

Demo: Fragmented Sunshine of the Spotless Mind

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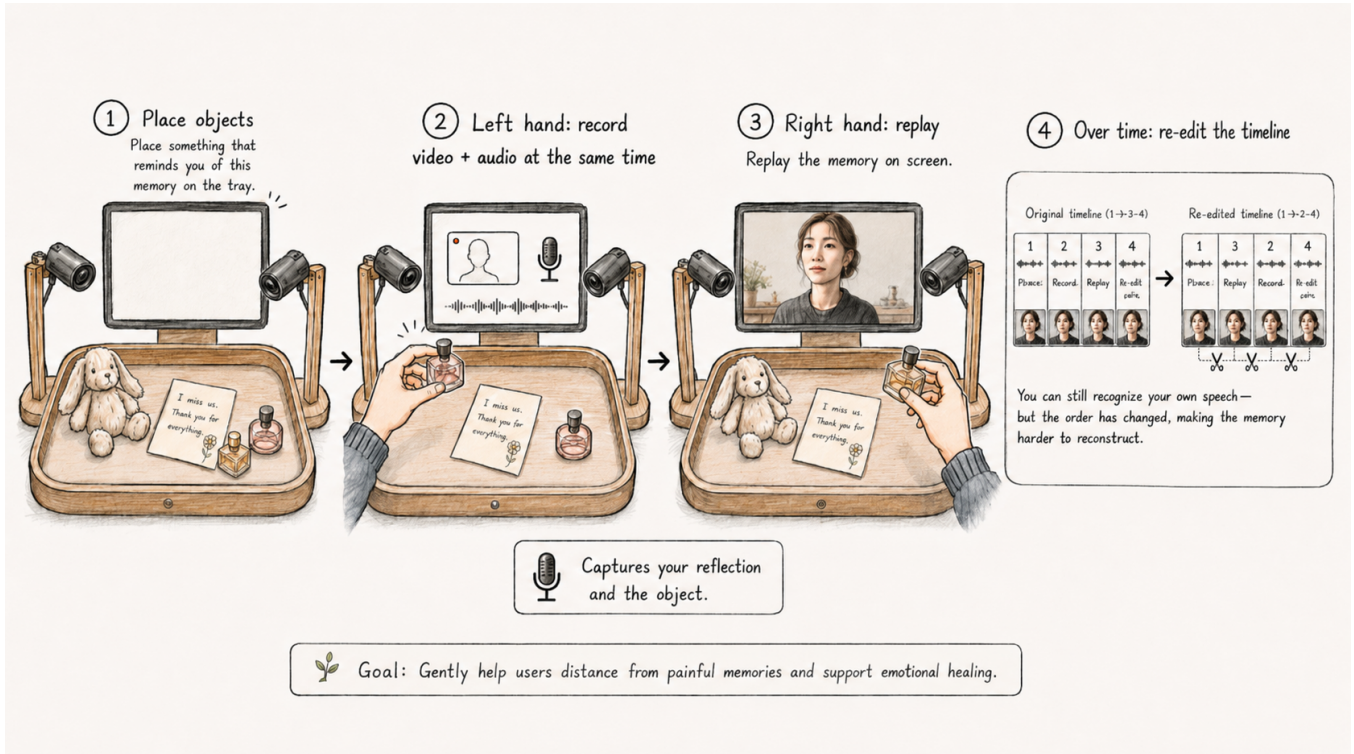


Figure 1: Interaction flow of this project. Users place a personally meaningful object on the tray and pick it up with their left hand to record a video-and-audio reflection. Picking up the object with their right hand replays the recorded memory. Over time, the system re-edits the recording by rearranging recognizable speech segments, gradually making the original timeline harder to reconstruct.

Abstract

We present *Fragmented Sunshine of the Spotless Mind*, an interactive installation that explores forgetting through tactile interaction.

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Users place meaningful objects on a tray, record audiovisual reflections by picking them up with the left hand, and replay them with the right hand. Over time, the system rearranges recognizable speech segments, preserving fragments of the memory while making its original sequence harder to reconstruct. The source code is publicly available at <https://github.com/namwoam/fragmented-sunshine>.

