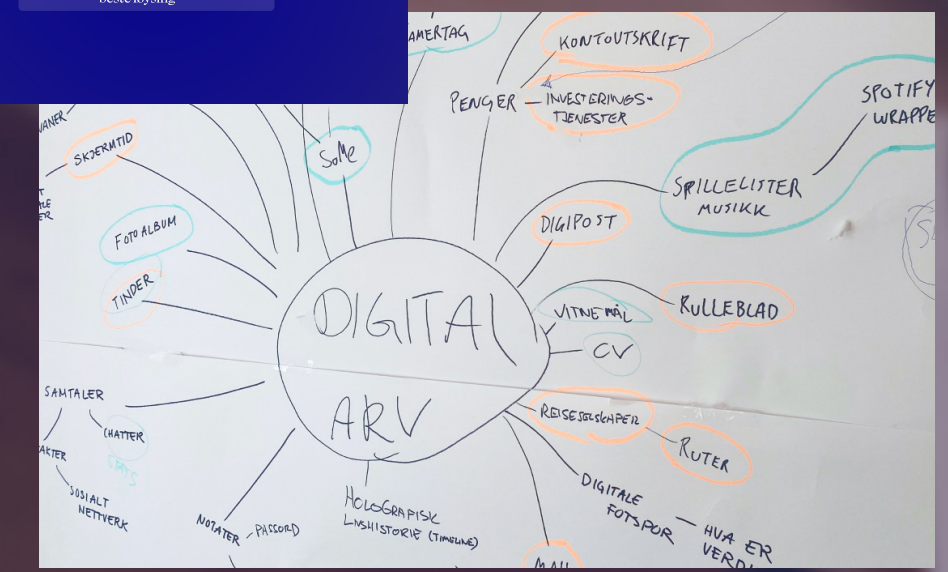
I felt ready to step into the exploring phase of my project and initiated it with an ideation workshop. I invited other designers and friends to brainstorm and ideate on how we should manage our digital legacy. The outcome from this session revealed that the issue at hand might be too complex, and that the workshop's casual atmosphere didn't quite match the seriousness of the topic.



Workshop Agenda

3 hours

10 min	Tegn naboen din
30 min	Tankekart på veggen
30 min	Brainwriting pool
15 min	Pause
45 min	Vrenningsmetode <ul style="list-style-type: none"> • Inneomr scenario • Fremst og framtidss-scenario • Foreterk problemene
15 min	Pause
20 min	Tvungen kobling
15 min	Avslutter og stemmer på beste løsning



Is digital legacy a...

**Wicked complex socio-
technological problem?**

Don Norman

Complex?

This made me reassess and delve deeper into the complexity of digital legacies. By exploring whether it is a wicked problem or even a wicked complex socio-technological problem, as described by Don Norman (Interaction Design Foundation, 2021). The challenge lies in defining the problem clearly, which also might surfaced as the main issue during the workshop; it was not straightforward what we were trying to solve.

Digital legacy is not an isolated issue; it affects our society in various aspects and is indicative of broader problems. Our digital habits contribute to the

complexity, as we often store our media in disorganized clusters that mix sensitive content with items we might want to share. Additionally, our data is scattered across multiple devices, clouds, social media platforms, and hard drives. This distribution is symptomatic of our digital consumption, driven by a capitalist system that leads to the digital obsolescence of our devices. With our media spread 'everywhere', the task of managing and organizing becomes overwhelming, largely because we don't even know where to start.

Change in direction

My project, which focuses on preserving digital media to convey our life stories to future generations, requires a deep exploration of what future technology might look like. This is essential because the design I aim to develop must be adaptable to new technologies to avoid becoming obsolete. To achieve this, I decided to develop a speculative future scenario built on the knowledge and insights I had gathered, followed by a speculative design that would respond to this knowledge and the scenario I created.

Speculative design

Speculative design explores “what if” scenarios, creating ideas and strategies that challenge the status quo and envision new futures (Dunne & Raby, 2013). This approach allows designers to question current realities and propose alternative possibilities with innovative values and technologies (Dunne & Raby, 2013).

With speculative design, this project aims to explore a possible future of digital legacy management and its implications for personal and societal identity. It seeks to stimulate critical thinking and discussion about the ethical and cultural impacts of digital preservation technologies.

New goal & problem statement

New goal

Through speculative design, I aim to raise awareness about our digital legacy by conceptualizing how future systems, services, and products for managing digital legacies might impact our society.

New Problem Statement

My problem statement has therefore changed to "How can speculative design address digital obsolescence, promote discussion, and raise awareness on how we might manage and share our digital media in the future?"and share our digital media in the future?"

The audience

As this thesis is focused on speculative design, the target audience for this project is broad, concerning everyone who uses digital devices to capture and store digital media. However, there are specific groups within this broad demographic that can be categorized based on their diverse perspectives and interests. In the following paragraphs, I have highlighted some of these groups and their relevance

Tech enthusiasts and skeptics

Curious about technology and its societal impact, they often drive or influence public opinion and technological adoption. They play a key role in critiquing and backing new technological solutions.

Tech companies

Companies that develop digital content platforms or tools play a direct role in shaping how digital legacies are managed and preserved, making them a critical audience for the project's concepts and findings.

Cultural and heritage institutions

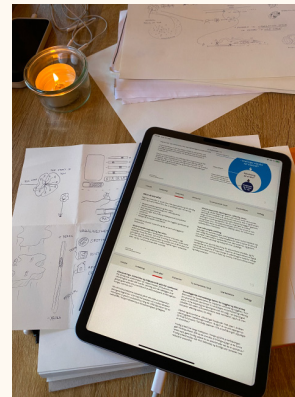
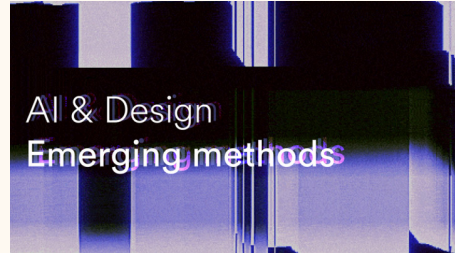
Organizations involved in digital archiving, such as museums, libraries, and archives, have a vested interest in

how digital legacies are curated and sustained. They continually work to adapt and preserve digital history for future generations, making it essential for them to seek innovative ways to maintain the relevance of digital content and formats.

Policymakers and advocacy groups

This group is crucial for implementing regulations and policies that promote ethical digital practices.

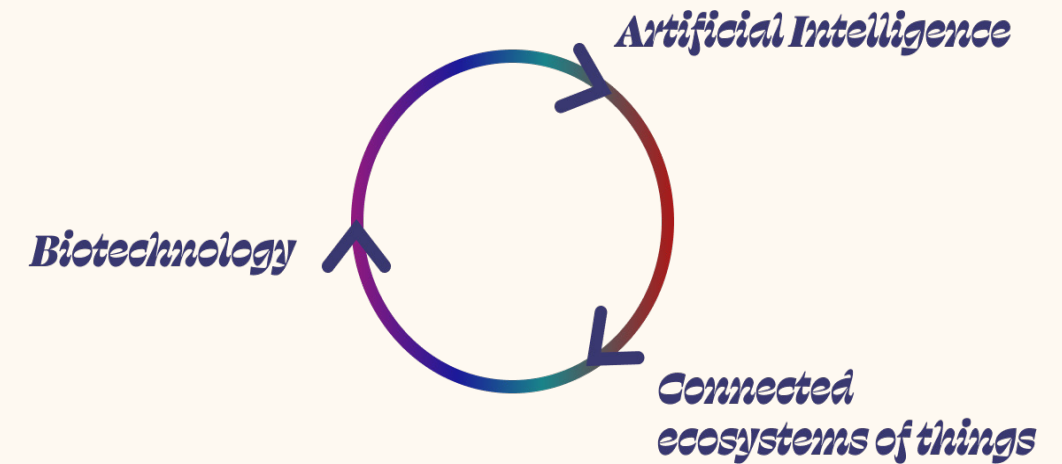
By considering these groups, the project can engage with a broad spectrum of stakeholders and foster meaningful discussions on digital legacy management.



Further exploration

To deepen my understanding of future technologies, I've engaged in extensive research. This included watching an online talk by Amy Webb, an American futurist, who presented the 2024 tech trend report from the Future Today Institute (SXSW, 2024). The report highlights a transition in

technology, the 'tech super cycle,' which suggests that progress is not driven by single-purpose technologies, but rather by the convergence of three significant ones; Artificial intelligence, Bio technology and connected ecosystems of things (SXSW, 2024).



One striking insight from the report is the potential shift from silicon-based systems to biotechnology, which is positioned to fundamentally alter our human existence (SXSW, 2024). Additionally, I read another report on future scenarios for the public sector by Kommunal- og moderniseringsdepartementet (Norwegian Ministry of Local Government and Modernisation, 2019), and attended a seminar on the future of AI and design. These activities helped me frame a more informed approach to speculative design in addressing the challenges of digital media management and obsolescence.

Key findings

To help guide my design decisions further, I have established some key findings, gathered from all my research.

We are in a transition of technology.

Most people have a messy digital life.

Digital obsolescence is threatening future genealogy.

Private industries are profiting on dead people's data.

Future trends

There are a few signals that can hint at possible future trends or shifts in technology, society, the environment, or culture. To map out future trends relevant to my topic in genealogy and legacy, I used the PESTEL analysis tool focusing on political, economic, social, technological, environmental, and legal drivers (Elmansy, 2019). As a designer, I found it more challenging to identify drivers in some categories than others due to my stronger background in technology than for example in politics. ChatGPT4 was therefore a useful tool to help fill the gaps in my knowledge for this analysis.

However, I maintained a critical perspective on the outcomes, carefully selecting which suggestions to use and conducting further research on the drivers to ensure their relevance.

The outcome of this analysis made it clear that the problem I am tackling is complex. It was helpful to clarify how the problem affects different aspects of our society. There are many trends, and it is difficult, perhaps even impossible, to consider them all when designing a service or product to solve this complex problem. I took this further into the developing phase.



Develop

Future poker

Future Scenario as a Method

Scenarios

Detailed future scenarios for 2040, 2044, and 2050.

Takeaways from the scenario

Lessons from future scenarios.

What is a memory?

A detour to explore the nature of memories.

Speculative neuroscience

Theoretical neuroscience concepts.

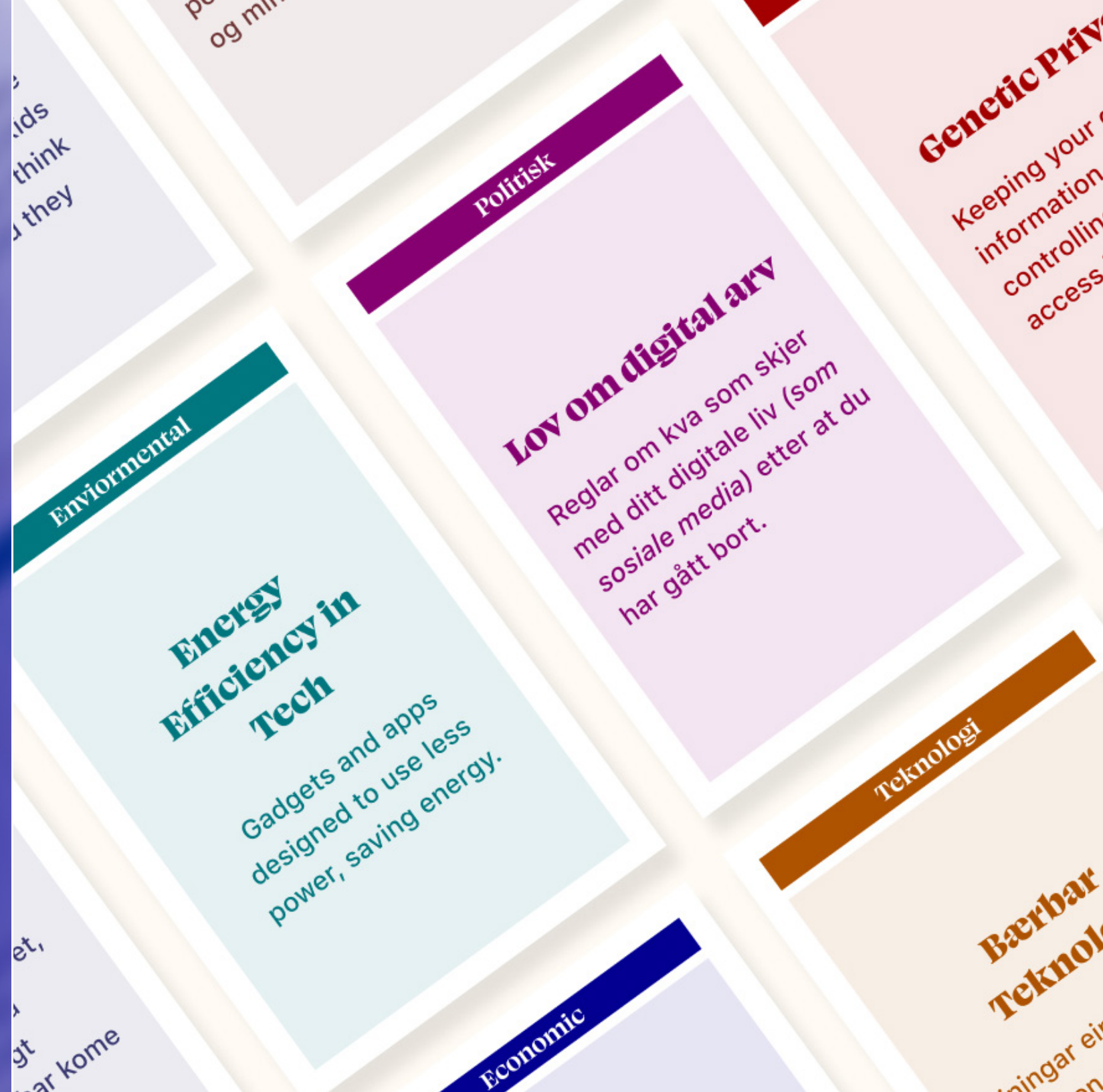
Genetic memories

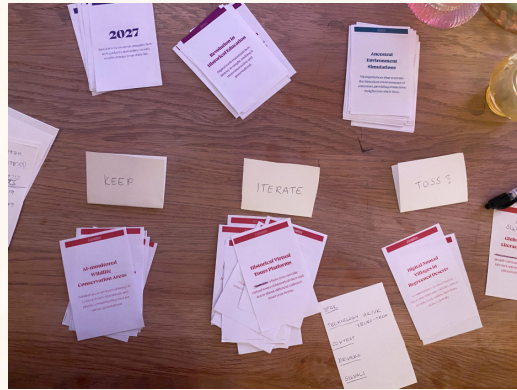
Exploring the idea of genetic memories.

Memories and emotions

The link between memories and emotions.

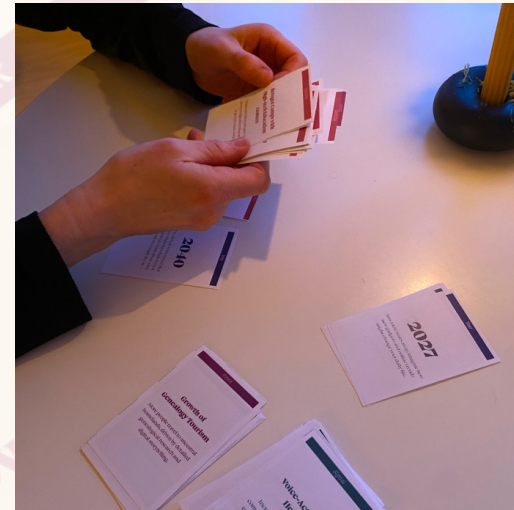
Future Poker



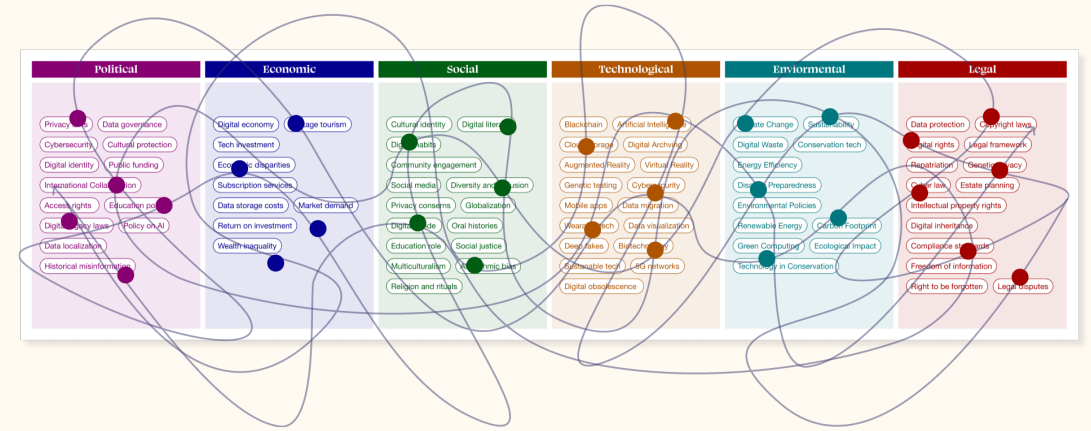


Future poker

After receiving some inspiration and advice from Dr. Jomy Joseph, who holds a PhD in Industrial Design and focused his thesis, 'ReFuturing Studies,' on rehumanizing futures through design, I decided to innovate with the trends I had identified. I created a "futures poker" game, tailoring a deck of cards with the drivers I found most relevant to my project (Voss, 2016). This deck included location cards that ranged from macro to micro perspectives in Norway and future years cards, allowing players to build scenarios based on a specific time and place. In a later iteration, I also added a

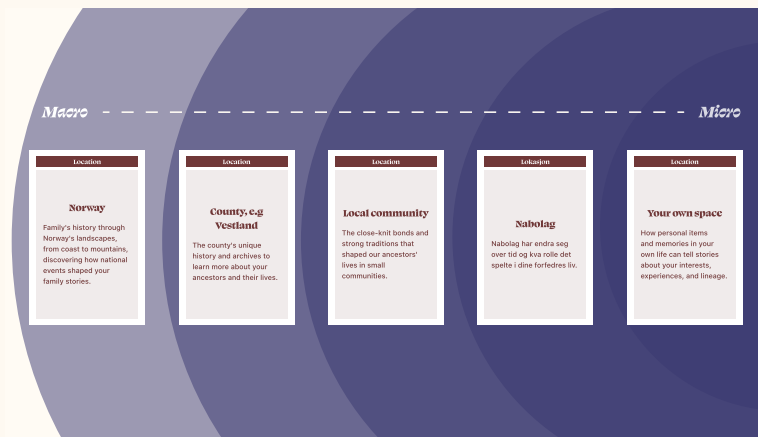
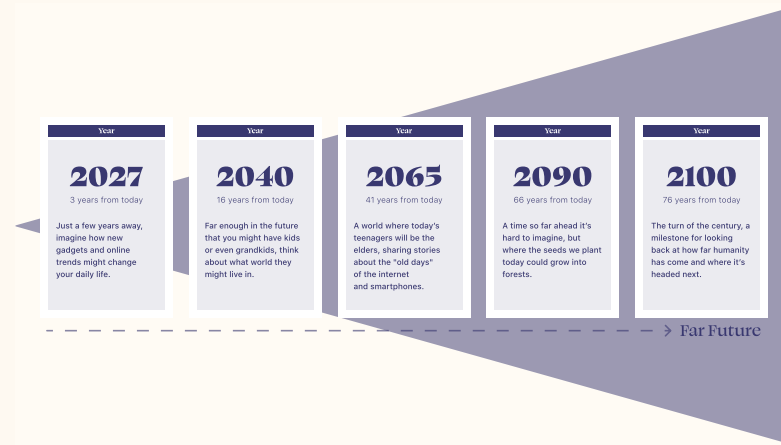


small deck of 'random' cards that had nothing to do with the topic, but by adding them in, it could help spark creativity in the game. I also developed a gameplay setup and organized a workshop titled "Futures Poker of Genealogy." Prior to the workshop, I conducted some small test-runs and iterations on the cards. The outcome of this workshop was the creation of four unique scenarios and concepts. The futures poker game proved to be an engaging tool for exploring and speculating on future scenarios and concepts, facilitating co-creation and stimulating discussion.



