

TECHNOLOGY & MEMORY

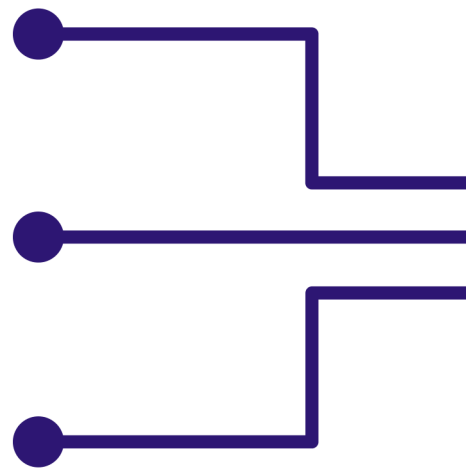
SMRTI-YI

Presented by Group 3



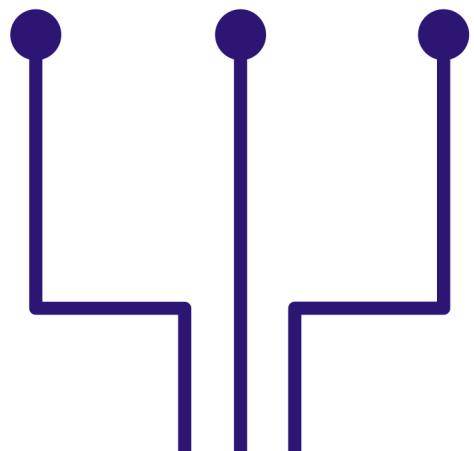
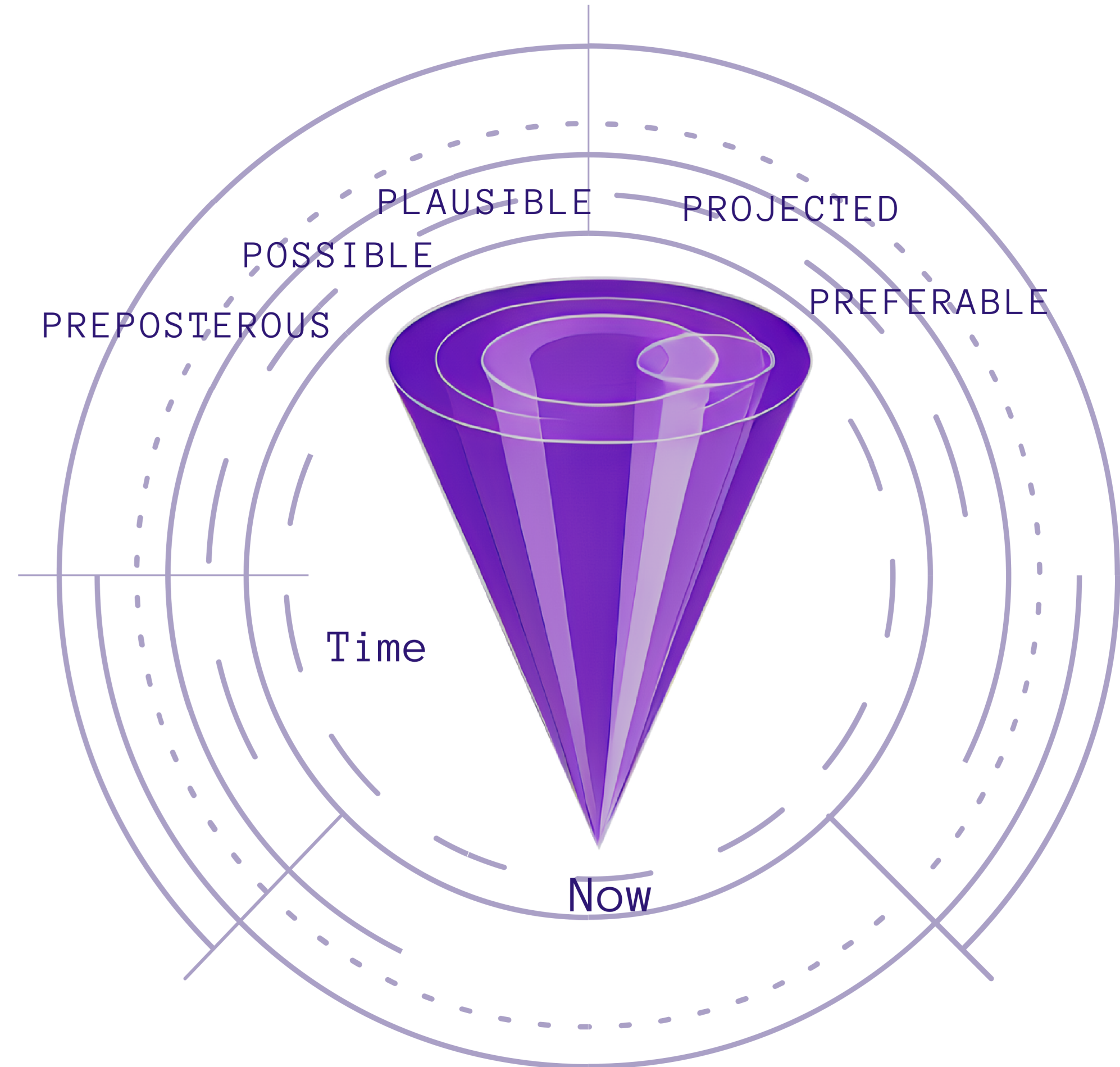
A BRIEF OUTLINE

1. Speculative Design
2. System Map of Memory
3. Capturing Memory
4. Opportunity Statement
5. Design Decisions
6. Product Development Life Cycle:
7. MVP Showcase
8. Tech Stack Overview
9. UI Decisions: Decoding Design Choices
10. Navigating Challenges
11. March to May
12. Market & Platform Prospects



SPECULATIVE DESIGN

“Dreams are powerful. They are repositories of our desire. They animate the entertainment industry and drive consumption. They can blind people to reality and provide cover for political horror. But they can also inspire us to imagine that things could be radically different than they are today and then believe we can progress toward that imaginary world”.¹



1- Dunne, Anthony, and Fiona Raby. Speculative Everything: Design, Fiction, and Social Dreaming. MIT Press, 2013.