CCS Concepts

• **Human-centered computing** → **Haptic devices; Gestural input.**

Keywords

Slow technology, Design for forgetting, Tangible interaction

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1 Introduction

Forgetting is a familiar part of everyday life. People misplace keys, wallets, and umbrellas, and rely on reminders, calendars, note-taking applications, and tracking devices to compensate for these lapses. Much of interactive technology is therefore designed to support remembering: storing information, retrieving past events, and preserving personal records. However, remembering is not always the desired outcome. In some situations, particularly after emotionally difficult experiences, the ability to gradually let go of a memory may be as important as the ability to recall it. This tension is explored in Michel Gondry's film *Eternal Sunshine of the Spotless Mind*, in which a fictional machine is used to erase memories of a past relationship. While the film presents complete memory removal as an ambivalent and ultimately imperfect process, it raises a broader design question: rather than preserving every memory indefinitely, how might interactive systems support a slower and more reflective process of forgetting? We present *Fragmented Sunshine of the Spotless Mind*, an interactive installation that explores this question through tangible interaction. Users place personally meaningful objects: such as a plush toy, a handwritten card, or a perfume bottle on a wooden tray. When an object is picked up with the left hand, the system records the user's video and audio reflection about the object. When the same object is picked up with the right hand, the recording is replayed. Over time, the system re-edits the recording by rearranging recognizable speech segments, allowing users to recognize their own words while making the original narrative timeline increasingly difficult to reconstruct.

2 Previous Work

This work draws on slow technology, tangible memory interfaces, and design for forgetting. Slow technology emphasizes reflection and sustained engagement rather than efficiency or immediacy [5]. For example, *Photobox* encourages long-term reflection by gradually and unpredictably printing photographs from a personal archive [7]. Prior tangible systems such as *FM Radio* and *MemoryReel* also demonstrate how physical interaction can support reminiscence [8, 12]. In contrast to systems designed primarily for preservation and recall, prior research has explored how interactive systems may support the disposal of emotionally charged digital possessions and rituals of letting go [9, 10]. *Burn Your Memory Away* presents a more immediate approach through a one-time-use video device that physically destroys its recording after playback [1].

Our work extends these directions by using personally meaningful objects as tactile memory cues. When users touch and pick up an object, they encounter its material qualities: such as texture, weight, and shape, before accessing its recorded memory. This embodied

interaction makes remembering and forgetting a physical experience. Rather than erasing recordings at once, the system gradually fragments and recomposes them over time.

3 Design and Implementation

3.1 Physical and Hardware Design

The installation consists of a custom-fabricated wooden tray, two camera mounts, two webcams, and a computer display. The tray serves as a shared interaction surface on which users place personally meaningful objects. The wooden construction and the physical act of picking up an object are intended to preserve the tactile qualities of the interaction, allowing the texture, weight, and shape of each object to function as embodied memory cues.

The two webcams serve complementary purposes. The first camera is positioned to observe the tray and detect the user's hand movements and the object being handled. The second camera records the user's audiovisual reflection while they describe the memories associated with an object. A computer display presents the recording interface and replays previously recorded reflections. To support computationally intensive inference and persistent storage, the client communicates with a remote server that processes the captured data and stores the audiovisual recordings and their associated metadata.

The installation uses handedness as an interaction mechanism. Picking up an object with the left hand begins a video-and-audio recording session. Picking up the same object with the right hand retrieves and replays the corresponding recording. This two-handed design avoids additional graphical controls and allows recording and replay to remain closely connected to the physical act of touching a memory-linked object.

3.2 Software Implementation

The software pipeline integrates hand tracking, object detection, automatic speech recognition, transcript segmentation, and audiovisual playback. The tray-facing camera stream is processed using MediaPipe Hand Landmarker, which provides hand landmarks and handedness estimates for detected hands [3, 13]. These estimates allow the system to distinguish between left-hand and right-hand interactions. In parallel, a YOLO11-based object detector identifies the object being handled [11]. The detected object identifier is used to associate each interaction with its corresponding recording.

When the system detects that an object has been picked up with the left hand, it captures video and audio concurrently and uploads the recording to the remote server. The audio track is transcribed using Breeze-ASR-25, an automatic speech recognition model optimized for Taiwanese Mandarin, Mandarin-English code-switching, and timestamp alignment [2, 6]. These characteristics are relevant to our intended users in Taiwan and allow each transcript segment to be mapped back to its corresponding interval in the original recording.

The transcript is subsequently processed using Gemini 3.5 Flash [4]. The model is prompted to divide the transcript into reorderable sentence-level segments while preserving their original timestamps. When a right-hand interaction triggers replay, the system retrieves the stored recording and reconstructs the playback sequence from these segments. During later replays, the order of selected segments

is rearranged. The user's voice and individual statements therefore remain recognizable, while the temporal structure of the original reflection becomes increasingly difficult to reconstruct.