Future scenario as a method

From designing for how the world is now, to design for how it could be – in a speculative manner, we can create future scenarios. Not just for entertainment, but for reflection, critique, provocation and inspiration (Dunne & Raby, 2013). Taking the drivers from the PESTEL framework and translating them into material expressions, embodied in material culture, becomes little bits of another world that functions as synecdoches (Dunne & Raby, 2013). The only limit is scientific possibility, like physics and biology, everything else, such as ethics, psychology, behaviour, economics and so on can be stretched to the breaking point (Dunne & Raby, 2013).



Snu arket for norsk versjon ↗

Future Poker of Genealogy

The aim of this workshop is to create future scenarios and raw concepts of services that fits in.

- Place year and reflect on how society and your life would look like in the specific year of time.
- Place location and reflect how that *might look like* in this future scenario.
- Place driver 1, 2 and 3.
- Reflect and build scenario.

Year

Place your year card here

Where?

Place your Location card here

Driver 1

Political, Economic, Social, Technological, Environmental, Legal

Driver 2

Political, Economic, Social, Technological, Environmental, Legal

Shuffle card ↻

Driver 3

Political, Economic, Social, Technological, Environmental, Legal

Round 2

- Pass the shuffle card to the person/group to your left, and receive a card from your right.
- Continue building your scenario by including the new driver card.

Repeat for as long as you like!

Årstall 2015 Lokasjon Norway

Trend 1 Barne- i familie 2 Dokumentasjon 3 Teknologi

Forsell og beskrivning av universet i denne fremtida

• Live longer
• More data based on the life
• Value!
• Main economy
• Heritage

Skap et tenestepåbud for utvalgte tjenester, som eventuelt kan være basert på denne analysen.

Tjenest 1 Arbeidssøker 2 Barne- i familie 3 Kl i slekt

Årstall 2027 Lokasjon Local community

Trend 1 Digital education 2 Access Rights 3 High Level

Forsell og beskrivning av universet i denne fremtida

- Information is the most valuable asset with increasing its longevity seen as valuable, the personal information collected by each individual is what is required to sort open and accessible - it's like data to be a part of history but its information and not money.
- Will lead communities being united by religion, meaning those languages, cultures and religions requires a close relationship around sharing and opening up to form local communities, even if it is incompatible.
- Through the social collection of the individuals values, ideas, stories and experiences every individual has, community or what will help out to someone's situation of others.

Skap et tenestepåbud for utvalgte tjenester, som eventuelt kan være basert på denne analysen.

- Ensuring that this information is passed on to the next generation keeps our building this valuable asset.
- Support for young culture preservation.
- Education leads to culture that is passed from geographical location but rather through cultural connections.

Year 2040 Location County - Vestland

Drivers 1 History Timeline 2 Open to Heritage 3 Genetic Privacy

Imagine and deconstruct out the universe of this future

- Open to Heritage: More historical data is available, people can see their own history and the history of others. This is done through digital timelines and genetic data. People can see their own history and the history of others. This is done through digital timelines and genetic data.
- Open to Heritage: More historical data is available, people can see their own history and the history of others. This is done through digital timelines and genetic data. People can see their own history and the history of others. This is done through digital timelines and genetic data.
- Genetic Privacy: People can see their own genetic data and the genetic data of others. This is done through digital timelines and genetic data. People can see their own genetic data and the genetic data of others. This is done through digital timelines and genetic data.

Skap et tenestepåbud for utvalgte tjenester, som eventuelt kan være basert på denne analysen.

- Service for connecting between those who want to be forgotten with those who want to be remembered.
- Service for connecting between those who want to be forgotten with those who want to be remembered.
- Service for connecting between those who want to be forgotten with those who want to be remembered.

Year 2065 Location You OpenSpace

TREND 1 Deepfake

- Data becoming personal - People can access for an algorithm
- Service to recognise
A reality TV show
↳ Participants recognize what is fake and what is not.
↳ And how? → become a magic trick
- Goal II "Intuition" → How to save this from Data mining companies

- A looking at different Internet Graphics trend from different decade

- Divide between people who used Internet.

- Being able to scan someone's digital assets
for eg: He seems like a bad type

Year 2040 Location HIM

Drivers 1 Health Identity 2 Family Data 3 Ownership

Imagine and deconstruct out the universe of this future

- Health Identity: People can see their own health data and the health data of others. This is done through digital timelines and genetic data. People can see their own health data and the health data of others. This is done through digital timelines and genetic data.
- Family Data: People can see their own family data and the family data of others. This is done through digital timelines and genetic data. People can see their own family data and the family data of others. This is done through digital timelines and genetic data.
- Ownership: People can see their own ownership data and the ownership data of others. This is done through digital timelines and genetic data. People can see their own ownership data and the ownership data of others. This is done through digital timelines and genetic data.

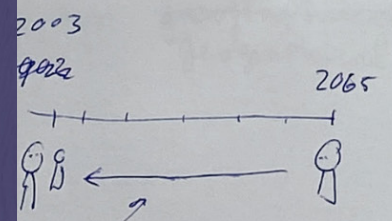
Skap et tenestepåbud for utvalgte tjenester, som eventuelt kan være basert på denne analysen.

THE COST OF TECHNOLOGY IS NOT THAT EXPENSIVE BUT IT IS NOT GREAT TO MAKE UP UNREAL VISIONS → PEOPLE THAT IS NOT IN TOUCH WITH REALITY MAKE UP MORE OF THEM.

• Live longer
• More data based on the life
• Value!
• Main economy
• Heritage

passar inn i denne verda.

3. Kl i slekt..



(AI) based on data
family
trend
(war, challenge etc.)
our own home

Årstall

Place your year card here

okasjonskort og over korleis det ut i dette scenarioet

r trend 1, 2 og 3

ter og bygg scenario

Trend 1

Politisk, Økonomi, Sosialt, Teknologi, Miljø, Lov

Economic

Politisk, Sosialt, Miljø, Lov

Teknologi

Virtuell verkelegheitsreise

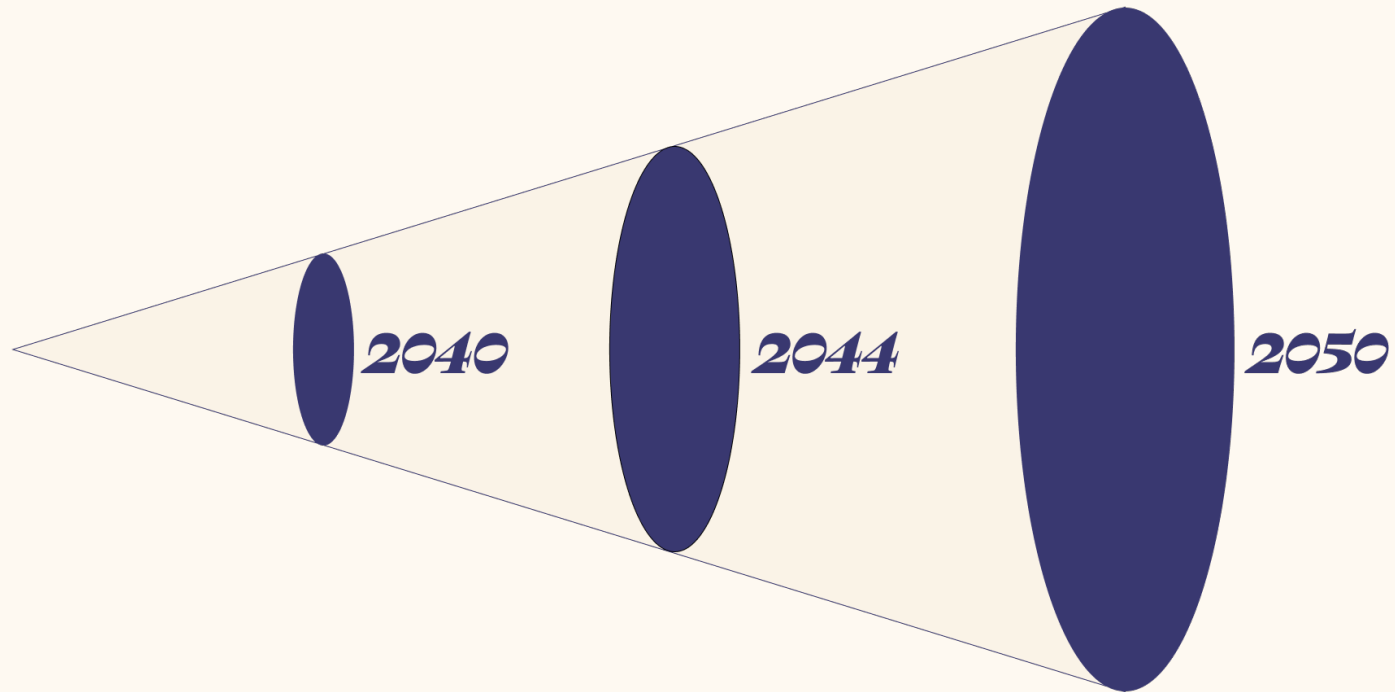
Utforske fjerne s heimefrå ved br VR-briller, som verda meir til

1. Send byttekortet til personen/gruppa til høyre for deg, og motta



Gateleksfestivalen

I also attended 'Gateleksfestivalen' (the Street Play Festival) along with Dr. Joseph, exhibiting the future poker cards, facilitating for kids and parents to play. The festival is held at the Intercultural Museum. The plan was to play the game with kids and their parents to stimulate discussions between the two generations on how we might live our digital lives in the future. However, the age group was a bit too young, so the future poker was not a success in this context. Nevertheless, the children still enjoyed drawing and discussing how their lives might look in the future when they were 'the grownups'.



The scenario

One of the participants from the future poker workshop pointed out that since everyone had been given a different year card, it became a timeline. Inspired by this and all the scenarios we had created, I merged it with insights I had gathered throughout this project and developed a single scenario spanning from 2040 to 2050, highlighting significant societal shifts in 2040, 2044, and 2050.

Note: Before we jump into the time machine to explore this scenario, it's important to establish that I can only speculate about the future using signals and drivers visible today. It is not possible to predict the 'true future,' but we can speculate on what it might look like based on these signals and drivers.

Year 2040

Rapid transitions in technology have made our current digital media vulnerable. As formats evolve and become obsolete, there is now a significant risk that valuable digital information could be lost. This has become an international concern, leading the European Union to urge all countries to take proactive measures. In response, Norway establish a new department called Framtidsdepartementet (The Future Department) to assess and address the preservation of the nation's digital cultural heritage in the face of technological shifts. To address these challenges, Framtidsdepartementet has tasked the Norwegian Digitalisation

Agency (Norwegian Digitalisation Agency), The Digital Archive (Digitalarkivet), and the National Library of Norway (Nasjonalbiblioteket) with collaborating to develop an AI model named Eterna. This initiative has led to the launch of a public service called Nasjonal Minnebank (NMB), (Norwegian Memory Bank). Eterna and NMB are designed not only to collect, secure, and preserve our digital media for the future but also to predict and adapt to future technological changes, ensuring ongoing relevance and protection against digital obsolescence.

European Union Urges All Countries to Take Action



Valuable digital information could be lost

Norway Responds to UN Concerns and Establishes a Future Department



The first mission of the Future Department is to address the challenges in preserving the nation's digital cultural heritage.

New public service: **Norwegian Memory Bank (NMB)**



Using an AI model named Eterna, The norwegian memory bank promises to keep your digital media secure and adaptable to new technologies.

© 2024 Norwegian Memory Bank. All rights reserved. For more information, visit [nmb.no](#)

Keeping your media in NMB will increase your cultural capital and provide tax benefits



The amount of data stored in NMB can provide certain benefits within the Norwegian economic landscape, turning stored media into a form of cultural currency.

To achieve this, Framtidspartnerskapet has teamed the Digitaliseringsdirektoratet (DigiDir), the Research Center for Digitalization and Responsibility with collaborating to develop an AI model known as Eterna.

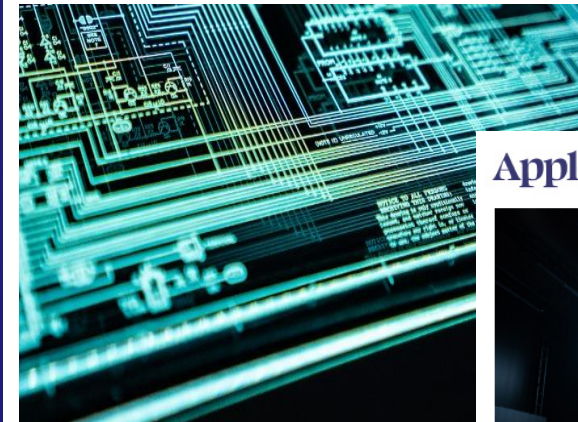
The government actively promotes NMB, encouraging the public to use this service as private cloud storage. It allows users to easily upload and store important digital assets. Notably, the volume of data stored in NMB enhances the Norwegian economic landscape by turning stored media into a form of cultural currency. This aspect of the service provides tax incentives, increasing its attractiveness among the Norwegian public. To further engage the public and raise awareness of digital preservation, NMB hosts interactive exhibitions and workshops. These events are part of a campaign promoting their service and encouraging people to take accountability for their digital waste and legacy. The

initiatives aim to promote discussion and educate the public about the importance of digital legacy management. The government acts as a steward rather than an overseer, ensuring that it does not directly access individual digital assets. The service uses standardized technologies to ensure long-term preservation and public access. The security of these digital assets is safeguarded by blockchain technology, ensuring their integrity and protecting them from tampering and loss.

Year 2044

The integration of advanced technologies like spatial computing, artificial intelligence, and biotechnology has become commonplace in our daily lives. Big tech companies have significantly reduced the size of their spatial computing devices, such as Apple Vision Pro. What started as bulky headwear has now transitioned to glasses that appear more normal for everyday use. These glasses create a balance between technological innovation and conventional design. With this evolution of the devices, they now align better with cultural norms and societal expectations, making the technology more discreet and accessible. This evolution of technologies has significantly challenged existing laws and policies, particularly around privacy and data protection. Legal frameworks struggle to keep pace with these technological innovations, which is raising concerns over privacy and immaterial property rights.

Legal frameworks can't keep up with technological innovations



Raising privacy concerns

Apple launches iMemory



An immersive way of reliving memories, using neural stimulation

To achieve this, Fraunhofer IPA has teamed up with the Digital Learning Institute (DLI) at the University of Applied Sciences (HTW) Berlin. Fraunhofer IPA and DLI are collaborating to develop an AI model known as iMemory.

Apple's new product secures synthetic memories in the **bloodline**



The closer the DNA match, the more vividly others can experience shared memories through their own senses.

Apple claims to have solved **privacy concerns with iMemory**



The underlying data stimulates neurons and integrates with our DNA, making the data abstract and cryptic by nature.

iMemory Faces Competition from Tech Rivals



Sony, Samsung, and Meta Announce Competition to Apple's New Product

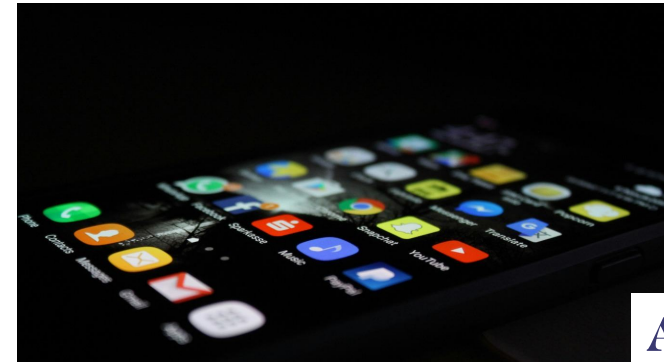
In response to these challenges, Apple has introduced a new product called iMemory. This advanced device captures and recreates personal experiences directly through neural stimulation, offering users a revolutionary way to relive memories through their senses. To address privacy concerns, the underlying data that stimulates neurons is integrated with our DNA, making it abstract and cryptic by nature. Therefore, it is impossible to hack iMemory, ensuring that personal experiences remain secure and private. Additionally, the connection through DNA allows users to share their memories with relatives, from immediate family to distant relatives. The closer the DNA match, the more vividly others can experience shared memories through their own senses. This feature not only enhances the personal connection but also preserves family histories in a deeply immersive way.

Year 2050

After Apple launched their product iMemory back in 2044, other major tech companies – Meta, Samsung, and Sony followed up with competitive products. Therefore, smartphones are no longer the primary device for people. However, Apple managed to maintain the same market share as they had with the iPhone, but now with iMemory. This means that 61 percent of the population in Norway now uses iMemory as their preferred device (Smedsrud, 2023).

These technologies have evolved to work seamlessly with our physical being and respond to our thoughts and movements. This change has significantly altered everyday life, making technology almost invisible but more ingrained than ever. and as its main purpose – it has changed the way people store and interact with their memories.

Death of the smartphone



Smartphones are no longer the primary device for people

Apple Keeps Its Market Share



Apple has managed to maintain the same market share as they had with the iPhone, but now with iMemory.