SPECULATIVE ASPECTS OF MEMORY

The potential for collective memory networks, enabling shared or transmissible memories

The evolution of memory where biological and digital memories merge.

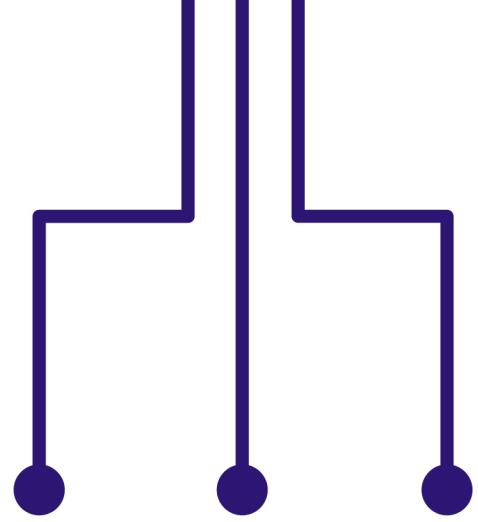
Ethical and societal implications of erasing, altering, or implanting memories.



Type of Encoding	Description	Factors Influencing Encoding
Visual Encoding	Transforms visual information into memorable data.	Attention, depth of processing, emotional state, neurotransmitter activity.
Elaborative Encoding	Connects new information to existing knowledge.	Existing knowledge, cognitive associations, depth of processing, attention.
Semantic Encoding	Deals with the meaning of information, aiding its connection to context.	Meaningfulness of information, prior knowledge, cognitive strategies such as chunking and mnemonics.
Acoustic Encoding	Involves the encoding of auditory information.	Auditory processing, phonological awareness, attention, repetition.

ENCODING

FUNDAMENTALS OF MEMORY ENCODING



ATTENTION AND SENSORY MEMORY

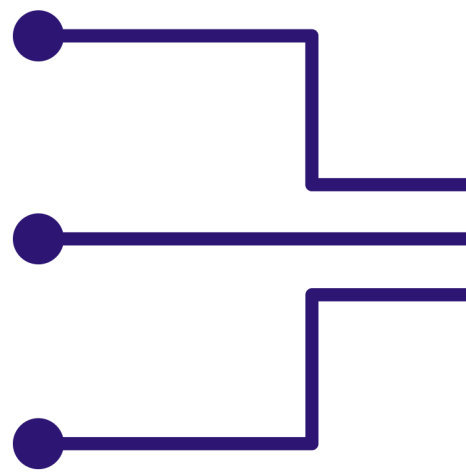
Encoding filters sensory input, selecting only attention-grabbing information for memory storage.

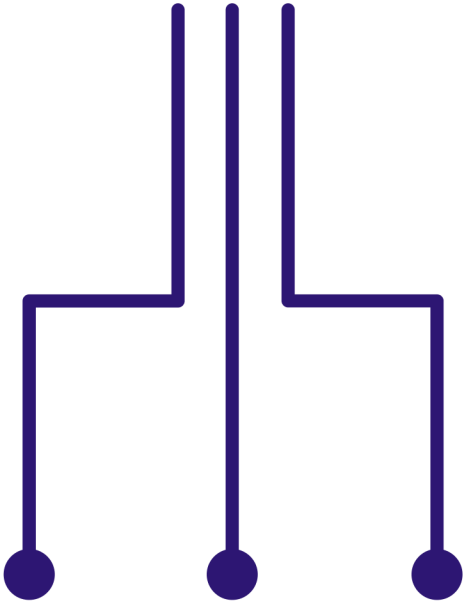
WORKING MEMORY AND ASSOCIATION

New sensory information is encoded into memory by associating it with existing knowledge through working memory.

EMOTIONAL AROUSAL AND ENCODING

Emotional experiences are encoded more deeply, creating lasting and vivid memories.