This implementation does not immediately delete the recording. Instead, it uses progressive re-editing to explore forgetting as a gradual process in which recognizable fragments remain accessible even as their original narrative order becomes less stable.

4 Conclusion

We introduced *Fragmented Sunshine of the Spotless Mind*, an interactive installation that explores forgetting through tactile interaction and gradual re-editing. By linking physical objects to audiovisual reflections, the system allows users to revisit memories through touch while progressively altering the temporal order of recorded speech. Rather than deleting memories immediately, the installation preserves recognizable fragments and makes their original sequence increasingly difficult to reconstruct. This work contributes a design exploration of forgetting as a slow, embodied, and reflective interaction. Future work will examine how users interpret the re-edited recordings and how different levels of temporal rearrangement shape their experience of remembering and letting go.

References

- [1] Pei-Yu Chi, Xiao Xiao, Keywon Chung, and Carnaven Chiu. 2009. Burn Your Memory Away: One-Time Use Video Capture and Storage Device to Encourage Memory Appreciation. In *CHI '09 Extended Abstracts on Human Factors in Computing Systems*. Association for Computing Machinery, 2397–2406. doi:10.1145/1520340.1520342
- [2] Cheng-Kang Chou, Chan-Jan Hsu, Ho-Lam Chung, Liang-Hsuan Tseng, Hsi-Chun Cheng, Yu-Kuan Fu, Kuan Po Huang, and Hung-Yi Lee. 2025. A Self-Refining Framework for Enhancing ASR Using TTS-Synthesized Data. *arXiv preprint arXiv:2506.11130* (2025). <https://arxiv.org/abs/2506.11130>
- [3] Google AI Edge. 2026. Hand Landmarks Detection Guide. https://developers.google.com/edge/mediapipe/solutions/vision/hand_landmarker. Accessed: 2026-06-06.
- [4] Google AI for Developers. 2026. Gemini 3.5 Flash. <https://ai.google.dev/gemini-api/docs/models/gemini-3.5-flash>. Accessed: 2026-06-06.
- [5] Lars Hallnäs and Johan Redström. 2001. Slow Technology – Designing for Reflection. *Personal and Ubiquitous Computing* 5, 3 (2001), 201–212. doi:10.1007/PL00000019
- [6] MediaTek Research. 2025. Breeze-ASR-25. <https://huggingface.co/MediaTek-Research/Breeze-ASR-25>. Hugging Face model card. Accessed: 2026-06-06.
- [7] William Odom, Mark Selby, Abigail Sellen, David Kirk, Richard Banks, and Tim Regan. 2012. Photobox: On the Design of a Slow Technology. In *Proceedings of the Designing Interactive Systems Conference (DIS '12)*. Association for Computing Machinery, 665–668. doi:10.1145/2317956.2318055
- [8] Daniela Petrelli, Nicolas Villar, Vaiva Kalnikaite, Lina Dib, and Steve Whittaker. 2010. FM Radio: Family Interplay with Sonic Mementos. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '10)*. Association for Computing Machinery, 2371–2380. doi:10.1145/1753326.1753683
- [9] Corina Sas and Steve Whittaker. 2013. Design for Forgetting: Disposing of Digital Possessions after a Breakup. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '13)*. Association for Computing Machinery, 1823–1832. doi:10.1145/2470654.2466241
- [10] Corina Sas, Steve Whittaker, and John Zimmerman. 2016. Design for Rituals of Letting Go: An Embodiment Perspective on Disposal Practices Informed by Grief Therapy. *ACM Transactions on Computer-Human Interaction* 23, 4, Article 21 (2016), 37 pages. doi:10.1145/2926714
- [11] Ultralytics. 2024. Ultralytics YOLO11. <https://docs.ultralytics.com/models/yolo11/>. Accessed: 2026-06-06.
- [12] Huaxin Wei, Dianya Hua, Eli Blevis, and Zitao Zhang. 2019. MemoryReel: A Purpose-Designed Device for Recording Digitally Connected Special Moments for Later Recall and Reminiscence. In *Proceedings of the Thirteenth International Conference on Tangible, Embedded, and Embodied Interaction (TEI '19)*. Association for Computing Machinery, 135–144. doi:10.1145/3294109.3295649
- [13] Fan Zhang, Valentin Bazarevsky, Andrey Vakunov, Andrei Tkachenka, George Sung, Chuo-Ling Chang, and Matthias Grundmann. 2020. MediaPipe Hands: On-Device Real-Time Hand Tracking. *arXiv preprint arXiv:2006.10214* (2020). <https://arxiv.org/abs/2006.10214>

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