This market dominance has prompted the Norwegian Memory Bank (NMB) to reassess its role and strategy in preserving digital legacies. NMB is exploring how to adapt its services to better interface with advanced technologies like iMemory. However, it faces significant challenges due to conflicts of interest with the major tech companies—particularly Apple, along with Meta, Samsung, and Sony. These companies are driven by financial motives, and are reluctant to collaborate with NMB. This presents a complex political challenge as NMB seeks to balance public service goals with the commercial interests of these powerful private companies. NMB is focused on developing capabilities to transfer data

from iMemory for long-term conservation. They are now creating an organoid intelligence, which is three-dimensional tissues made from human pluripotent stem cells (Haseltine, 2023). These can grow and organize themselves into brain-like structures under laboratory conditions, and mimic the essential functions of a human brain. This technology will stimulate and produce data visualizations and statistics overview of our memories. With this advancement, NMB aims to safeguard personal memories, preserved through commercial products like iMemory as part of Norway's cultural heritage. While the data stored in iMemory is still secure, the technology is vulnerable to collective memory

manipulation. Its increasing use raises the risk of cyberattacks, prompting national security concerns from the Ministry of Justice and Public Security (Justis- og beredskapsdepartementet). Meanwhile, there is an ongoing social and cultural debate regarding the controversial memory-sharing feature of these technologies. Particularly, as minorities feel excluded due to DNA being a central key for memory sharing. Additionally, some people become overwhelmed by the technology, finding themselves trapped in their memories and unable to move forward in their grieving process.

NMB Faces Challenges Due to iMemory



NMB explores how to adapt its services to better interface with iMemory. The focus is on developing capabilities to transfer data from iMemory for long-term conservation.

Justis- og beredskapsdepartementet: Concerns Over Cyberattacks on Our Collective Memory

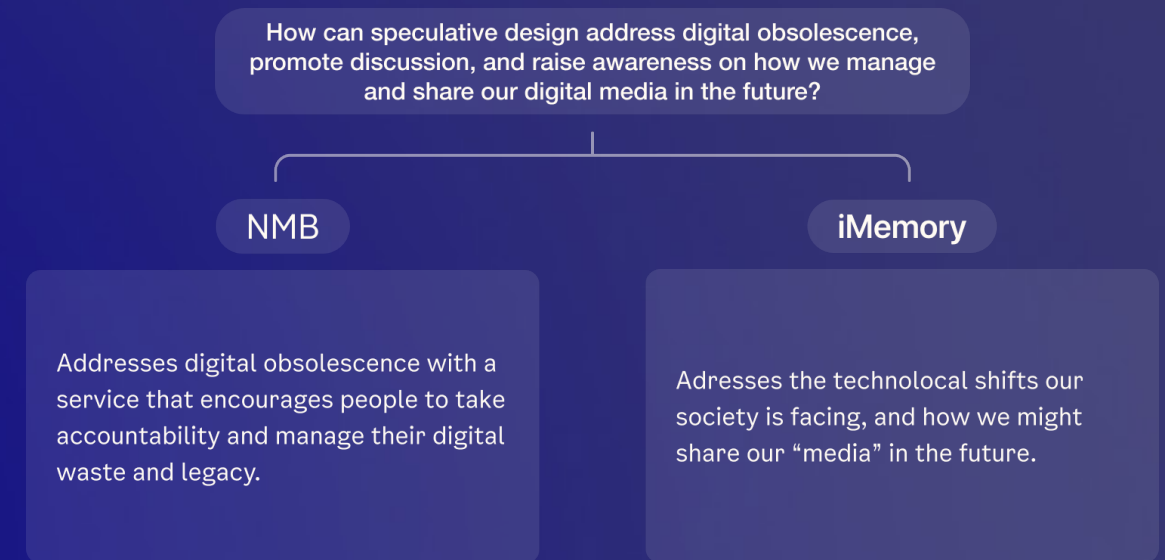


Although the data stored in iMemory is secure, its extensive use has heightened the risk of cyberattacks, significantly raising national security concerns due to the increased vulnerability of collective memory manipulation.

Take away from the scenario

This scenario underscores the rapid changes in technology and their impact on various aspects of our society. It highlights the societal challenges in keeping pace with technological advancements, particularly in preserving digital media. As technology evolves, it not only redefines how we interact with our digital legacies but also raises crucial questions about privacy, security, and accessibility. The scenario reveals the difficulties that institutions and people

face as they attempt to safeguard cultural heritage and personal histories in an increasingly digital world. Moreover, it emphasizes the need for innovative solutions like the Norwegian Memory Bank, which aim to adapt to and reduce the risks of digital obsolescence. Through this narrative, we see the critical role of policy, technology, and societal engagement in shaping our digital future and ensuring that our digital legacies can withstand the test of time.



**What is a memory?
How do we capture memories?
and how do we remember?**

Before I proceed to present the scope of this delivery, which is iMemory—Synthetic Memory by Apple, I would like to first gain a better understanding of what memories are and how they function. So let's take a brief detour to gain some insight into memories before we move on to the design of iMemory.



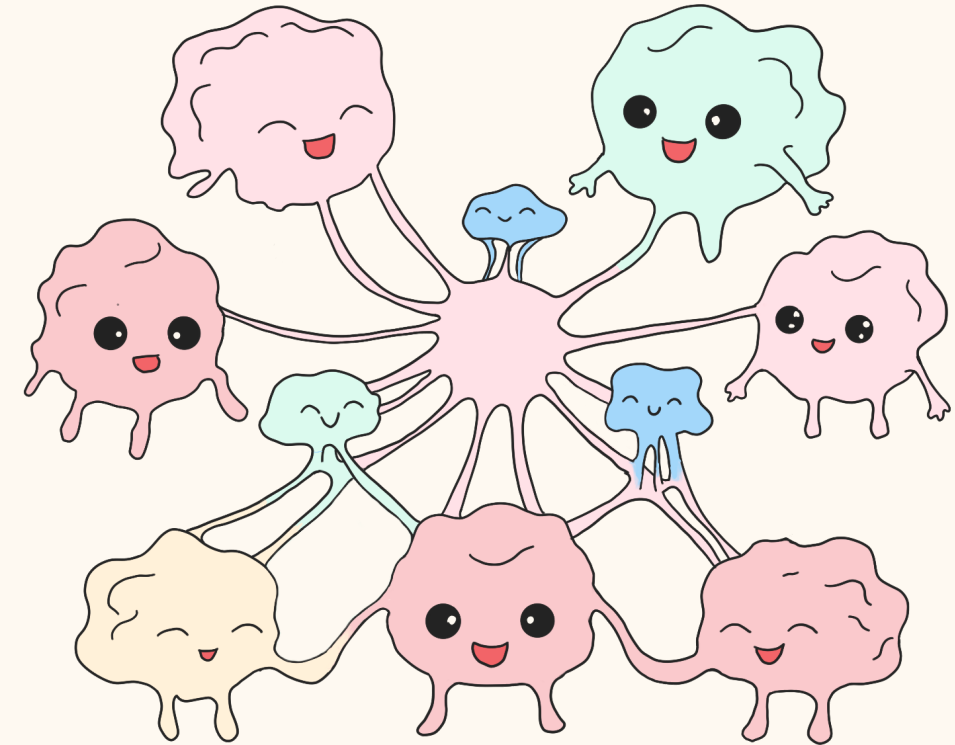


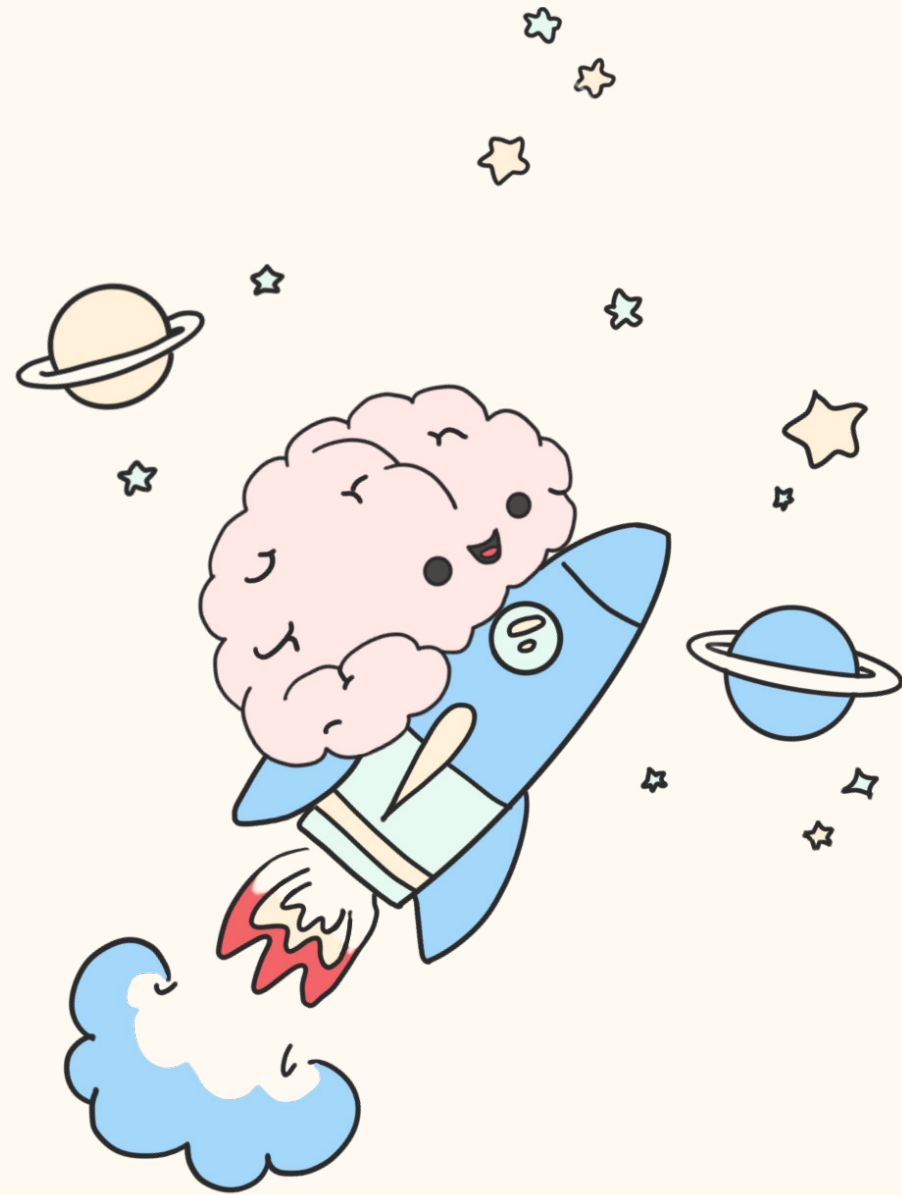
The brain is in charge

According to Johns Hopkins Medicine, our memories, thoughts, emotions, touch, motor skills, vision, breathing, temperature, hunger, and all bodily processes are controlled by our brain. Furthermore, the brain, along with the spinal cord extending from it, together make up the central nervous system (Johns Hopkins Medicine, n.d.).

It's all about connections

When we consume new information, our brain forms connections between neurons. These connections, which is called synapses, rewire neural circuits. With each of its 100 billion neurons potentially connecting to 10,000 others according to an article from Hopkins Medicine (Johns Hopkins Medicine, n.d.). When we recall an event, the neural connections formed during that moment are strengthened, effectively reinforcing and building the memory of that event. This is called Synaptic plasticity, which is the term used to describe persistent changes in the strength of connections. Active neural connections typically become stronger over time, while those that are not frequently used weaken and may eventually vanish (Queensland Brain Institute - University of Queensland, n.d.).





Speculative neuroscience

Michael Persinger, a cognitive neuroscience researcher, is known for his work on the effects of electromagnetic fields on the brain. His work is speculative and has been met with both interest and skepticism from other experts (McRobbie, 2016). In a presentation he held back in 2012, called 'No More Secrets,' (Persinger, 2011) Persinger discusses his hypothesis about 'the global brain', and the idea that human brains can be interconnected in ways that might allow for the sharing of

information across distances without the use of traditional technology. Persinger is also known for his work on the 'God Helmet,' a device that produces magnetic fields to stimulate the brain (Philosophy Dungeon, n.d.). His work suggests that it might be possible to artificially trigger or boost memory experiences using similar technologies. This correlates with iMemory's aim to allow users to relive memories.

Genetic memories

The term 'genetic memory' can mistakenly be associated with Carl Jung's work. Jung was a psychiatrist and psychoanalyst, who proposed the theory of the collective unconscious (Fritscher, 2023). This theory propose that humans inherit a collection of knowledge and imagery from ancestral experience. Although it is related, this is separate from genetic memory, which refers to the idea that common experiences of a species or bloodline become incorporated into our genetic code—DNA (Tamura, 2018). In science

fiction, genetic memory is frequently portrayed as the transmission of specific personal memories inherited from ancestors, typically grandparents or earlier generations. An example of this, is the video game 'Assassin's Creed,' where the main character relives the memories of his ancestors stored in his own DNA. Such genetic memories are not supported by current scientific understanding (Yanes, 2019). However, for this speculative design proposal, 'genetic memory' will adopt a more fictional than scientific approach.

Memories & emotions

In an article by Columbia University, René Hen, a professor of psychiatry and neuroscience, discusses the link between emotions and memories. He states, "It makes sense we don't remember everything, we have limited brain power" (Hen & Jimenez, 2020). We only need to remember what's important for our future well-being," referring to our need for survival, where it is crucial to learn from experience.

With this knowledge as a base foundation, I am a bit more confident about exploring how this product might be experienced by a user.

Deliver

The science of iMemory
Scientific basis for iMemory.

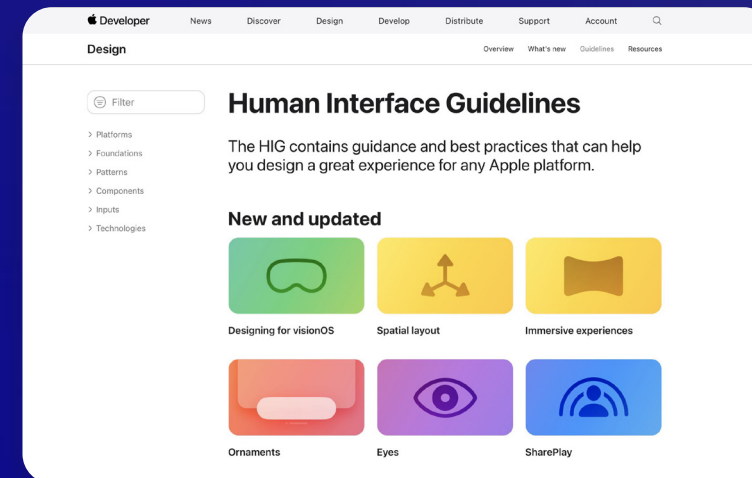
What about repressed memories?

Apple's responsibility
Ethical considerations involving Apple.

Designing iMemory
Development of the iMemory product and service.

The final design
Overview of iMemory as a product and service.

Ethical concerns about iMemory



As part of this speculative design project, I have created a future scenario in which iMemory exists. This aims to stimulate conversations and critical thinking about how we might share our digital content in the future. Designing iMemory as realistically as possible is crucial to convey its plausibility as a product. This realistic approach allows the audience to visualize its appearance and functionality, making the concept more tangible and engaging.

In designing iMemory—Synthetic Memory by Apple, I have followed Apple's current guidelines. It is important to note that these guidelines are likely to evolve by 2044 to accommodate new technological advancements and user expectations. By adhering to Apple's guidelines for Apple Vision Pro, I have explored various digital touchpoints for managing, navigating, and sharing memories. This has involved designing the user interface and prioritizing user needs to ensure a seamless interaction with synthetic memories.

The science of iMemory

As mentioned in the scenario, iMemory captures and recreates personal experiences through neural stimulation, allowing users to relive memories via their senses. Integrated with DNA, the data is naturally abstract and cryptic, ensuring security and privacy. This DNA connection enables users to share memories with relatives, with closer matches allowing for more vivid experiences.

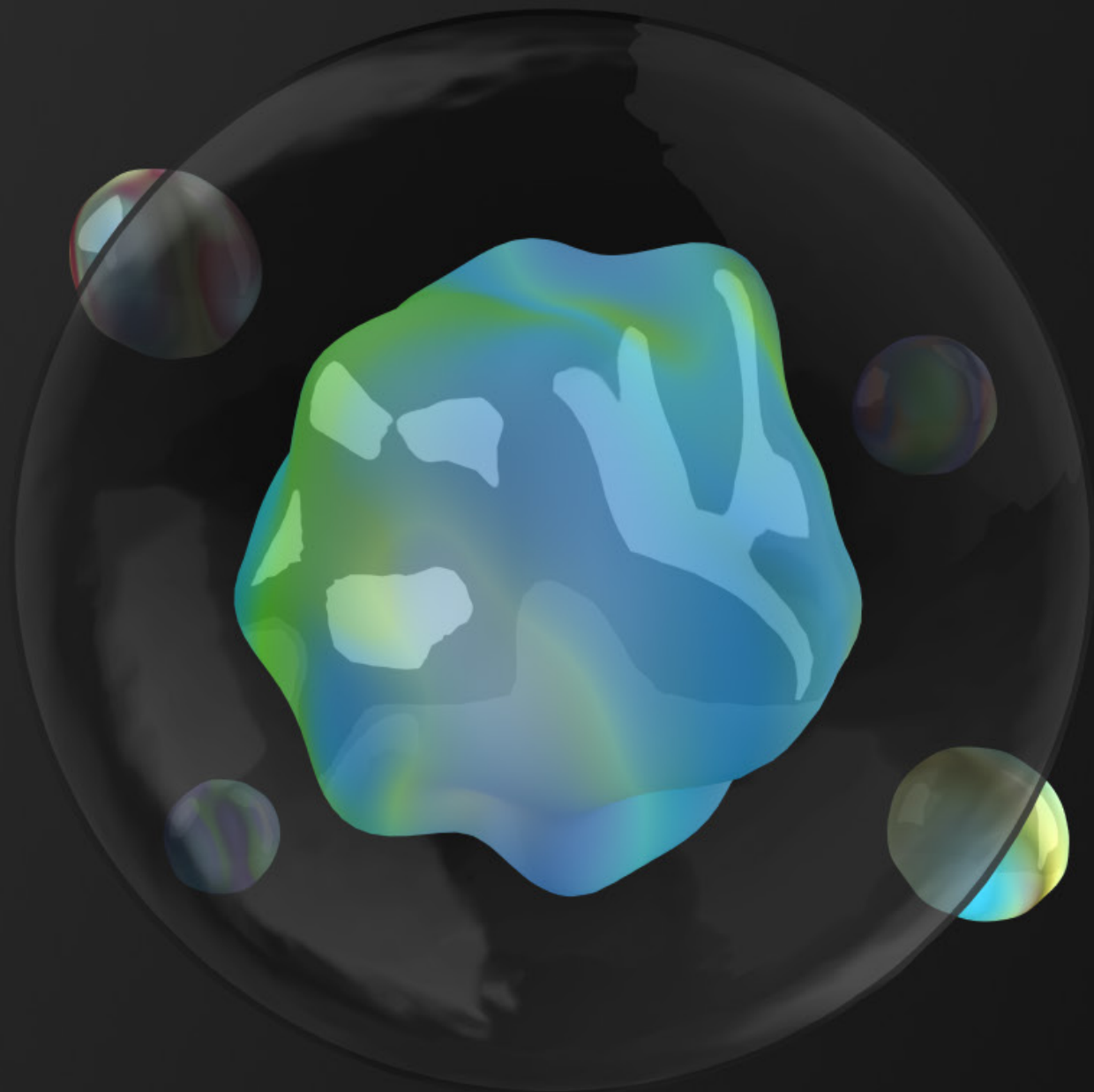
What about repressed memories?

iMemory acts as a 'mirror,' transferring data from active neurons that stimulate our memory in the brain. This data is transformed into visualizations, enhancing memory into a sensory experience. This means that iMemory cannot access forgotten memories, such as repressed trauma or lost childhood experiences. Yet, by stimulating the senses with a vague

memory, iMemory can potentially enhance its clarity through synaptic plasticity—the process that strengthens connections between neurons (Queensland Brain Institute - University of Queensland, n.d.). Therefore, using iMemory may improve memory retention and recall, potentially assisting those with cognitive dysfunctions or Alzheimer's disease. It's crucial to note that these applications are speculative and would require scientific validation.