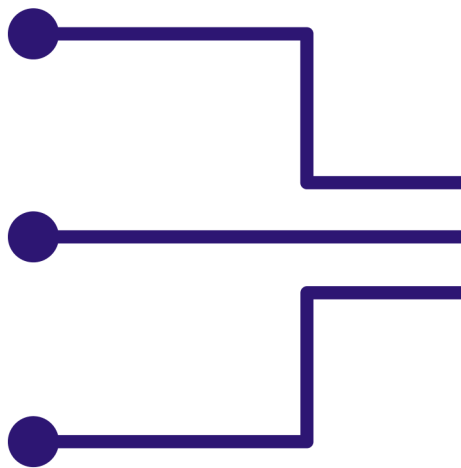
FUNDAMENTALS OF MEMORY ENCODING

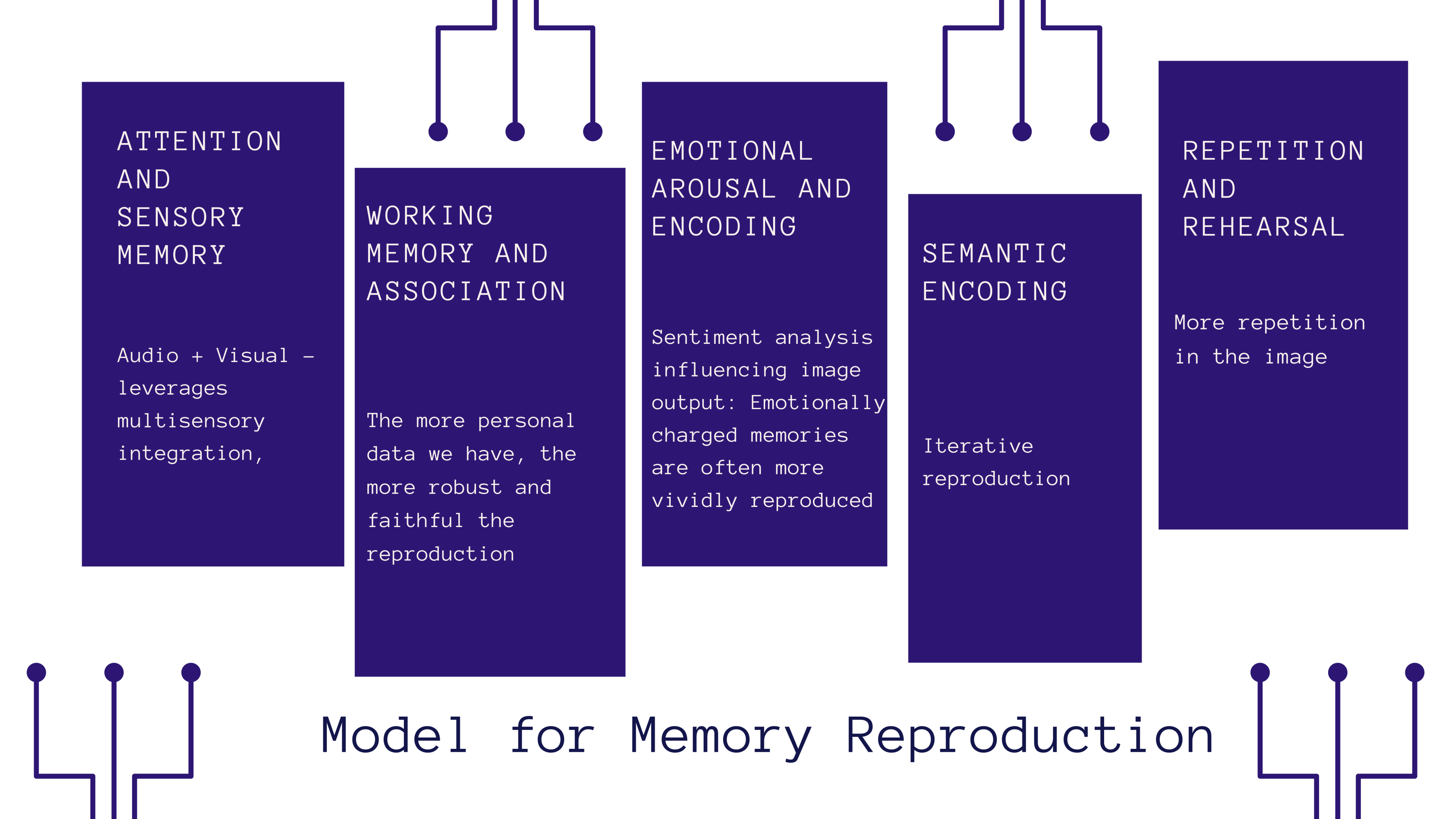
REPETITION AND REHEARSAL

Memory encoding is reinforced through the repeated activation of neural pathways.

SEMANTIC ENCODING

Encoding for meaning, rather than surface details, results in more robust memory formation





ATTENTION AND SENSORY MEMORY

Audio + Visual –
leverages
multisensory
integration,

WORKING MEMORY AND ASSOCIATION

The more personal
data we have, the
more robust and
faithful the
reproduction

EMOTIONAL AROUSAL AND ENCODING

Sentiment analysis
influencing image
output: Emotionally
charged memories
are often more
vividly reproduced