Apples Responsibility

With this product, it will be essential for Apple to handle data related to repressed memories and traumas with care, as this aligns with their core values and ideology of empowering people to be at the center of their health (Apple Inc., 2022).



iMemory

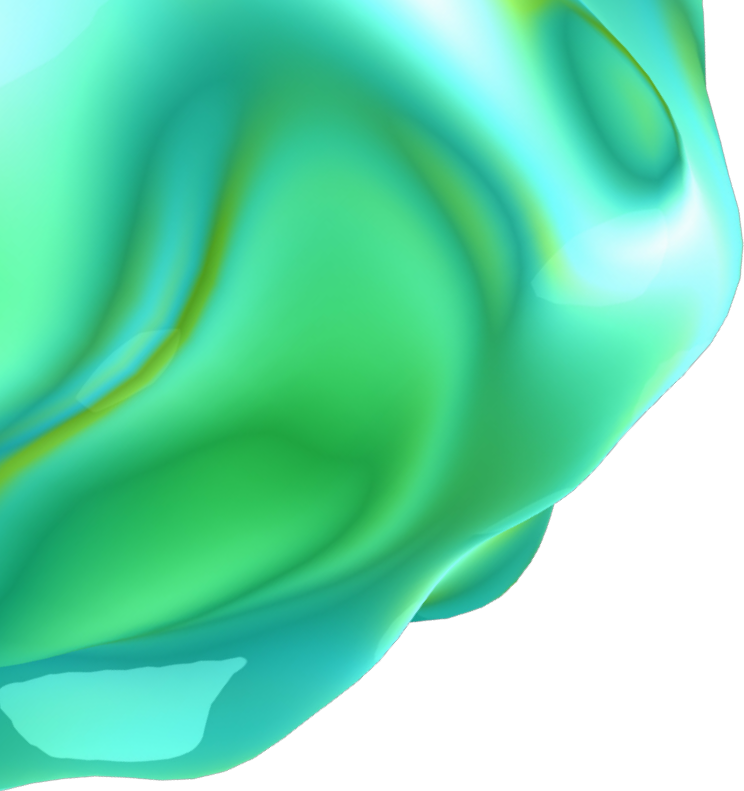
Synthetic memory by Apple

The product

iMemory integrates seamlessly into Apple's ecosystem, functioning similarly to Apple Vision Pro when used as a standard device. The key interface for iMemory is provided through its dedicated app, which is accessible within the software. This app is specifically designed to handle the memory recall functions of the device, ensuring that users have a familiar and intuitive experience that aligns with the user experience principles held across all Apple products.

The product includes two contact lenses and six translucent sensory triggers, which are attached to the tongue, nose, both ears, and as close as possible to the index finger on both palms—the most dominant finger (Raj & Marquis, 1999). Haptic interaction within these triggers intensifies the signals from the brain, stimulating a sensory memory experience. Stimulating the physical sensations associated with a memory makes the recall process more vivid and sensational.







iMemory as a service

Aligned with the characteristics typical of Apple products, iMemory is positioned to launch as a premium service, targeting highly educated people in their mid-30s. This demographic, with the financial capacity to invest in such high-end services, often prioritizes personal development and technological innovation (Buttle,

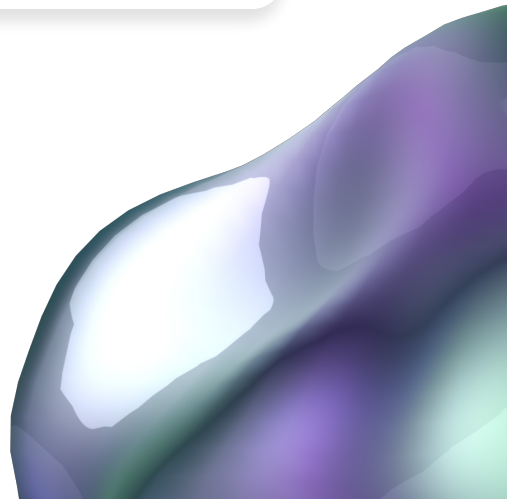
2019). iMemory meets the needs of these values by improving life quality through personalized digital memory management. Makes it ideal for those looking to seamlessly integrate with technology, improving their well-being and preserve their life stories in a meaningful manner.

Service package

To broaden financial accessibility and maintain their user engagement, Apple could introduce flexible service packages with the following options

<p>Full Kit Standard/Premium</p>  <p>This package includes the complete iMemory kit, featuring both the lenses and sensory triggers, ensuring access to the full range of technology.</p>	<p>Flex Kit Budget</p>  <p>Tailored for our budget-conscious customers, this plan allows you to customize your order.</p> <p>Options include selecting a lenses-only package or adjusting the number of sensory triggers included. This flexibility lets you to tailor your purchase according to specific needs and financial constraints. Tailored for our budget-conscious customers, this plan allows you to customize your order.</p>
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This strategy enhances engagement among user, by evolving with their needs, which may boost loyalty and satisfaction with the iMemory experience.



User stories

Based on the insights I have gathered, I chose to create user stories to meet the needs users will have when interacting with iMemory. User stories are a tool in agile software development and UX design, capturing specific user needs or requirements in a concise, narrative form (Ferreira, 2024)). They are written from the perspective of the end user, describing who the user is, what they want, and why they want it. This method helps me as a designer understand the user's needs and the context of their interactions with the system.

The user stories have been useful for prioritizing needs and solutions in the most relevant order. They also proved valuable when ideating and getting inputs from other designers, providing a clear and shared understanding of user objectives and guiding the design process in a productive way.

As a user, I want to receive recommendations for memories to relive based on my current mood, so that I can enhance my emotional well-being by reconnecting with previous experiences when I need them.

As a user, I want to be able to sort my memories by emotions, places, and people associated with them, so that I can more easily navigate and access specific memories based on my current feelings or interests, enhancing my ability to reflect on and draw insights from my personal history.

As a user, I want to be able to visit memories about specific people, so that I can reconnect with meaningful relationships and cherish moments spent with loved ones, enhancing my emotional connection and well-being.

As a user, I don't want to be faced with – and relive my trauma, so that I can ensure my interactions with the memory technology are safe and do not unintentionally cause emotional distress, supporting my mental health and well-being.

As a user, I want to organize and categorize my own memories, so that I can quickly find and relive specific events or themes, enhancing my ability to reflect on and learn from my past experiences.

As a user, I want to see statistics summarizing my mood related to my memories, from good to bad, so that I can better understand my emotional patterns and triggers, aiding my emotional well-being and personal growth.

As a user, I want to be able to share my memories with my loved ones, so that we together can enjoy these moments and strengthen our connections through shared experiences.

As a user, I want my memories to be visually and emotionally represented exactly as I remember them, enabling me to relive past moments with complete authenticity and emotional accuracy.

As a user, I want to be able to decide which of my senses will and will not be triggered by my memories, so that I can tailor my memory reliving experiences to be as comfortable or intense as I wish, enhancing my control over emotional responses and sensory stimulation.

As a user, I want to preserve and share my life experiences with my family and close friends to enrich their understanding of my life journey and leave an authentic legacy one day of who I was.

As a user, I want deeper access to my genetic memories that have been inherited from previous generations, so that I can gain insight into my ancestral heritage and understand how it influences my identity and behaviors.

As a user, I want to experience shared memories from others so that I can deepen my understanding and empathy for their experiences, fostering stronger social connections and a broader perspective.

As a user, I want to be able to experience my memories in chronological order, so that I can have a coherent and continuous understanding of my life events, helping me better appreciate the progression and context of my experiences.

As a therapist, I want to review and analyze client from their memory data, so that I can provide more personalized therapy based on their past experiences and emotional responses, helping clients achieve better mental health outcomes.

As a researcher in psychology or neuroscience, I want to study the patterns and impacts of memory recall facilitated by technology, so that I can contribute to scientific understanding and develop guidelines for healthy memory use.

As a family historian, I want to access and organize memories from different family members, so that I can compile a detailed and vivid family history that captures our shared heritage and individual experiences.

As a funeral director or priest, I want to create positive collective memory experiences for relatives, so that they can find comfort and connection through shared memories during their time of grief.

As a marketing research analyst, I want to analyze emotional patterns from memory data, so that I can tailor advertising campaigns to resonate more deeply with target audiences.

As a healthcare provider, I want to access patients' emotional memory data, so that I can better understand their psychological triggers and improve the management of their mental health conditions.

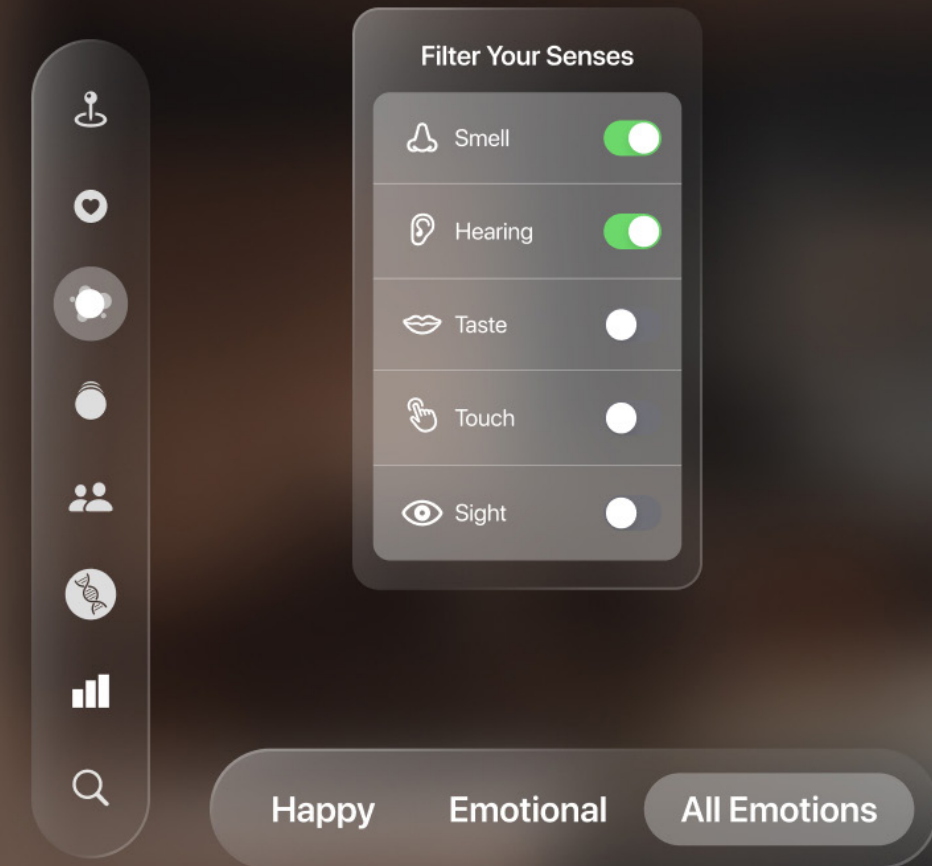
User stories for stakeholders of interest

Apple prefers to collaborate with interested stakeholders rather than directly providing data to NMB. Because of iMemory's cryptic data, Apple can only access the overlying data—the superficial data, it's in fact impossible for Apple to access the actual memories their users experience. However, a study from 2016 shows that emotions can be localized in the brain and therefore they can be identified (Kragel, Knodt, Hariri, & LaBar, 2016). This allows Apple to analyze usage

patterns based on which emotions are triggered. The company can then correlate these emotional triggers with other user data it monitors, including health tracking, geotagging, algorithm preferences, app usage statistics, and browsing history. This provides Apple with a rich data set, giving them a unique position in the market. To align with this approach, I have developed a few user stories for several stakeholders who are likely to be interested in accessing this data.

Designing the UI based on user stories

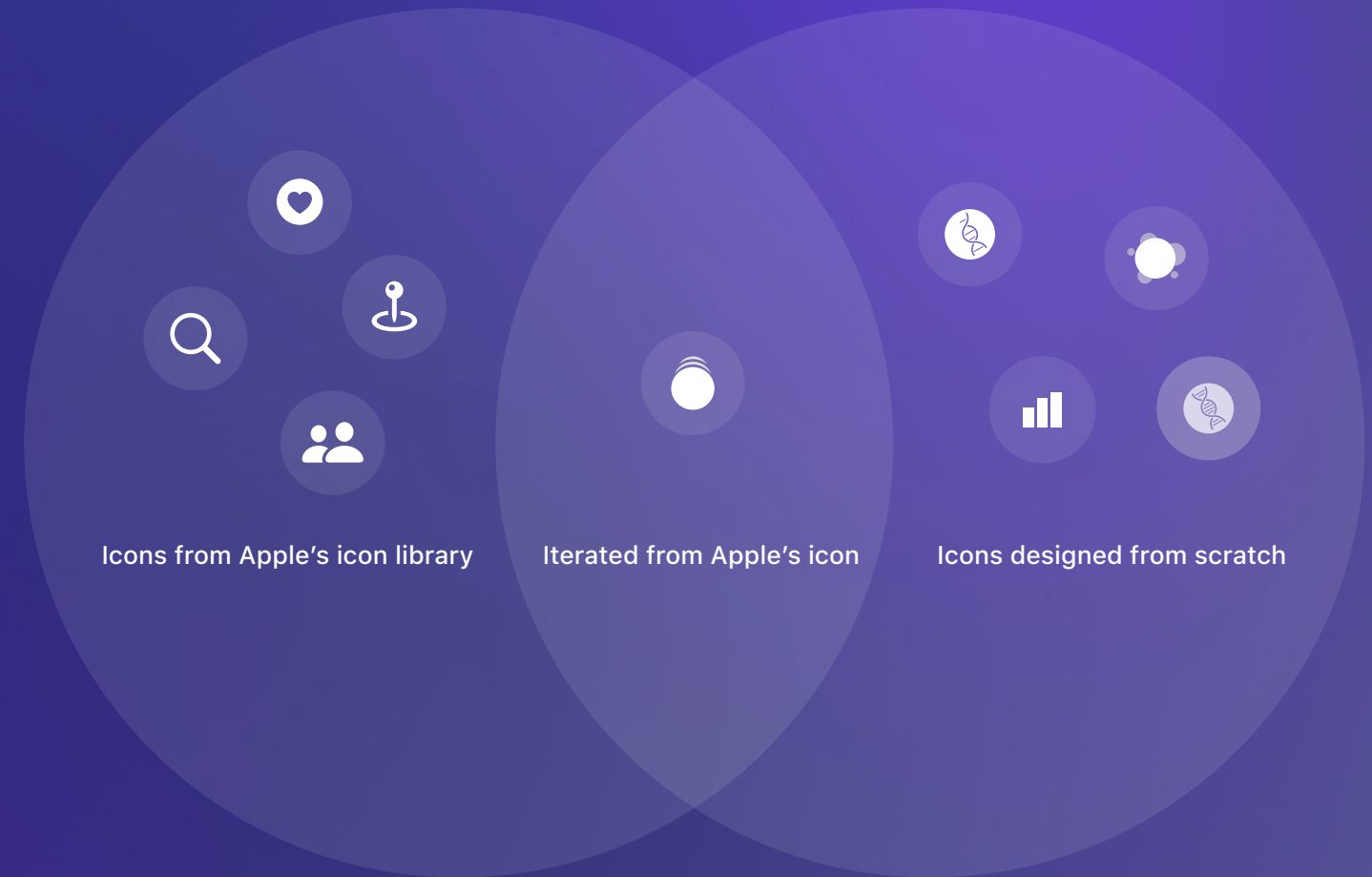
Designing a speculative product using Apple's guidelines comes with a challenge when addressing needs that Apple has not previously identified. However, understanding Apple's existing responses to similar needs simplifies the design process. Consequently, I have utilized icons from Apple's existing library for certain functions, and where necessary, I have created new icons. These were developed by iterating existing icons to better suit the specific needs and requirements using iMemory.

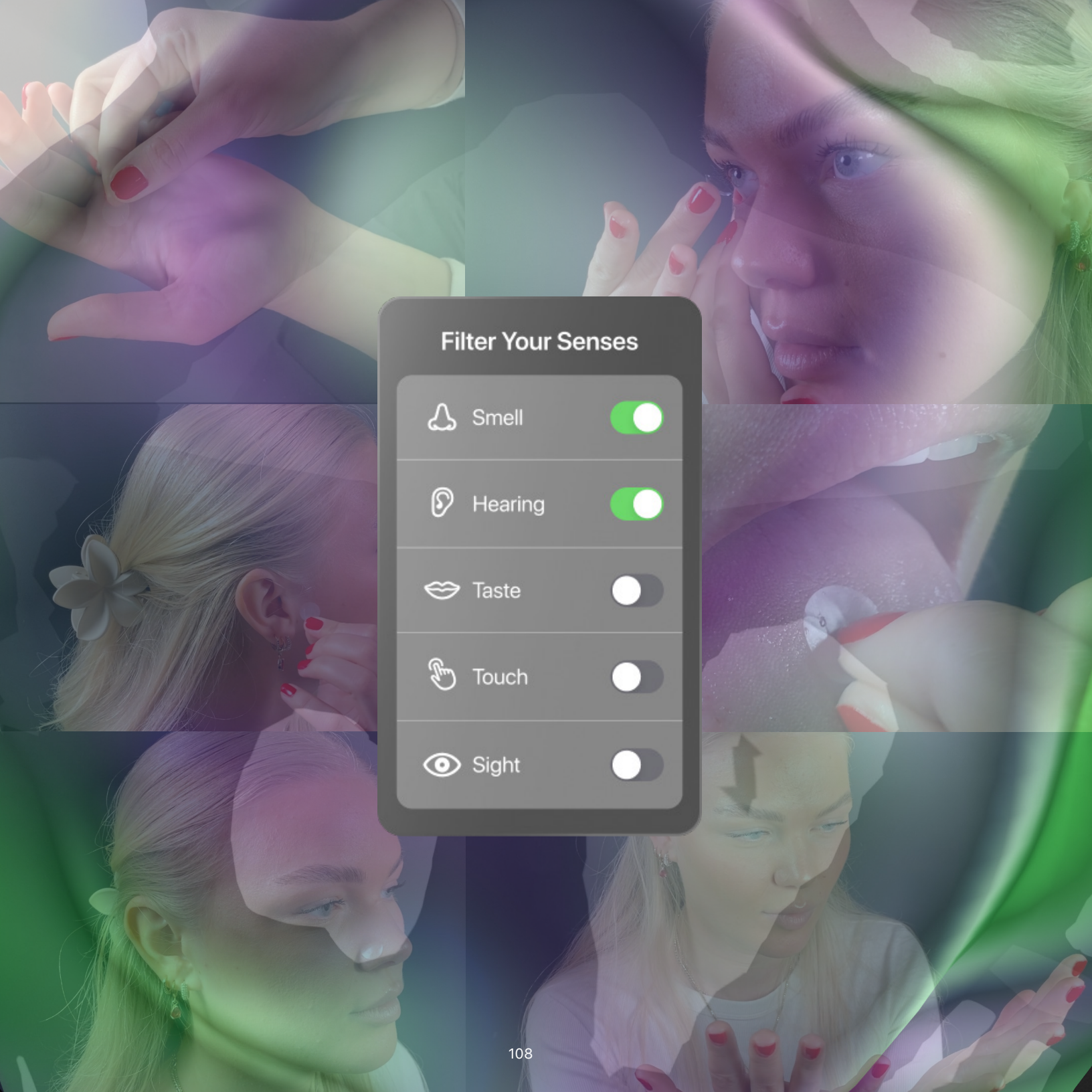




The Navigation Bar


The navigation bar's main purpose in iMemory is to help users navigate, by providing clear and consistent navigation options. Users can quickly find the information they need through the navigation bar, increasing the discoverability of content. This allows the users to come across information they weren't initially seeking but might find valuable. The navigation bar will be a consistent navigation tool across the different wireframes. This helps users build mental models of how the infrastructure of the system works, becoming familiar with the layout, and predicting where to find specific options or features. For accessibility—clear labels, logical ordering, and accessible design elements contribute to making navigation easier for all users, regardless of their disabilities or limitations.






Filter Your Senses

 Smell

 Hearing

 Taste

 Touch

 Sight

As a user, I want to be able to decide which of my senses will and will not be triggered by my memories, so that I can tailor my memory reliving experiences to be as comfortable or intense as I wish, enhancing my control over emotional responses and sensory stimulation.

Filtering senses

To accommodate users who may experience overstimulation, a common issue for people dealing with autism, ADHD, or sensory processing disorders (Leonard, 2023), iMemory offers a function that lets the user regulate their sensory input, selecting which senses should be triggered by the memory.

This feature is relevant for all users, as not everyone desires an equally intense recollection of a memory. This setting can have different defaults depending on the categorized emotions of the memory. For instance, if a memory triggers negative emotions, the user might prefer not to relive that memory immersively.

Positive

Emotional

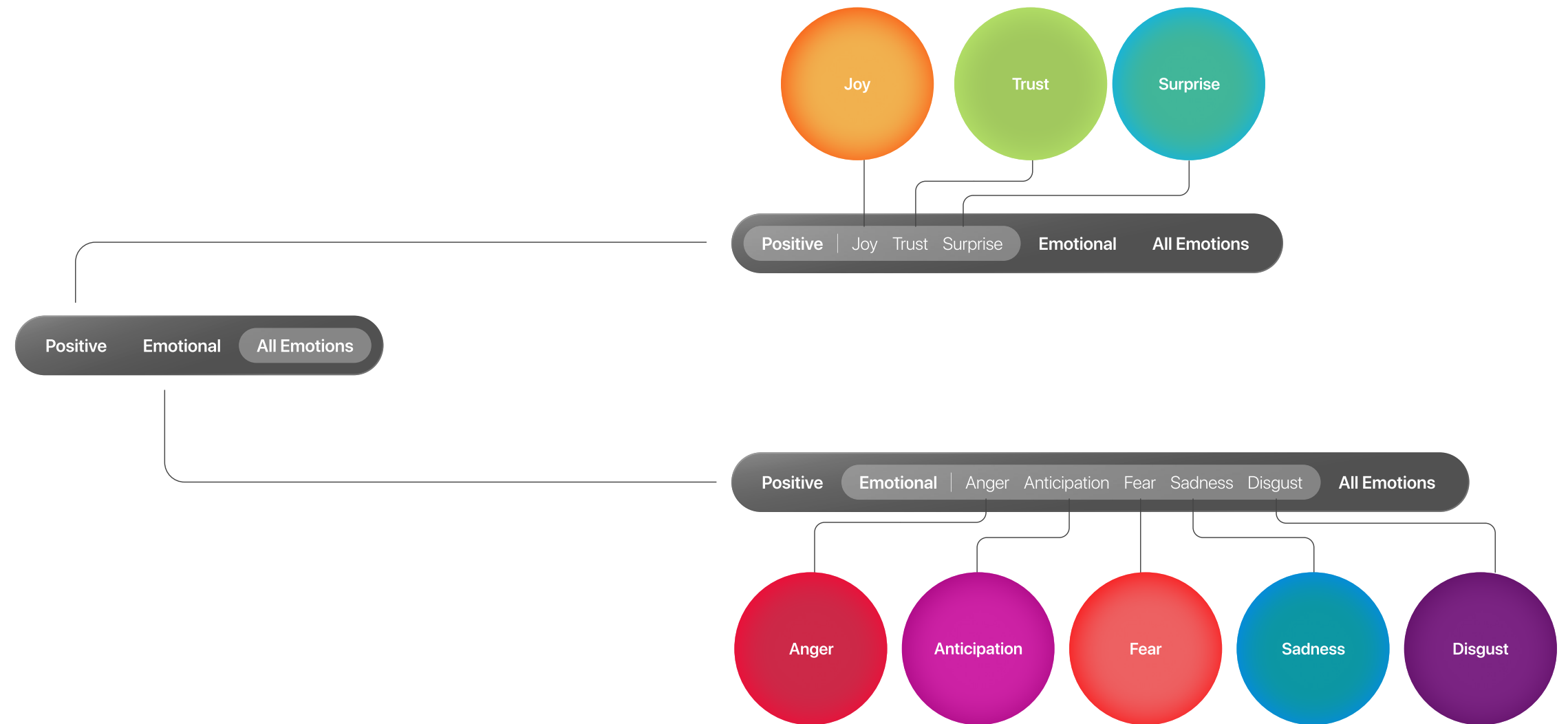
All Emotions

Emotion bar

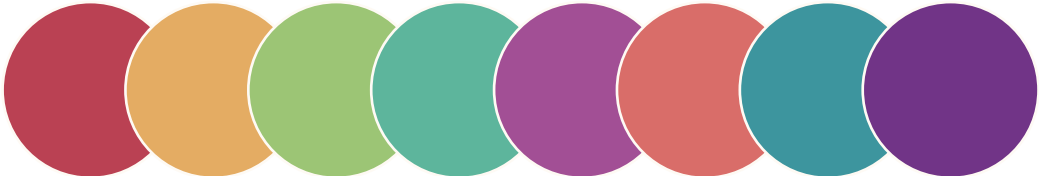
According to Plutchik's emotion wheel, there are eight primary emotions, each assigned a specific color. Plutchick suggested that while humans are capable of experiencing over 34,000 unique emotions, they typically experience these eight primary emotions (Focus Mental Wellness, 2022).



To navigate these emotions, I decided to design an emotion bar, that lets you filter out memories from how your emotions were triggered by them. While incorporating primary emotions into the design, I noticed the predominance of negative emotions over positive ones. As a designer, my role is to create the emotion bar in a manner that achieves a more balanced representation of positive and negative emotions. This design choice opens up a discussion about whether some emotions should be merged or redefined. If such changes were to be made, it would be appropriate to undertake this in collaboration with experts in psychology and related fields.



How should a memory be visualized in the UI?



Colours

By using the data that Apple can access, specifically the emotions, memories can be presented as data visualizations that show how the user's emotions are triggered by them. This

approach makes navigation more convenient for the user, providing a sense of how the memory will impact their feelings when interacting with it.



Shape

When memories are portrayed on television and in films, they are often represented as circular or spherical, such as the Pensieve in 'Harry Potter.' This magical bowl allows characters to view and interact with their memories, visualized as swirls of light. Drawing inspiration from these cultural norms commonly seen in popular media, I have chosen to design the visualizations of memories as

slightly uneven circles or spheres. This visual metaphor resonates with users, providing a universally recognizable form that symbolizes the whole and dynamic nature of memories. The spherical shape also represents the fluidity and non-linear aspects of how memories are recalled and experienced. Additionally, the slight unevenness of the sphere reflects the imperfect and often fragmented nature of our recollections, enhancing the authenticity of the representation.

Year 2044

Select ...

- Memories associated with locations
- Apple generated memory stories
- Overview of memories in a cluster
- Chronological overview of memories
- Memories of specific people
- Genetic memories (Heritage)
- Emotion data
- Search

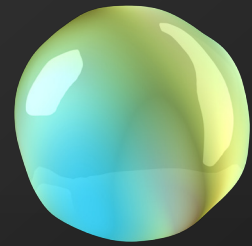
Filter Your Senses

- Smell
- Hearing
- Taste
- Touch
- Sight

Emotion bar

Happy Emotional All Memories

Interacting with a memory

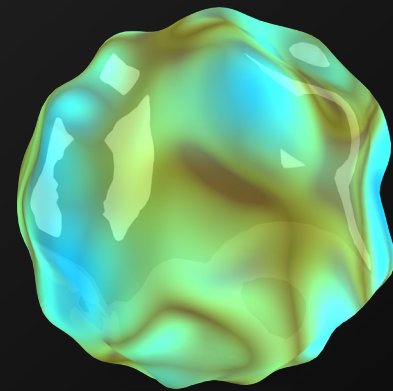


Vision



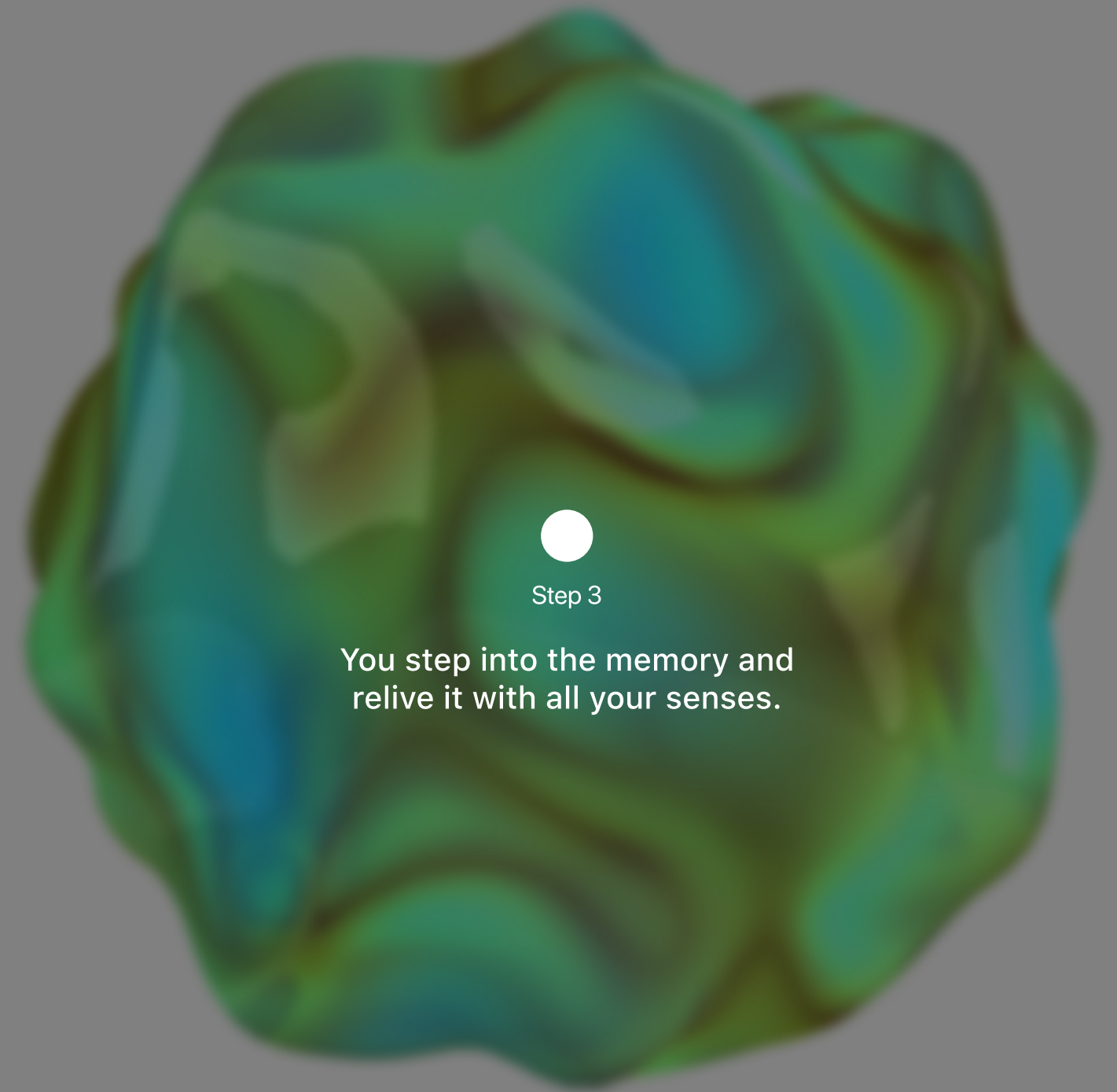
Step 1

You can sense the emotions this memory will evoke, even from this distance.



Step 2

A sensory review of the memory gives you the option to step into it or browse further through your memories.



Step 3

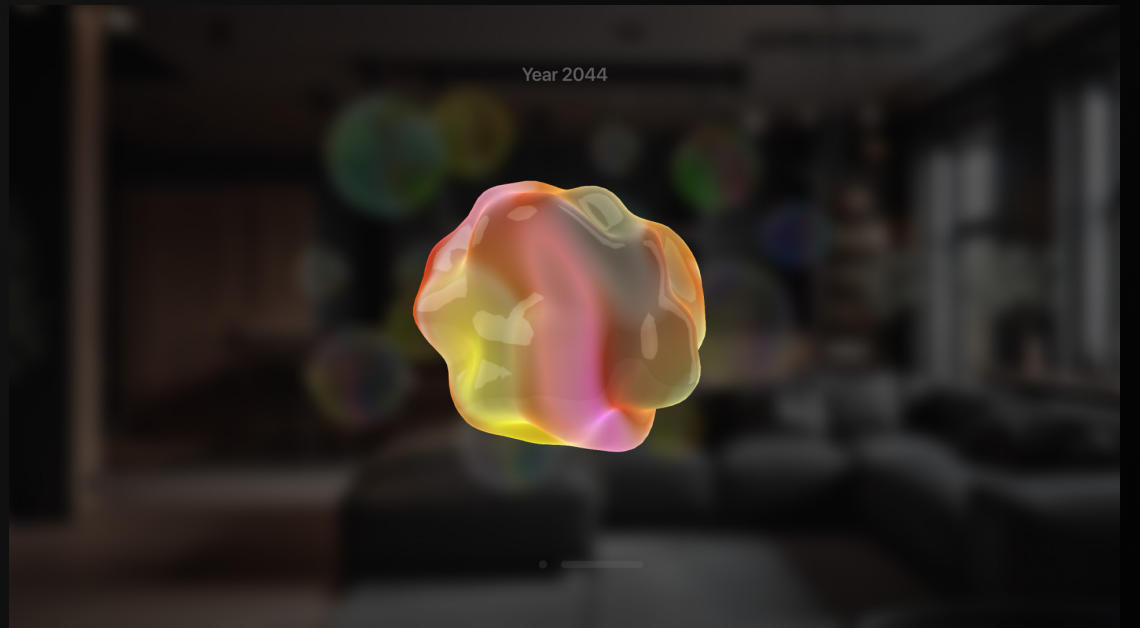
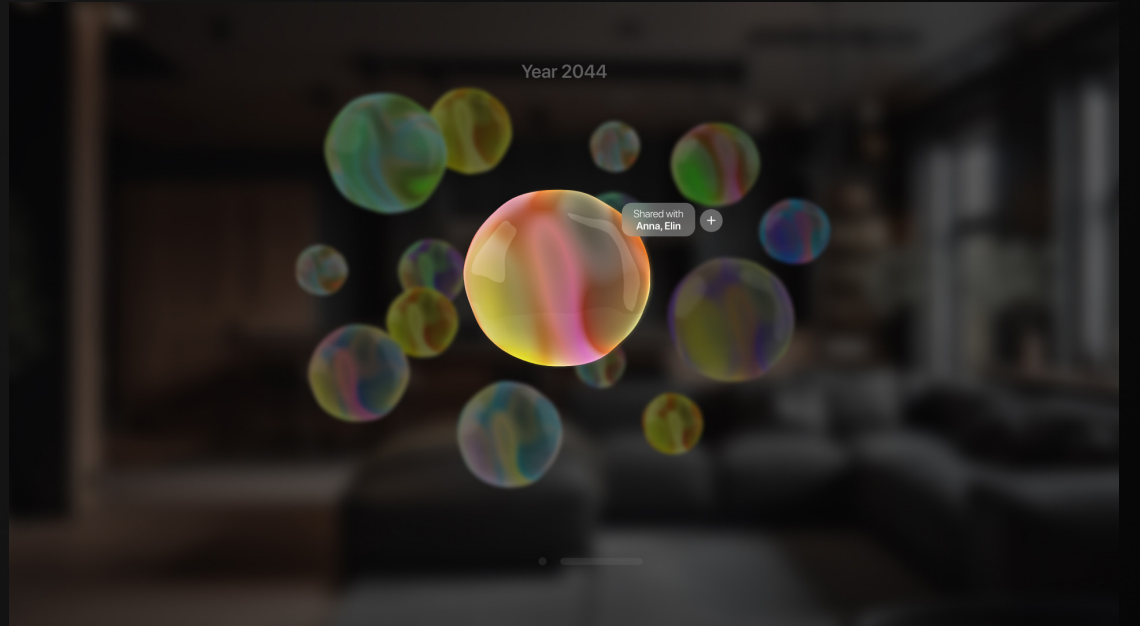
You step into the memory and relive it with all your senses.