SEMANTIC ENCODING

Iterative
reproduction

REPETITION AND REHEARSAL

More repetition
in the image

Model for Memory Reproduction

The memory of John Martin Hull

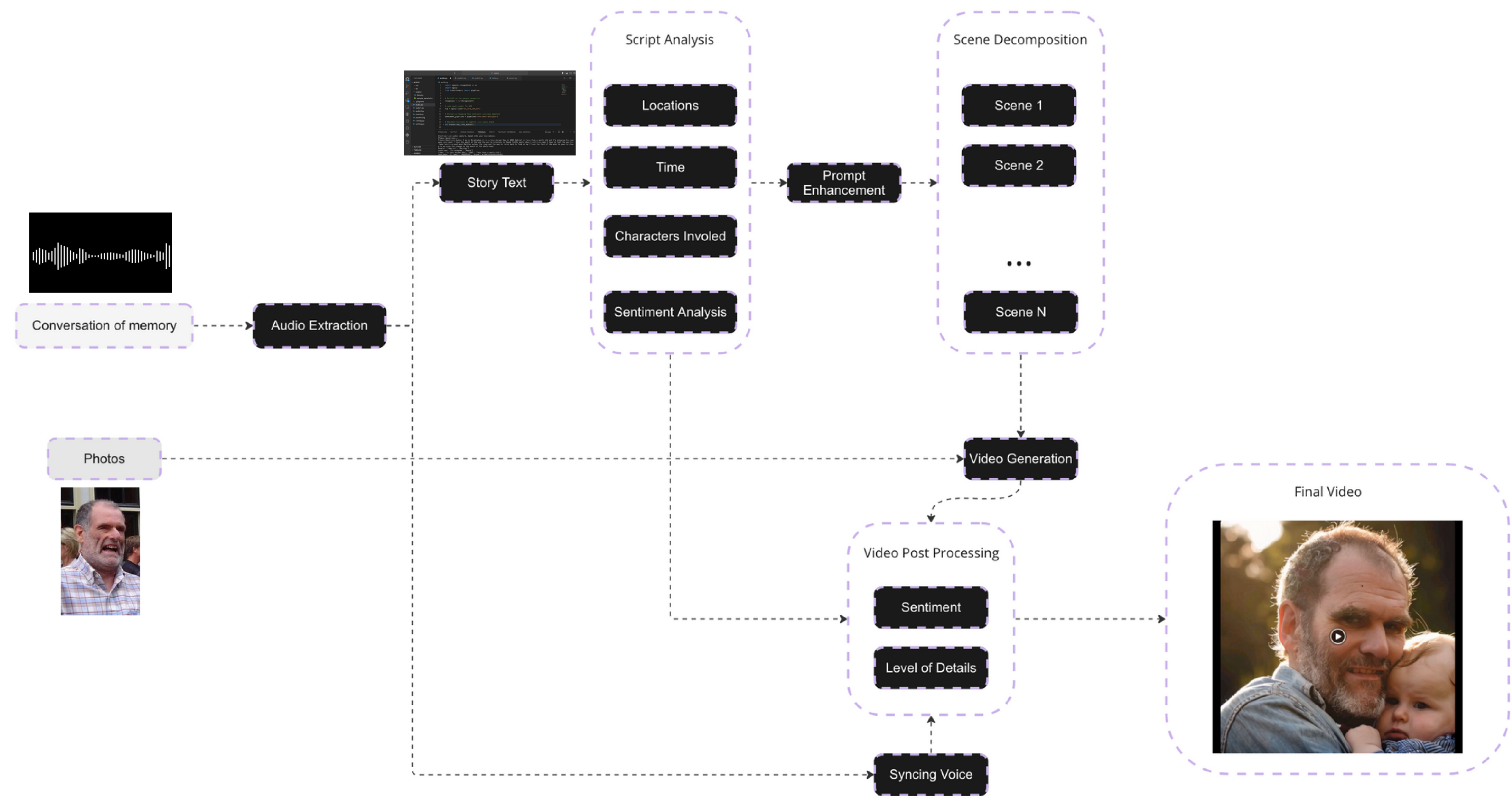


DATE - AUTUMN 1985

I AM IN BIRMINGHAM IT IS A LATE AUTUMN DAY IN 1985

GABRIEL IS LESS THAN A MONTH OLD, AND I AM ENJOYING HIS COMPANY VERY MUCH. I LOVE THE SMELL OF HIM, AND THE WAY HE BREATHES IN RAPID, LITTLE PANTS WHEN I CALL HIS NAME. I LOVE TO FEEL THE WAY HIS HEAD TWISTS AROUND WHEN MARILYN ENTERS THE ROOM, AND THE WAY HE TURNS BACK TO LOOK AT ME. I LOVE THE FEEL OF HIM WHEN HE GOES TO SLEEP IN MY ARMS, THE CHANGE IN THE SOUND AND PATTERN OF HIS BREATHING. I LOVE HOLDING HIS TINY HANDS AND PUTTING MY OWN HAND ON THE WARMTH OF HIS HEAD. I LIKE TO FEEL WHETHER HIS HAIR IS GROWING AND I LIKE FEELING HIS LITTLE NOSE. I LIKE HOLDING ONE OF HIS FEET AND I LIKE THE FEEL OF HIS WHOLE BODY AS I HOLD HIM OVER ONE SHOULDER. ALL OF THESE THINGS ARE VERY MUCH LESS SPOILED BY THE LACK OF SIGHT THAN WAS THE CASE WITH EITHER THOMAS OR LIZZIE. I HAVE SOME PANGS OF REGRET WHEN SOMEBODY REMARKS, 'HE'S SMILING AT YOU' OR, 'WHAT A BRIGHT, ALERT BABY YOU'VE GOT THERE!' PROVIDED THAT SUCH THOUGHTS DO NOT COME TO THE FRONT OF MY MIND TOO MUCH, I FIND THAT I AM GETTING MUCH MORE GENUINE AND IMMEDIATE PLEASURE FROM THIS LITTLE BABY. HE IS WELL NAMED.