As a user, I want my memories to be visually and emotionally represented exactly as I remember them, enabling me to relive past moments with complete authenticity and emotional accuracy.



All Emotions





Happy



Emotional

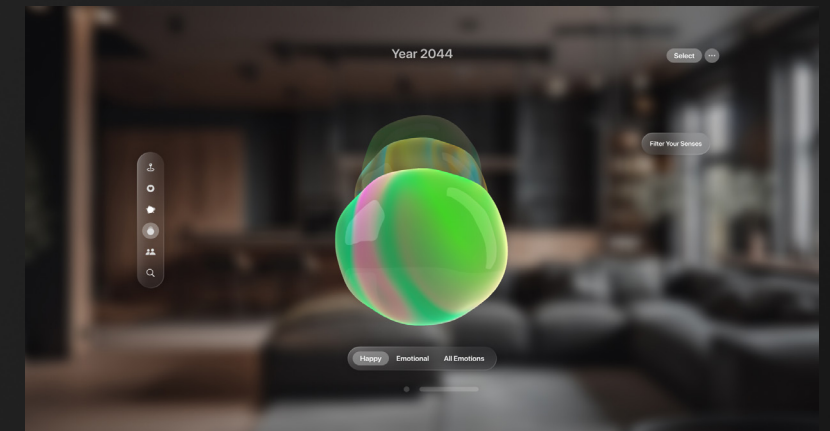


As a user, I want to be able to experience my memories in chronological order, so that I can have a coherent and continuous understanding of my life events, helping me better appreciate the progression and context of my experiences.

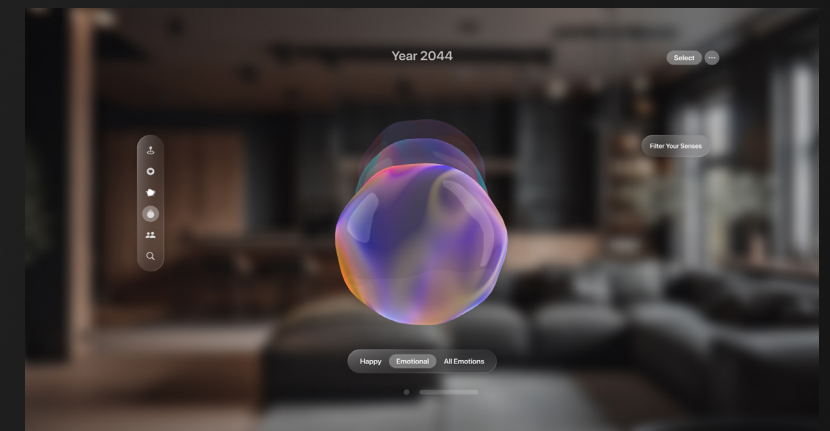
All Emotions



Happy

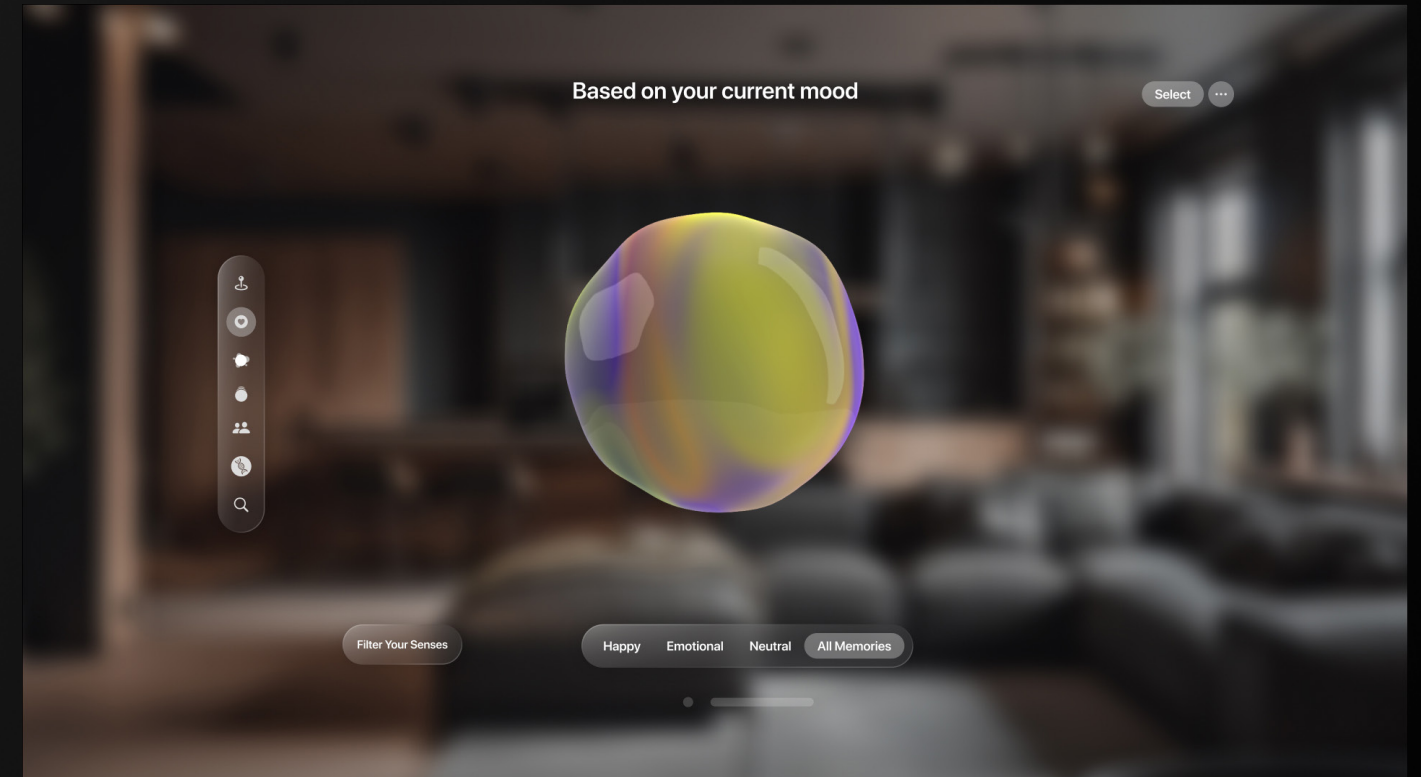


Emotional

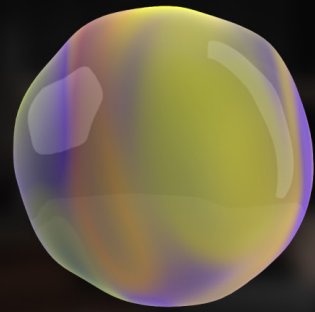




As a user, I want to receive recommendations for memories to relive based on my current mood, so that I can enhance my emotional well-being by reconnecting with previous experiences when I need them.



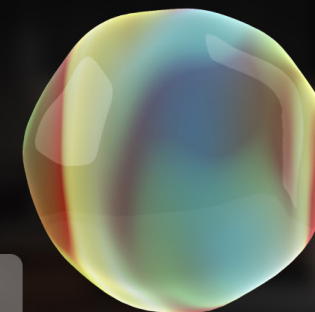
Based on your current mood



It seems like you are feeling a bit blue; here is a beautiful and comforting memory to cheer you up!



Based on your current mood



It seems like you feel anxious when you think about this particular memory. Should we take a deep-dive and reflect about it?



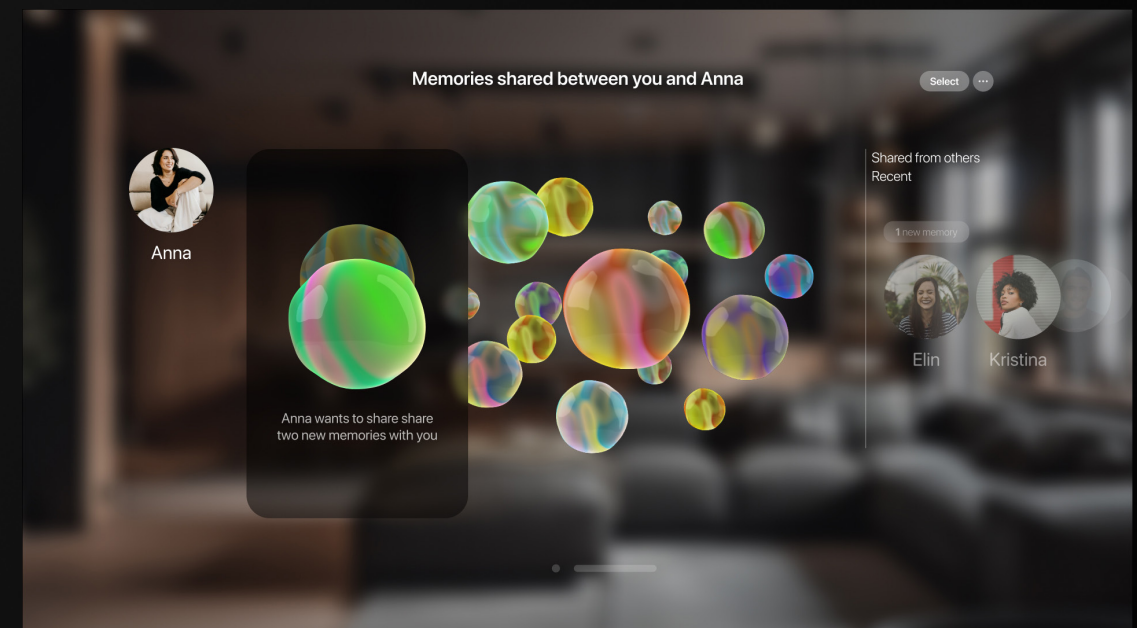
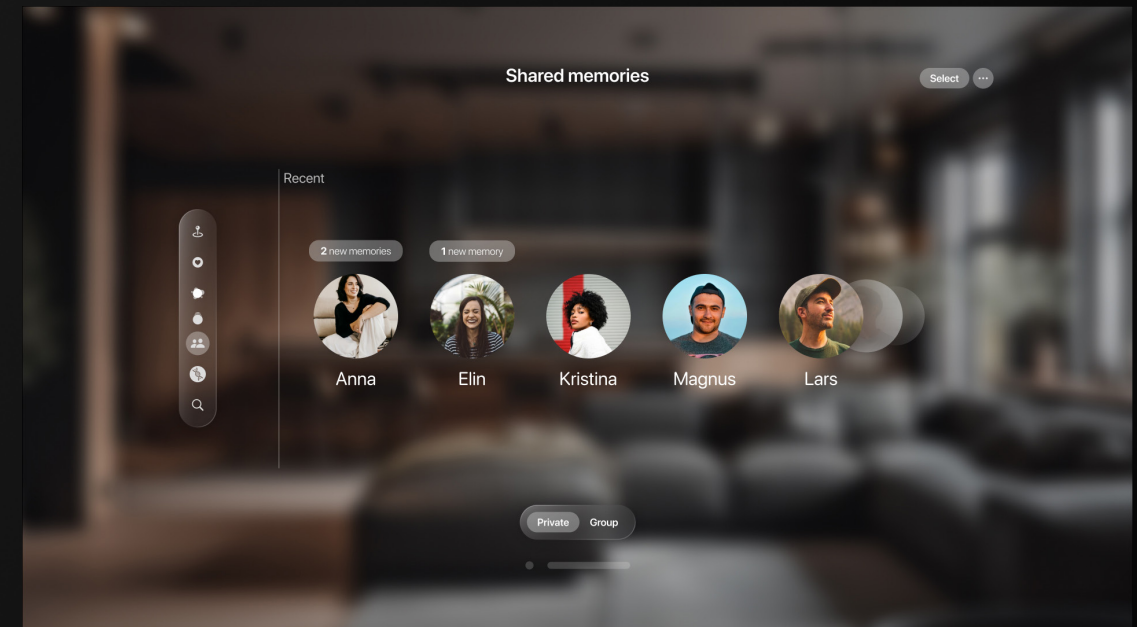
As a user, I don't want to be faced with – and relive my trauma, so that I can ensure my interactions with the memory technology are safe and do not unintentionally cause emotional distress, supporting my mental health and well-being.

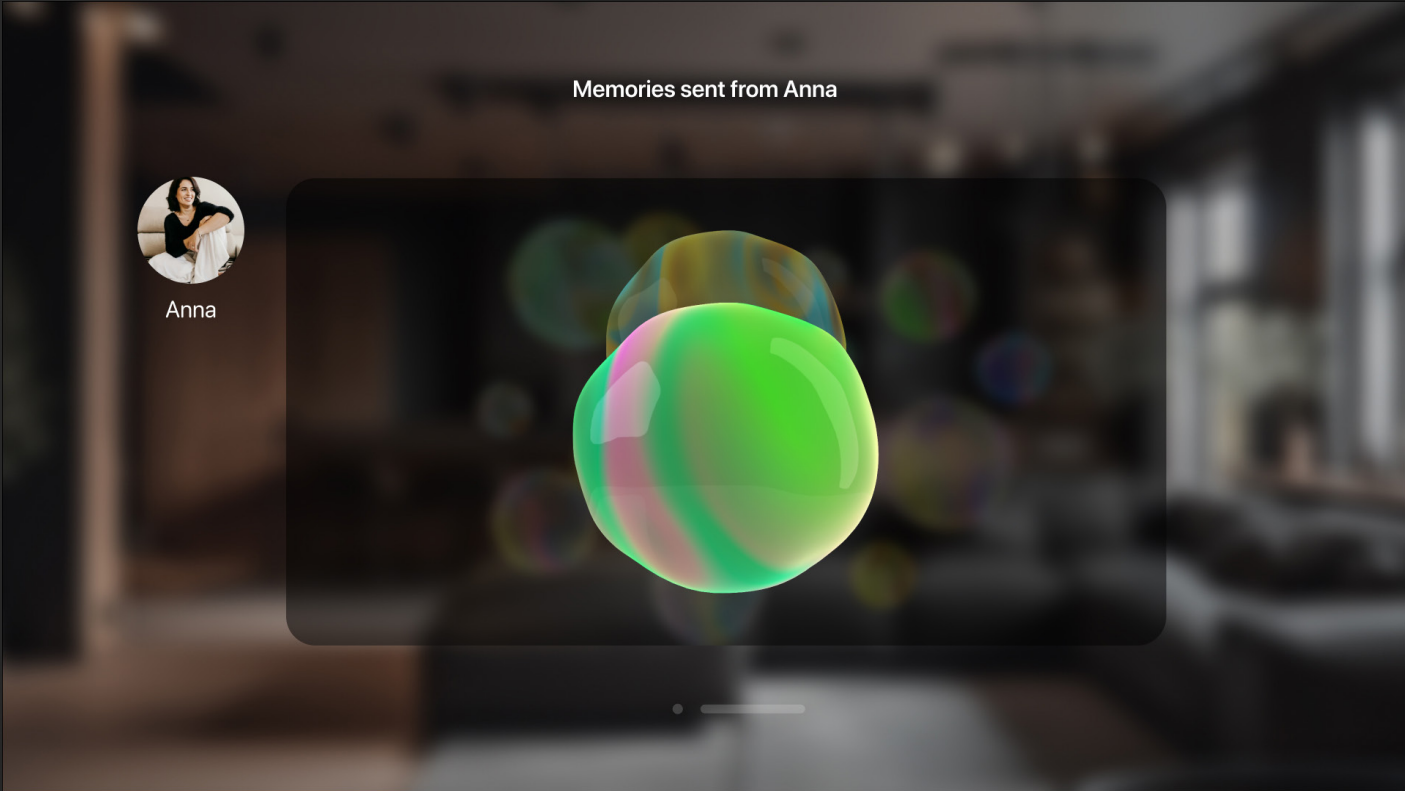


As a user, I want to experience shared memories from others so that I can deepen my understanding and empathy for their experiences, fostering stronger social connections and a broader perspective.

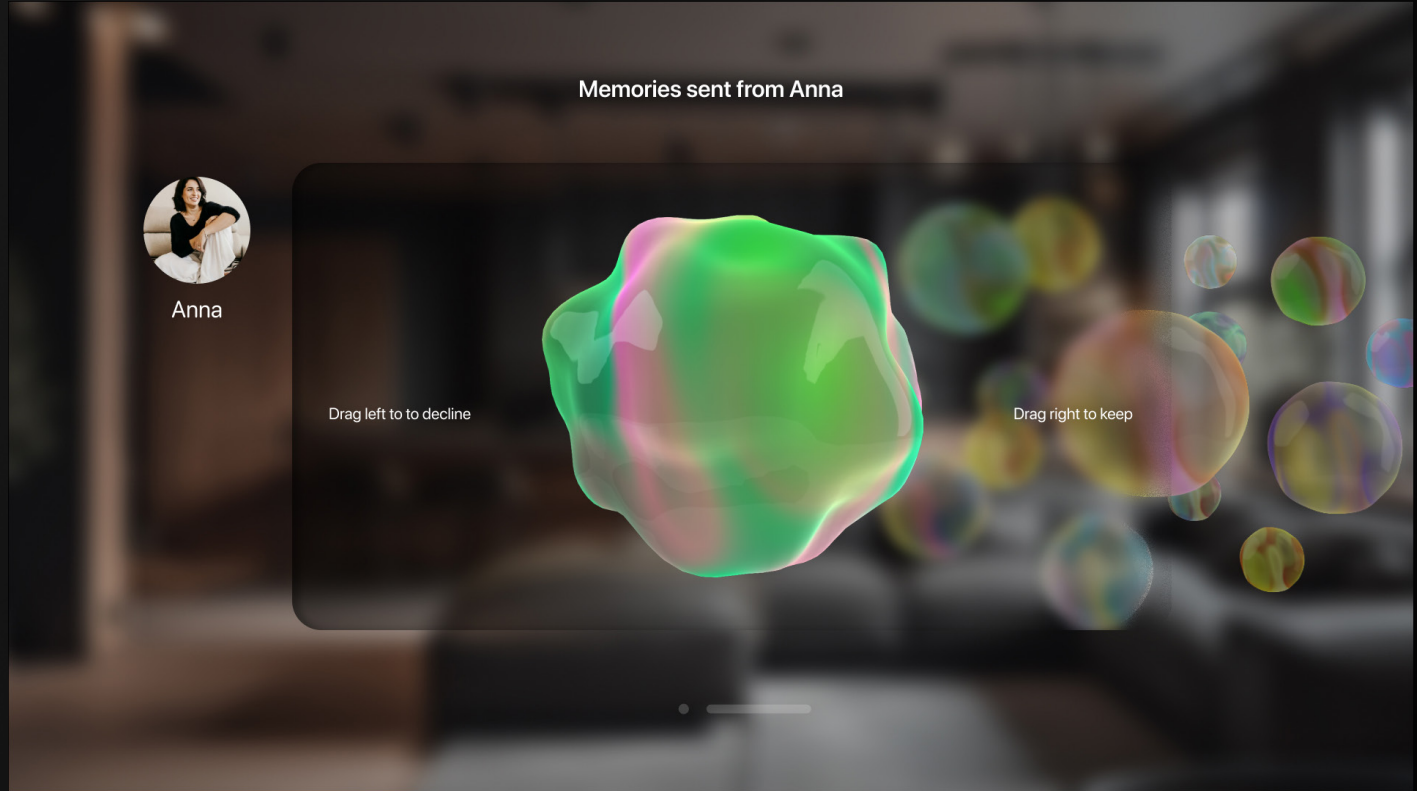
As a user, I want to preserve and share my life experiences with my family and close friends to enrich their understanding of my life journey and leave an authentic legacy one day of who I was.