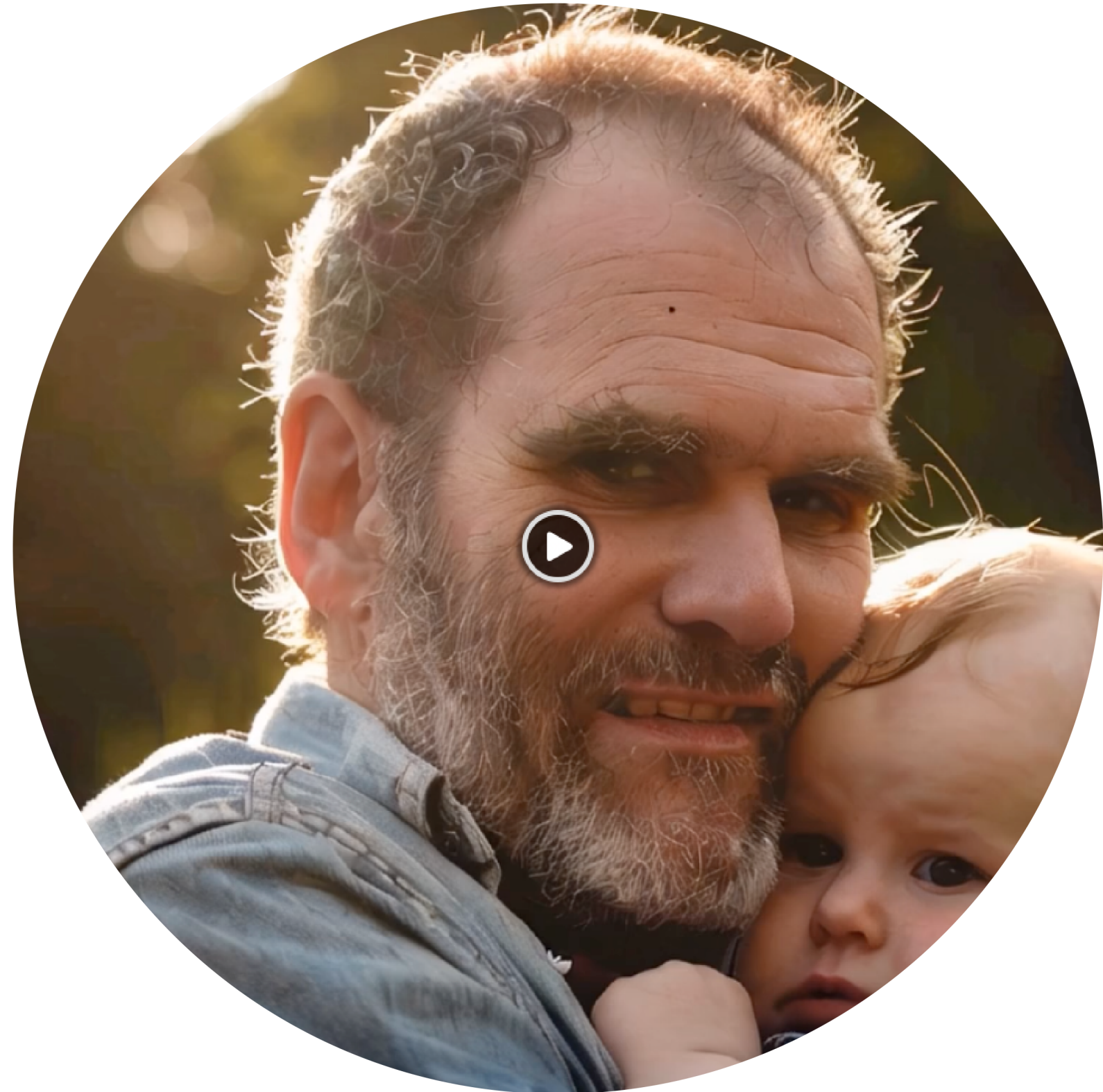
Product Flow



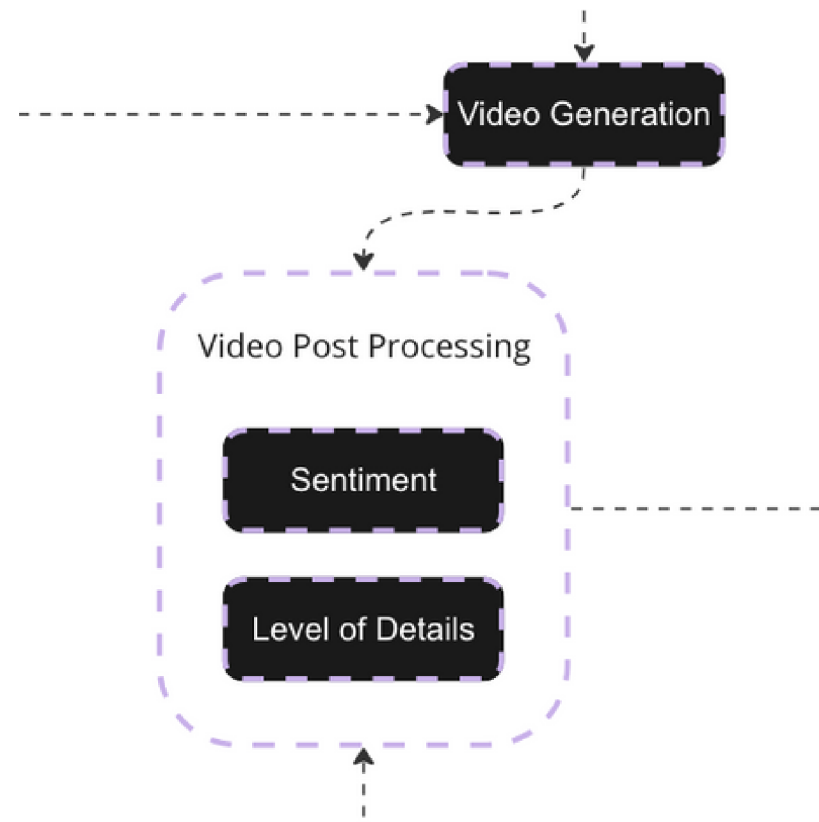
The memory of John Martin Hull



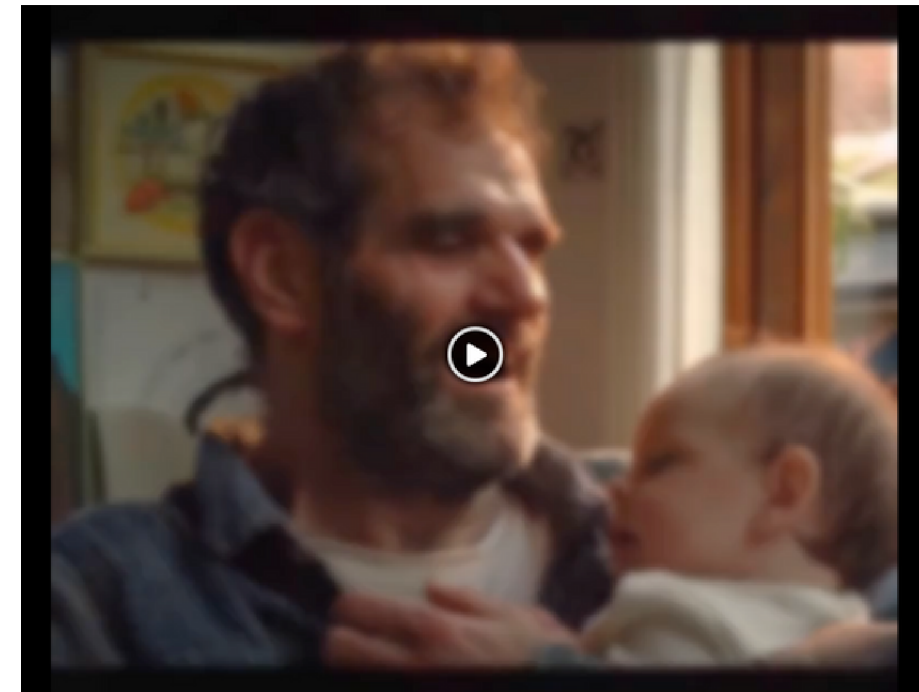
We turned John's memory
into a short movie clip



Style Post-Processing



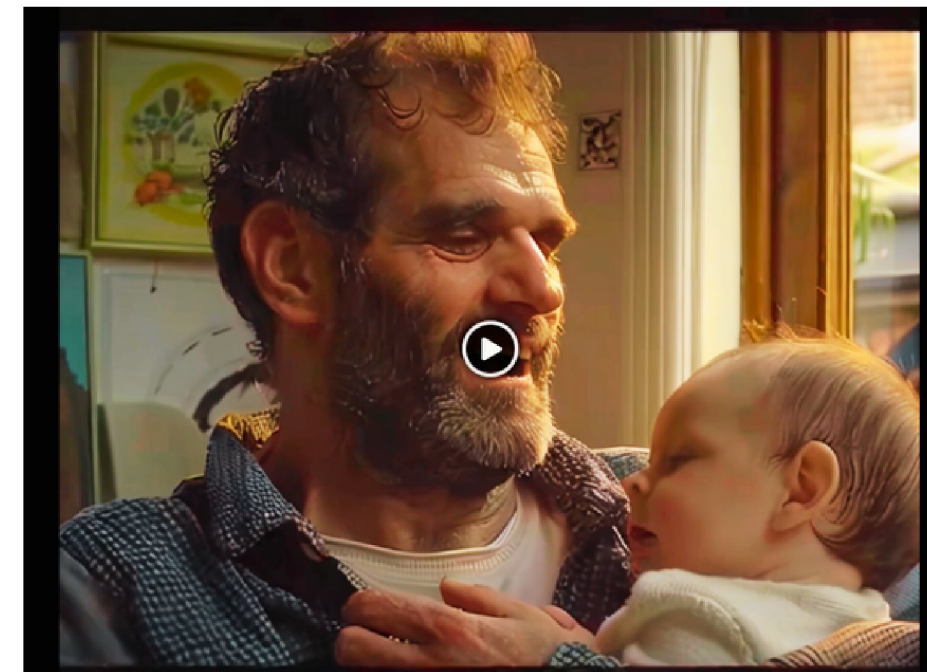
Original



Blurred Memory Based on
scale of details

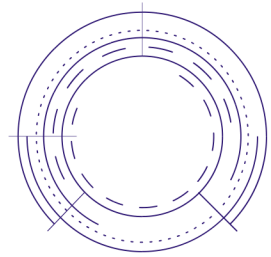


Sad based on the
Sentiment Score



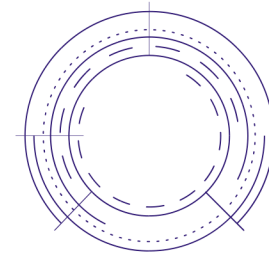
Happy based on the
Sentiment Score

Technology Stack



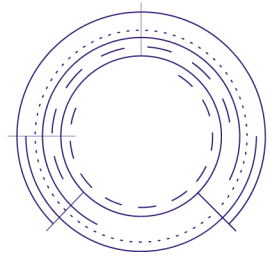
Voice Captioning

Capture the memory story in text for **rich** processing



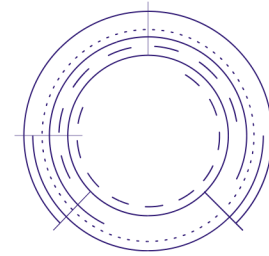
Prompt Enhancement

Expend the text with **details** based on the memory context.
e.g a well-lit room