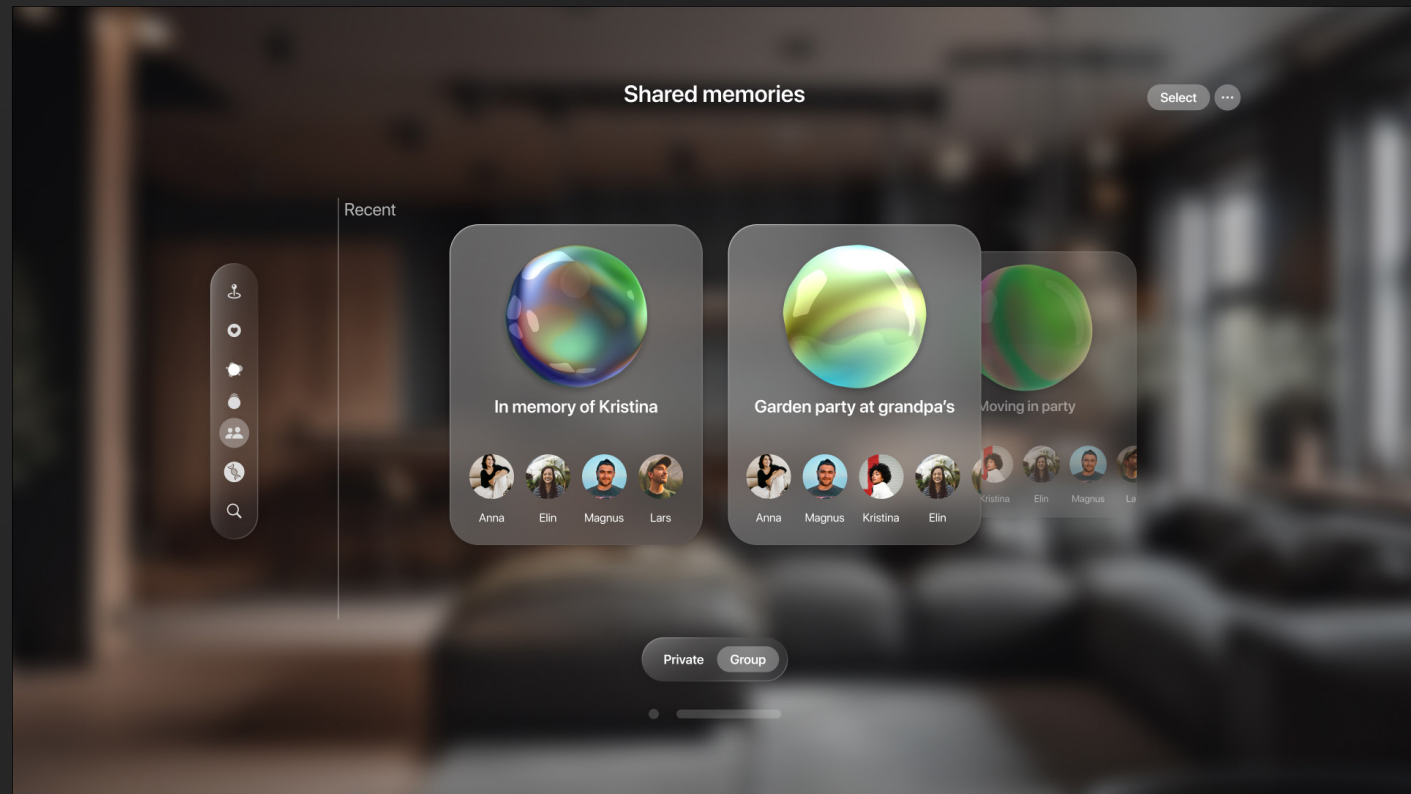
As a user, I want to be able to share my memories with my loved ones, so that we together can enjoy these moments and strengthen our connections through shared experiences.





Private





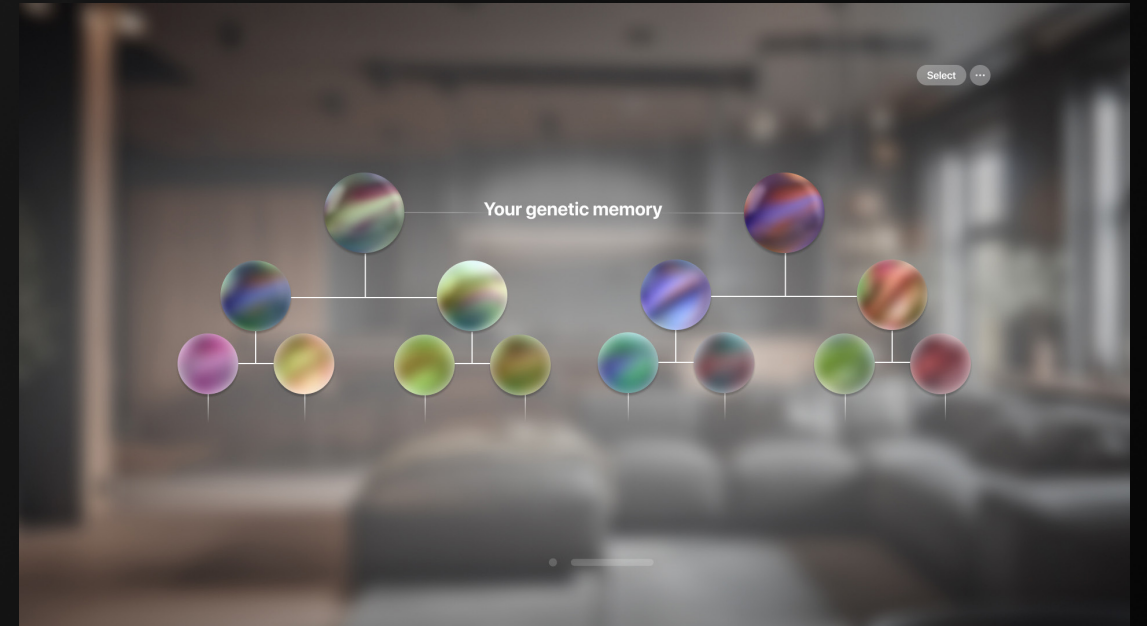
 Group





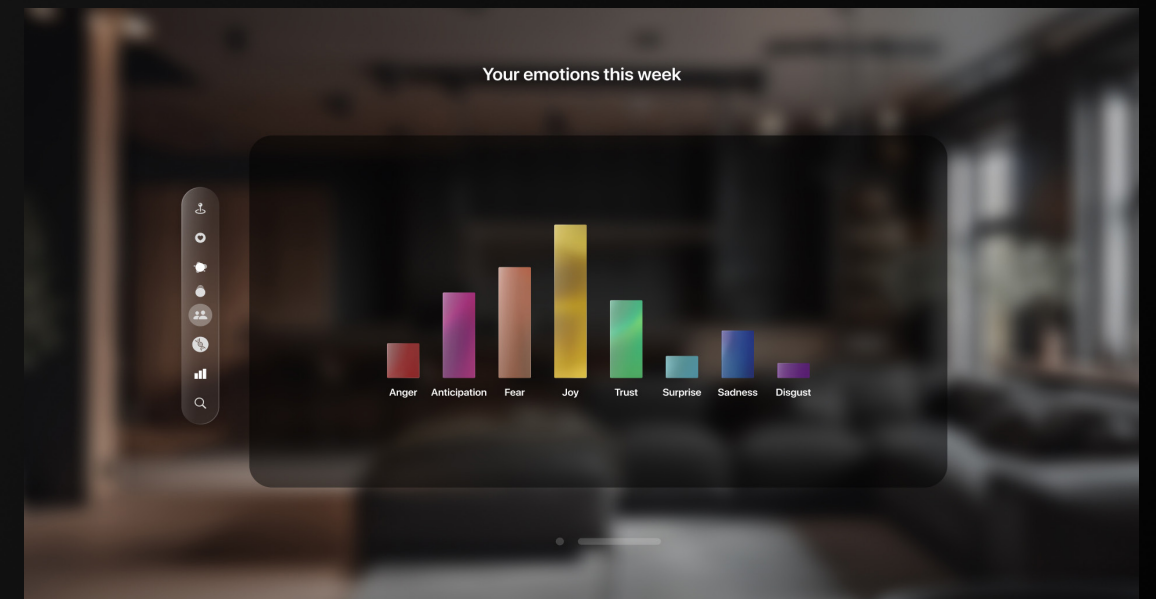
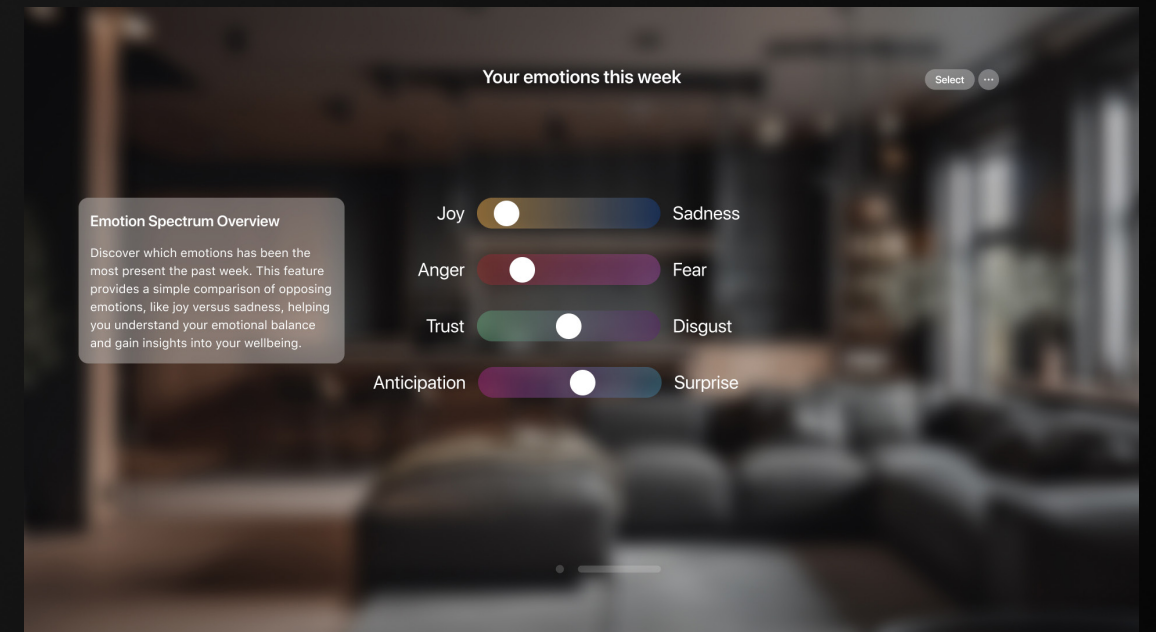


As a user, I want deeper access to my genetic memories that have been inherited from previous generations, so that I can gain insight into my ancestral heritage and understand how it influences my identity and behaviors.

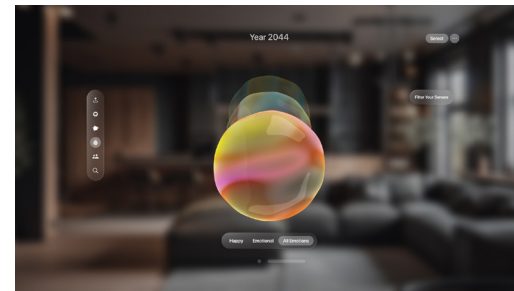
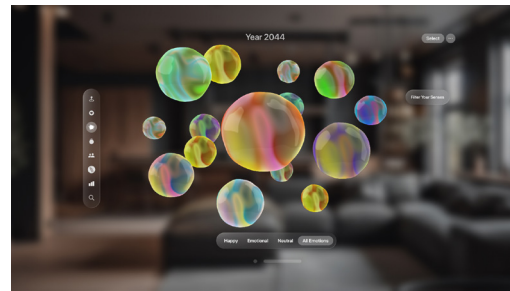




As a user, I want to see statistics summarizing my mood related to my memories, from good to bad, so that I can better understand my emotional patterns and triggers, aiding my emotional well-being and personal growth.



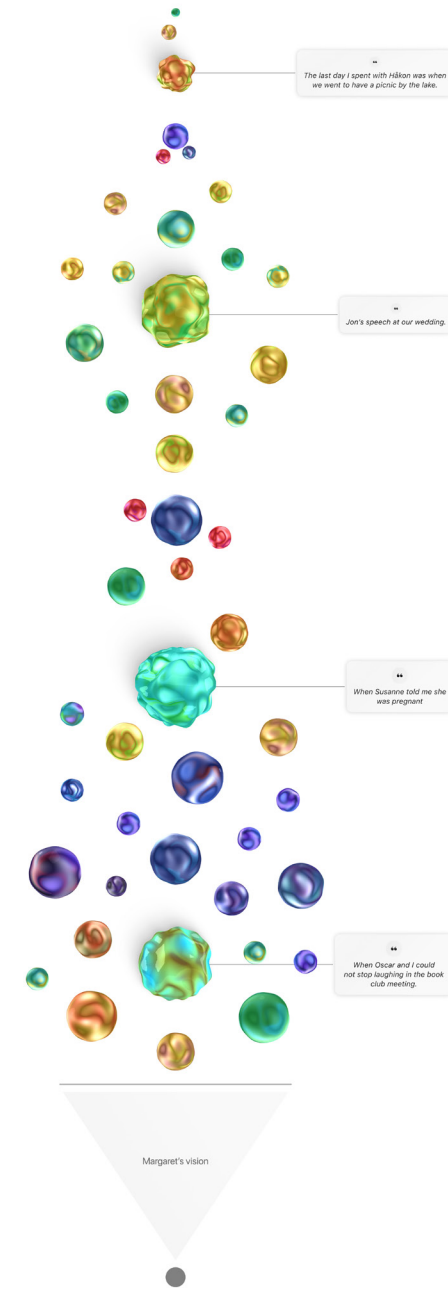
A trip down memory road



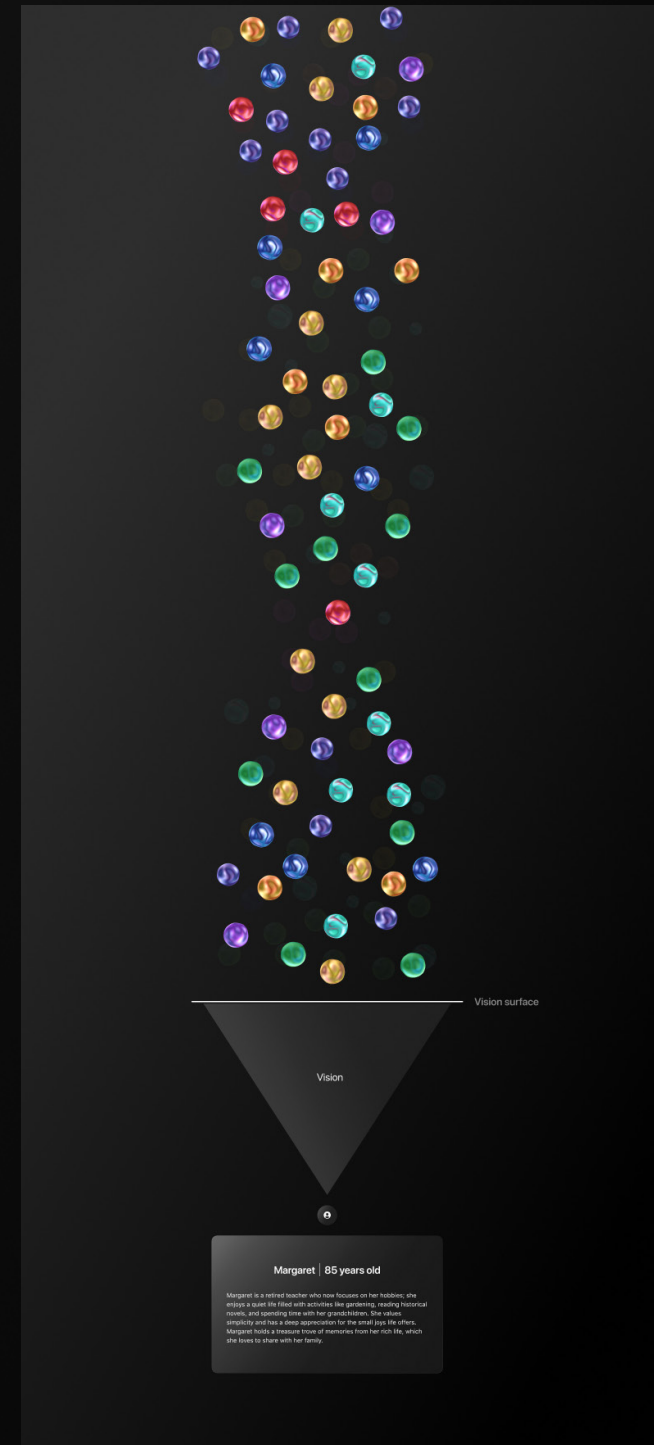
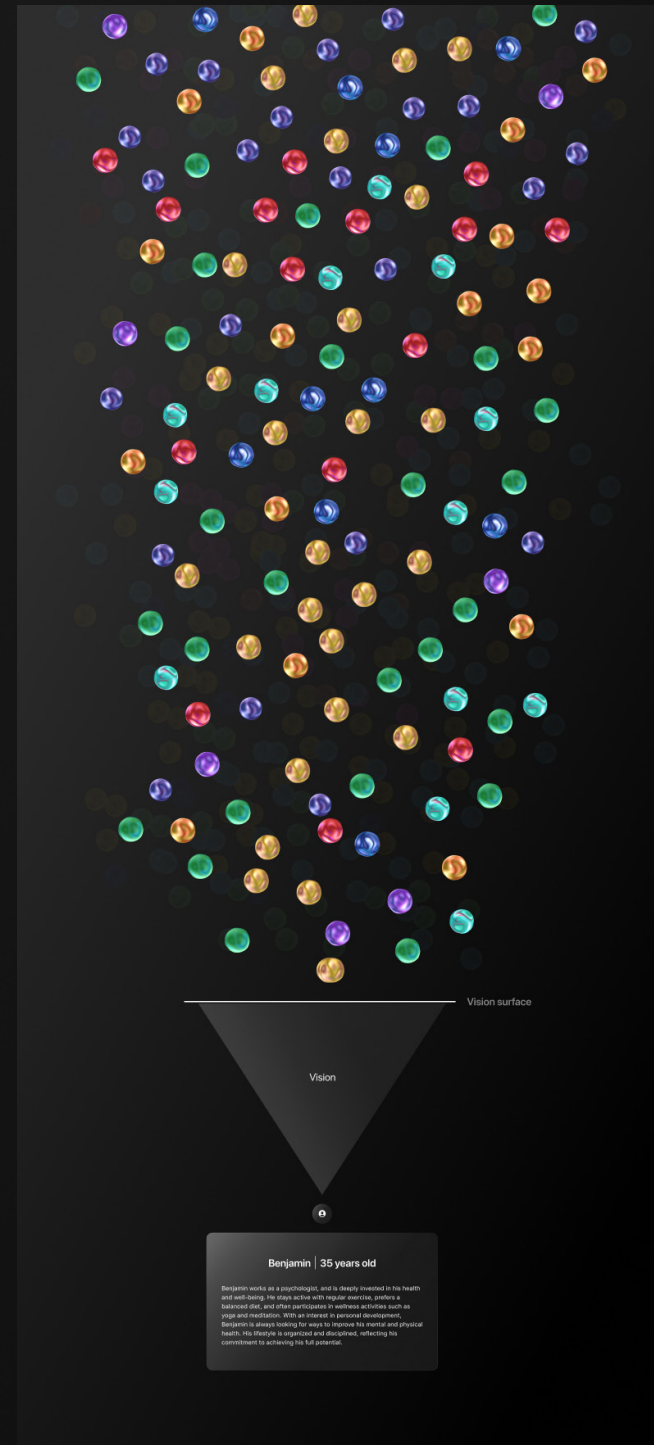
In this design, when the user is looking back at their memories, they can easily navigate through them using the timeline feature by dragging or zooming into the memories displayed in front of them. To indicate that time is changing and to give users a sense of their temporal location (Spillers, 2018), the memories will move towards and past them. A year or date is displayed at the top to indicate the user's position on the timeline. Additionally, this interface includes a micro to macro zooming feature, which allows

users to zoom in closer, revealing those small, detailed memories that comprise the larger, more significant memories. Another interaction that allows users to effectively navigate their memory timeline is to use voice prompts, such as saying out loud, or even just thinking, 'When I was five years old...' This design choice was validated through an interview with the journalist who emphasized that "memories sit in places—more important than the year of time."