Image/Video Generative Models

Fuse characters' photos and memory context to generate **novel** scenes

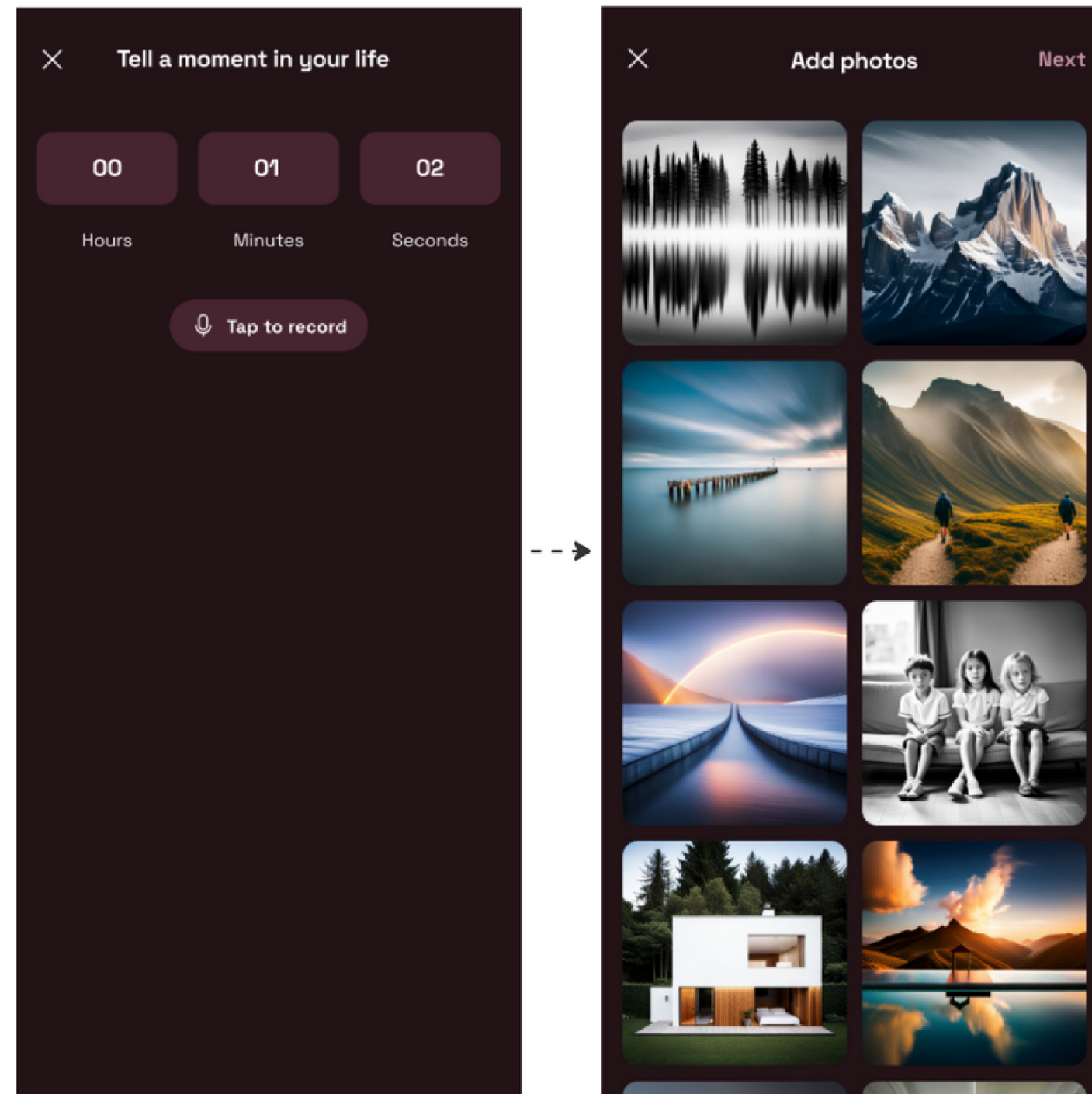


Style Transfer

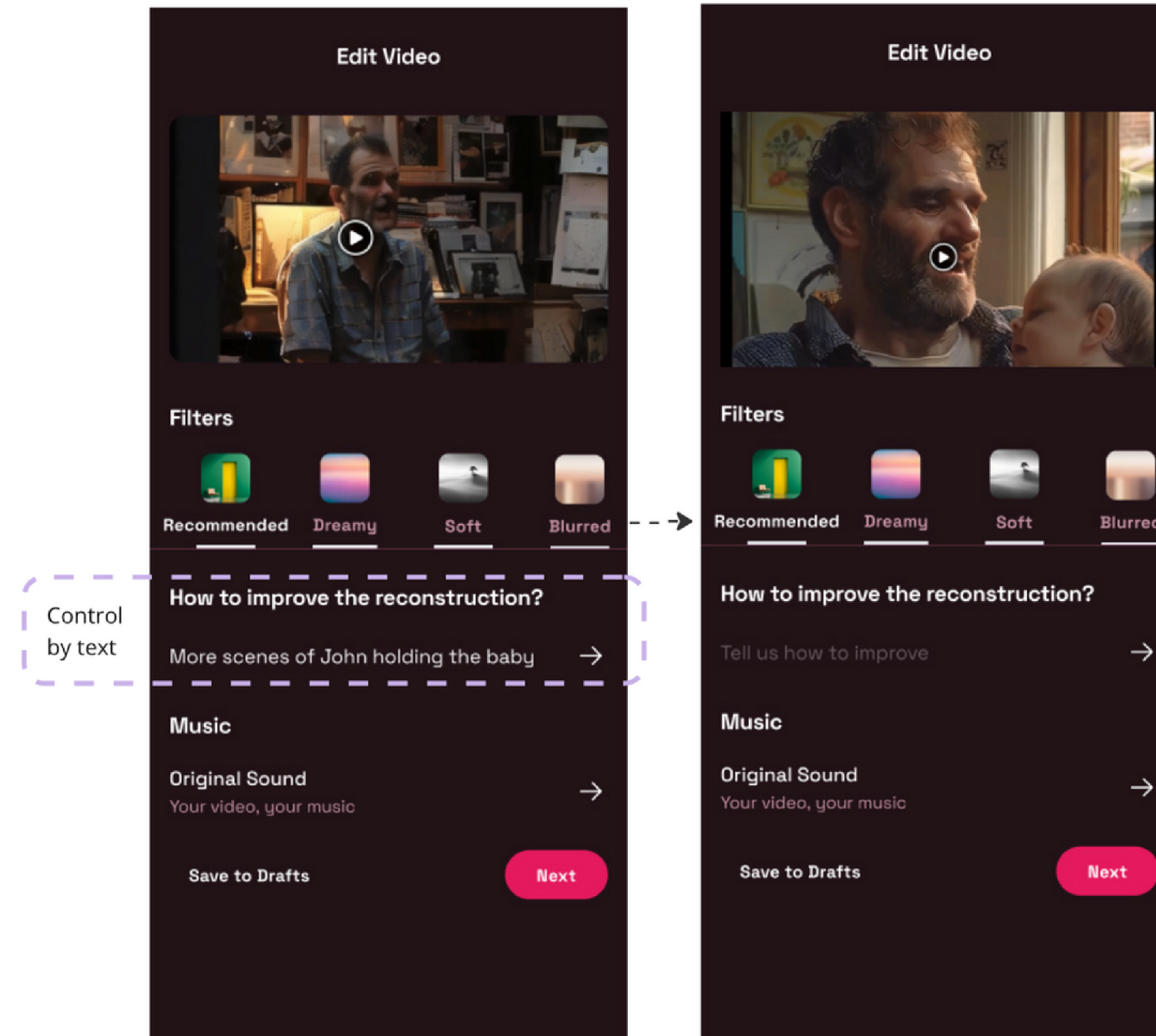
Post process video style based on the sentiment and mood in the memory **context**

User Interface

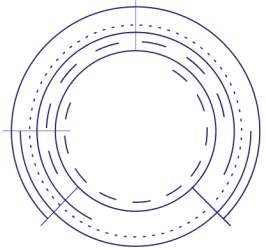
- Collect Memory as **Voice** Recording
- Collect real **photos** as generation guidance



- Give **control** back to users
- **Iterate** on the quality

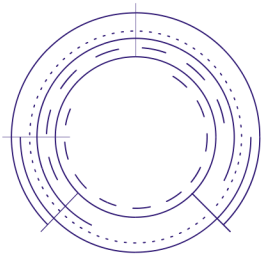


CHALLENGES



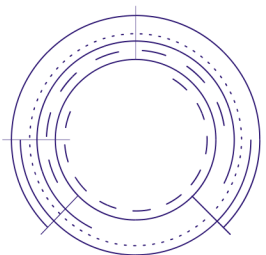
Control

Control of video generation is an active research topic.
e.g temporal consistency, imperfect face reconstruction



Memory Triggers

How to capture critical factors for memory reconstruction
despite of imperfect reconstruction

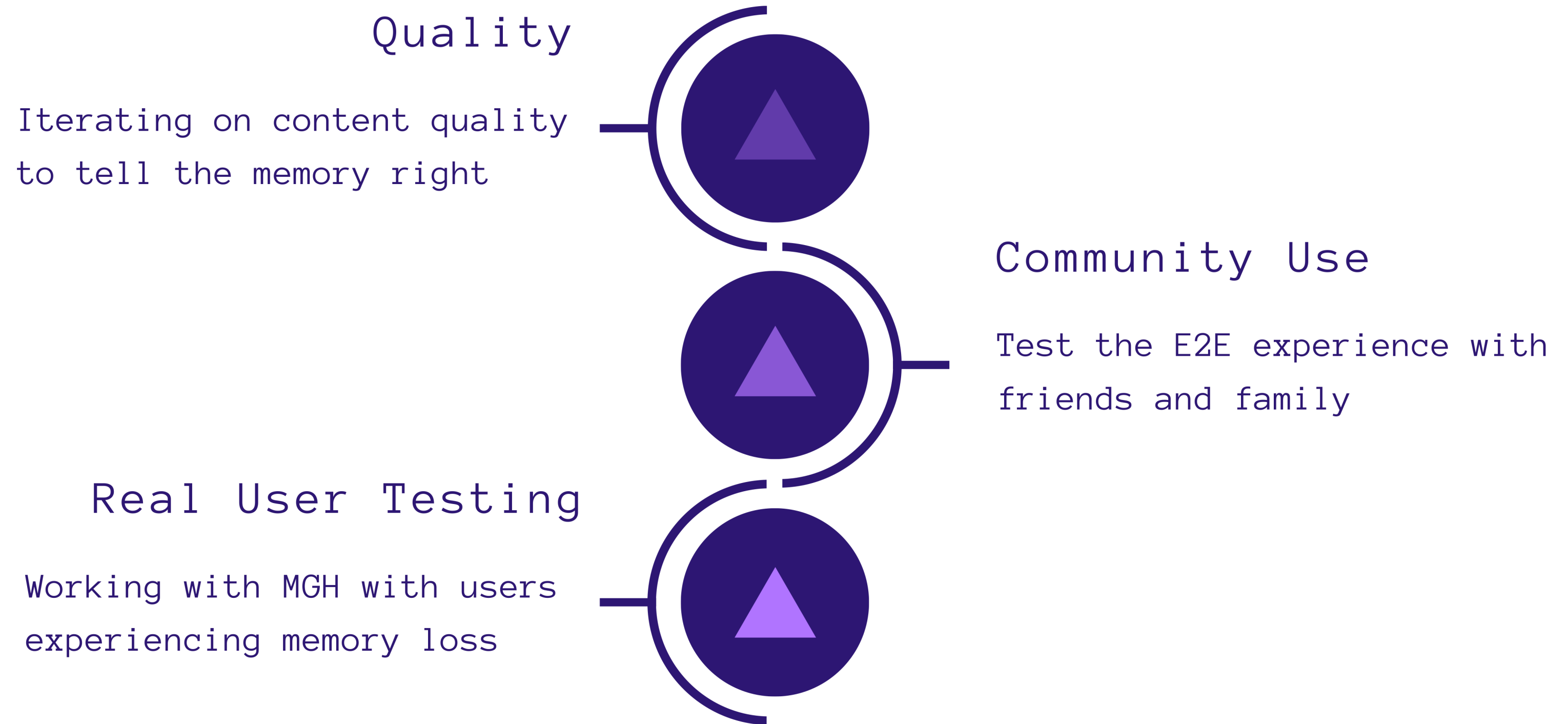


Privacy Concerns

To address concerns on sharing personal story and photos



Next Steps



Further development



Training it on personal data to
inform visual



Training it on social media
to inform the visual style



Brain wave patterns to inform
live input on image
composition.