- Born in Oslo, Norway.
- Age 5 | Year 1951
Starts kindergarten, marking the beginning of her formal education.
- Age 16 | Year 1966
Loses her younger brother in a tragic accident, deeply affecting her family and her personality.
- Age 18 | Year 1968
Graduates from high school and enrolls at the University of Oslo, majoring in English Literature.
- Age 22 | Year 1972
Completes her university and starts her first job as a teacher in a local Oslo school.
- Age 24 | Year 1974
Marries her university sweetheart, John.
- Age 27 | Year 1977
Gives birth to her first child, a daughter named Susanne.
- Age 32 | Year 1982
Gives birth to her second child, a son named Hilson after her brother.
- Age 36 | Year 1986
Experiences the loss of her parents in a car accident, a normal and tragic event in her life.
- Age 45 | Year 2001
Celebrates her son's achievement as he graduates from high school as a valedictorian.
- Age 55 | Year 2011
Retires from teaching after a fulfilling 35-year career.
- Age 62 | Year 2018
Becomes a grandmother when Susanne has twins.
- Age 70 | Year 2026
Celebrates her 50th wedding anniversary with a family gathering.
- Age 74 | Year 2030
Loses her husband John to cancer, marking a significant period of mourning.
- Age 77 | Year 2033
Takes a trip across Europe, fulfilling a lifelong dream to travel and explore different cultures.
- Age 82 | Year 2038
Meets her ex-boyfriend again, sparking new friendships and starting a book club.
- Age 85 | Year 2041
Faces health challenges but remains active, engaging in community events and family gatherings.



Different lives



Ethical concerns about iMemory

Through this report, I have presented both the pros and cons of the ethical stance of iMemory, I want to summarize these and delve a bit deeper into it.

Pros

Memory's DNA technology ensures unhackable data, allowing users to securely control their private synthetic memories. It enables people to revisit and reinterpret past experiences, fostering emotional healing and personal growth. It may also aid in cognitive dysfunctions like Alzheimer's.

The technology strengthens connections across generations and secures memories holistically within the bloodline,

meaning that when the bloodline vanishes, so do the memories.

To enhance user convenience, the product is compatible with various platforms, giving intuitive design a new dimension. Additionally, it can extend as a potential tool for therapeutic applications, cultural heritage preservation, and even provide educational benefits—such as revisiting cultural events from the past through the experiences of one's ancestors.

Cons

iMemory may face several challenges. Similar to other sharing services, iMemory could be used for cyberbullying. This raises a new phenomenon—'memory harassment,' where people might be confronted with unwanted memories. This conflicts with iMemory's ideal goal of well-being.

Unintended discoveries of family secrets could undermine real-world interactions and relationships.

Overreliance on technology for emotional support might also have this effect. Additionally, gaps in DNA matching could exclude minorities, making shared memories vague and inaccessible.

Moreover, navigating legal and

ethical concerns, such as obtaining consent and adhering to privacy laws like GDPR, could complicate the use and sharing of memories.

Given that iMemory is a product of a private company with financial interests, there is reason to believe that 'emotion data' could be commercially exploited. This might lead to invasive marketing strategies, exploiting user data to the company's advantage.

Global disparities in technological access are likely to persist in 2044, potentially widening class divides as less developed regions or countries struggle with advanced technologies. Without proper regulation, iMemory could

be used to manipulate or modify memories, potentially causing psychological harm or even threatening national security.

The high cost of the technology might restrict access to wealthier people. This could intensify socioeconomic disparities and lead to a 'memory gap' where only certain histories are preserved and celebrated.

These highlight just some of the potential ethical complexities of integrating deeply personal technologies into society by 2044. They underscore the need for careful consideration of ethical, cultural, and psychological impacts.

Conclusion

Final conclusion and reflections on the project.

Conclusion

This project utilizes methodology within speculative design. It aims to not only forecast and experiment with future technologies but also engages in discussions about the vast amount of media we have and how we manage it. This approach ensures that the project is about more than just exploring potential futures and technologies. It also focuses on shaping the future by considering ethical, cultural, and practical aspects of digital media management and sharing, provoking reflection and debate on these issues. This project addresses the problem statement, focusing on innovation, awareness, and adaptability.

Reflection

Reflecting on this project, I have faced a mix of challenges and insights. Initially, I thought I had a clear direction, but learning about digital obsolescence changed things. This shift was frustrating at first, but the future poker game and workshop became a turning point, sparking my motivation for the rest of the work. Using user stories effectively guided my design choices and enhanced productivity.

This project has led me to deeply speculate on the future of these technologies and how they might work. I've explored various scenarios and gained profound insights through my research. This has given me a new perspective, making me more mindful about how I store, share, and interact with my media and even my memories. With these

evolving technologies, I have also concerned that my speculative design might not have been speculative enough. There's something about this tech age that makes a speculative design proposal like this not as bizarre. One of the experts I talked to pointed out that 2044 might be too far ahead, stating, "Apple and the other big tech companies don't want us to go around staring at a small glowing rectangle all day; they are working against that."

Addressing ethical concerns in both the scenario and the product was crucial. Further development would likely bring up more ethical considerations. The discussion around these issues is intended to be ongoing.

References

Use of AI in this project

have utilized the AI chatbot, ChatGPT-4, developed by OpenAI, as a tool in this project to discuss design concepts, aiding my process of further iterations.

Apple Inc. (2022, July 20). How Apple is empowering people with their health information. Apple Newsroom. <https://www.apple.com/newsroom/2022/07/how-apple-is-empowering-people-with-their-health-information/>

Apple Inc. (n.d.). Apple Vision Pro. Retrieved May 10, 2024, from <https://www.apple.com/apple-vision-pro/>

Apple Inc. (n.d.). VisionOS. Apple Support. Retrieved May 10, 2024, from <https://support.apple.com/no-no/guide/apple-vision-pro/tan1e2a29e00/visionos>

Borba, J. (n.d.). [Photograph]. Unsplash. <https://unsplash.com/@jonathanborba>

Brooker, C. (2011). The entire history of you (Season 1, Episode 3) [TV series episode]. In C. Brooker (Executive Producer), Black Mirror. Zeppotron; Channel 4.

Brooker, C. (2016). San Junipero (Season 3, Episode 4) [TV series episode]. In C. Brooker (Executive Producer), Black Mirror. House of Tomorrow; Netflix.

Brooker, C. (2017). Black Museum (Season 4, Episode

6) [TV series episode]. In C. Brooker (Executive Producer), Black Mirror. House of Tomorrow; Netflix.

Brooker, C. (2019). Striking Vipers (Season 5, Episode 1) [TV series episode]. In C. Brooker (Executive Producer), Black Mirror. House of Tomorrow; Netflix.

Buttle, R. (2019, November 5). Exploring the important link between health and wealth. The Aspen Institute. <https://www.aspeninstitute.org/blog-posts/exploring-the-important-link-between-health-and-wealth/>

Cagle, B. (n.d.). [Photograph]. Unsplash. <https://unsplash.com/@brookecagle>

Danielsen, D. J., Sørgård, K. O., & Fosslund, E. A. (2022, November 19). Åse Marie får ikke slettet Facebook-profilen til sin avdøde mann: Slettmeg.no får mange henvendelser. NRK Nordland. https://www.nrk.no/nordland/ase-marie-far-ikke-slettet-facebook-profilen-til-sin-avdode-mann_-slettmeg.no-far-mange-henvendelser-1.16176061

Digitaliserings- og forvaltningsdepartementet. (2019, June 14). En digital offentlig sektor: Digitaliseringsstrategi for offentlig sektor 2019-

2025. Regjeringen.no. <https://www.regjeringen.no/no/no/tema/statlig-forvaltning/it-politikk/digitaliseringsstrategi-for-offentlig-sektor/id2612415/>

Doyle, D. T., & Brubaker, J. R. (2023). Digital legacy: A systematic literature review. Proceedings of the ACM on Human-Computer Interaction, 7(CSCW2), 1-26. <https://dl.acm.org/doi/epdf/10.1145/3610059>

Dunne, A., & Raby, F. (2013). Speculative everything: Design, fiction, and social dreaming. The MIT Press.

Elmansy, R. (2019, March 4). PESTLE analysis and when to use it [Web log post]. Designorate. <https://www.designorate.com/pestle-analysis-and-when-to-use-it/>

Elster, K. (2012, February 14). 1,8 millioner døde har stemmerett. NRK Urix. https://www.nrk.no/urix/1_8-millioner-dode-har-stemmerett-1.7995416

Erhunse, J. (n.d.). [Photograph]. Unsplash. https://unsplash.com/@j_erhunse

Ferreira, E. (2024). What are user stories? Interaction Design Foundation. Retrieved

May 10, 2024, from <https://www.interaction-design.org/literature/topics/user-stories>

Focus Mental Wellness. (2022, September 6). How to use the wheel of emotions to detect your mood. Focus. <https://focusmw.com/wheel-of-emotions/>

Fritscher, L. (2023, May 17). Carl Jung's collective unconscious theory: What it suggests about the mind. Verywell Mind. <https://www.verywellmind.com/what-is-the-collective-unconscious-2671571>

Goffman, E. (1969). Vårt rollespill til daglig: En studie i hverdagslivets dramatik [The presentation of self in everyday life]. Pax Forlag.

Hanson Robotics. (n.d.). Home. Retrieved May 10, 2024, from <https://www.hansonrobotics.com/>

Haseltine, W. (2023, April 28). Forget AI: Organoid intelligence may soon power our computers. Forbes. <https://www.forbes.com/sites/williamhaseltine/2023/04/28/forget-ai-organoid-intelligence-may-soon-power-our-computers/?sh=2d56ffc65240>

Hen, R., & Jimenez, J. (2020, July 13). Why are memories attached to emotions so strong? Columbia University Irving Medical Center. <https://www.cuimc.columbia.edu/news/why-are-memories-attached-emotions-so-strong>

HereAfter AI. (n.d.). HereAfter AI – Interactive memory app. Retrieved May 10, 2024, from <https://www.hereafter.ai/>

Interaction Design Foundation. (2021, June 14). What are complex socio-technical systems?. Retrieved May 10, 2024, from <https://www.interaction-design.org/literature/topics/complex-socio-technical-systems>

Johns Hopkins Medicine. (n.d.). Brain anatomy and how the brain works. Retrieved May 10, 2024, from <https://www.hopkinsmedicine.org/health/conditions-and-diseases/anatomy-of-the-brain>

Johns Hopkins Medicine. (n.d.). Inside the science of memory. Retrieved May 10, 2024, from <https://www.hopkinsmedicine.org/health/wellness-and-prevention/inside-the-science-of-memory>

Keenan, J. (n.d.). [Photograph]. Unsplash. <https://unsplash.com/@jeffreykeenan>

Kragel, P. A., Knodt, A. R., Hariri, A. R., & LaBar, K. S. (2016). Decoding spontaneous emotional states in the human brain. *PLOS Biology*, 14(9), e2000106. <https://doi.org/10.1371/journal.pbio.2000106>

Leonard, J. (2023, April 26). What to know about sensory overload. *Medical News Today*. <https://www.medicalnewstoday.com/articles/sensory-overload>

McRobbie, L. R. (2016, November 7). The controversial device that might make you feel the presence of a higher power. *Atlas Obscura*. <https://www.atlasobscura.com/articles/the-controversial-device-that-might-make-you-feel-the-presence-of-a-higher-power>

Norwegian Ministry of Local Government and Modernisation. (n.d.). Nytt regjeringskvartal [Web page]. Retrieved May 10, 2024, from <https://www.regjeringen.no/no/tema/plan-bygg-og-eiendom/regjeringskvartalet/nytt-RKV/id712726/>

Norwegian Ministry of Local Government and Modernisation. (n.d.). Scenarioer for offentlig sektor i 2040 [PDF]. Retrieved May 10, 2024, from https://www.regjeringen.no/contentassets/b77a320ef78c4c6bbcd261e1d49c68bd/scenarioer_for_offentlig_sektor_i_2040.pdf

Norwegian Ministry of Local Government and Modernisation. (2019, June 6). Scenarioer for offentlig sektor i 2040 [PDF]. Retrieved May 10, 2024, from https://www.regjeringen.no/contentassets/b77a320ef78c4c6bbcd261e1d49c68bd/scenarioer_for_offentlig_sektor_i_2040.pdf

Regjeringen.no. (n.d.). Digitalisering og effektivisering i offentlig sektor [Web page]. Retrieved May 10, 2024, from <https://www.regjeringen.no/no/tema/statlig-forvaltning/digitalisering-og-effektivisering-i-offentlig-sektor/id2006127/>

Øfsti, A. W. (2023, December 8). Slik ser det ut når hjernen husker en ting - kan bidra til Alzheimer-

forståelse. NRK Trøndelag. <https://www.nrk.no/trondelag/slik-ser-det-ut-nar-hjernen-husker-en-ting--kan-bidra-til-alzheimer-forstaelse-1.16649624>

Persinger, M. (2011, October 24). Michael Persinger on No More Secrets [Video]. YouTube. <https://www.youtube.com/watch?v=qgawWCBj2Jk>

Philosophy Dungeon. (n.d.). Scholar: Persinger. Retrieved May 10, 2024, from <https://philosophydungeon.weebly.com/scholar-persinger.html>

Queensland Brain Institute - University of Queensland. (n.d.). How are memories formed?. Retrieved May 10, 2024, from <https://qbi.uq.edu.au/brain-basics/memory/how-are-memories-formed>

Raj, R., & Marquis, C. (1999). Finger dominance. *Journal of Hand Surgery (British and European Volume)*, 24(4), 429-430. <https://doi.org/10.1054/jhsb.1999.0204>

Smedsrud, A. B. (2023, January 17). Apple har tatt tronen fra Samsung, iPhone er verdens mest solgte telefon. *Tek.no*. <https://www.tek.no/nyheter/nyhet/i/on5p6B/apple-har-tatt-tronen-fra-samsung>

Spillers, F. (2018, July 18). It's time to think about time in your UX design. *Experience Dynamics*. <https://www.experiencedynamics.com/its-time-to-think-about-time-in-your-ux-design/>

SXSW. (2024, March 10). Amy Webb launches 2024 Emerging Tech Trend Report | SXSW 2024 [Video]. YouTube. https://youtu.be/5uLSDbh6M_U

Tamura, K. (Ed.). (2018). *The Origin and Evolution of the Genetic Code: 100th Anniversary Year of the Birth of Francis Crick* [PDF]. First Edition. MDPI. https://mdpi-res.com/bookfiles/book/568/The_Origin_and_Evolution_of_the_Genetic_Code_100th_Anniversary_Year_of_the_Birth_of_Francis_Crick.pdf?v=1715302813

Tharp, B. M., & Tharp, S. M. (2019). *Discursive design: Critical, speculative, and alternative things*. The MIT Press.

University of Oxford. (2019, April 29). Digital graveyards: are the dead taking over Facebook?. Retrieved May 10, 2024, from <https://www.ox.ac.uk/news/2019-04-29-digital-graveyards-are-dead-taking-over-facebook>

Unzueta, L. (n.d.). [Photograph]. Unsplash. <https://unsplash.com/@leirenstrong>

Vision Pro- Spatial UI Kit (Community). (2024). Figma. Retrieved from [https://www.figma.com/design/epH411luPHoi9hdoe2mKGz/Vision-Pro--Spatial-UI-Kit-\(Community\)?m=auto&t=P8yQx20uggrO5FOV-6](https://www.figma.com/design/epH411luPHoi9hdoe2mKGz/Vision-Pro--Spatial-UI-Kit-(Community)?m=auto&t=P8yQx20uggrO5FOV-6).

Voss, G. (2016). *Futures Poker*. Retrieved May 10, 2024, from <https://gsvoss.com/works#/futurespoker/>

Wong, W. H. (2023, October 10). The creepy new digital afterlife industry. *IEEE Spectrum*. <https://spectrum.ieee.org/digital-afterlife>

Yanes, J. (2019, August 16). Can memory be inherited? *OpenMind*. <https://www.bbvaopenmind.com/en/science/bioscience/can-memory-be-inherited/>