Serendipitous Landscapes: Personal Memory and Google Maps

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Abstract

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When Google's camera cars photograph a street, they sometimes catch things they were never sent to collect: pots on a balcony, a graduation sign in a front yard, a parent's old car in a driveway. For someone who once lived there, stumbling on these fragments in Street View's historical imagery can feel like an unplanned reunion with an earlier self. This thesis explores that encounter: what it is like to find one's past preserved, more or less by accident, inside a system designed for navigation. It asks how design might help people respond to what they find. I pursued these questions through a sequence of studies and design experiments, each shaped by what the one before it found. In a pilot study, eight participants navigated Street View's historical imagery to curate timelines of the places they had lived. Their encounters showed how people meet their own pasts inside geographic data systems. Three findings shaped everything that followed: (1) imperfect imagery works as a scaffold for memory reconstruction rather than a substitute for it; (2) memory is triggered less by the pixels than by the familiarity of the viewing angle; and (3) an auditing mindset, focused on evaluating the system, crowds out intimacy with

the material. I designed two experiments that used generative AI to fill the archive's gaps; neither landed as hoped, and their failures pointed to something my later work is built on: participants gravitated toward real material, and generated imagery tended to read as tampering rather than restoration. An autoethnographic counter-gaze experiment, a performance in which I waited with a mirror to catch the Street View car in the act of recording, probed the asymmetry between one person and a planetary recording system. The experiment left its questions open, but it inspired the turn the work took next: away from contesting the record, toward the gap between the record and the life it missed.

That gap organized my final design work: three tools, each opening a different distance between what the system captured and what it meant. Rename It works the gap between what the system names and what you call it; Claim It, between what it sorts and what you feel; Counter It, between what it records and what actually happened. A second group of ten participants ran all three tools alone and then talked through what they had made. Asking who a new name was for turned reflection on a place into reflection on a relationship, including, for one participant, the relationship with her own fifteen-year-old self; given the same imprecise brush, each person invented their own logic for dividing space; and the system's omissions (blurred faces, missing years) often became openings for restoration rather than sources of frustration.

From this work the thesis offers the concept of the serendipitous landscape: the experience of wandering back into a digital space and unexpectedly meeting a past self. The concept reframes personal data less as something to manage or protect and more as terrain one can inhabit; it suggests that infrastructure can be read against its intended purpose, as a memory medium it was never designed to be; and it holds that content about a person's past must carry a visible author, which is what separates a mark someone makes from material a system generates on their behalf. Imprecision, slowness, and a degree of friction are not usability failures but conditions under which feeling has room to arrive.

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1 Introduction



1.1 Where It All Started

Last year, my family decided to sell my grandparents' house. I was helping my parents organize the paperwork when I opened Google Street View to check something.

My grandfather, who passed away two years ago, was sitting by the front door.



Fig. 1 — The frames where it all started: my grandpa, seen through Street View.

A Google car drove by one ordinary afternoon, collecting data for navigation. It had no idea what it was preserving.

I couldn't stop thinking about this. Not just about him, but about all the places that hold pieces of who we used to be. What does it mean when a navigation tool becomes an accidental archive of personal history? And what happens when we go looking, not for directions but for the past versions of ourselves we left behind?

Google saw an address. I saw a place.

That distance, between the coordinate the system stored and the meaning I carried, is where this thesis lives. Street View was built to save time; I found myself using it to sit inside time. I wasn't navigating Street View. I was drifting through it.

1.2 Positioning

My work sits between two conversations: how places come to hold memory, and how large-scale data systems like Google Maps could be reused for reflection rather than speed. The first conversation is old: philosophers and geographers (e.g., Bachelard, 1964; Tuan, 1977) have long argued that place is space that meaning has soaked into. The second is younger but established: for two decades, design researchers (e.g., Hallnäs and Redström, 2001; Gaver, 2002; Sengers et al., 2005; Odom et al., 2012) have asked what technology would look like if it were not optimized for efficiency. I work where they meet: technology that lets us return to the places that hold us.

This research explores two things. First, accidental reunions: meeting our past selves in systems that never meant to keep them. Second, designed encounters: building tools to support that meeting.

1.3 Research Questions

Two questions structure the work:

1. What does it feel like to find your past preserved by accident in a system built for navigation?

2. How can design help people respond to what they find?

1.4 Thesis Overview

The research ran in four phases, each shaped by what the phase before it found. A pilot study combining a cultural probe with co-speculation sessions, with eight participants, produced the insights the design work rests on. Two experiments with generative AI followed, both abandoned, and their failure established that the record should not be added to. An autoethnographic counter-gaze performance then established where a person's agency actually sits in relation to that record. The three tools came last, deployed with a separate group of ten participants who completed them alone and then met me individually.

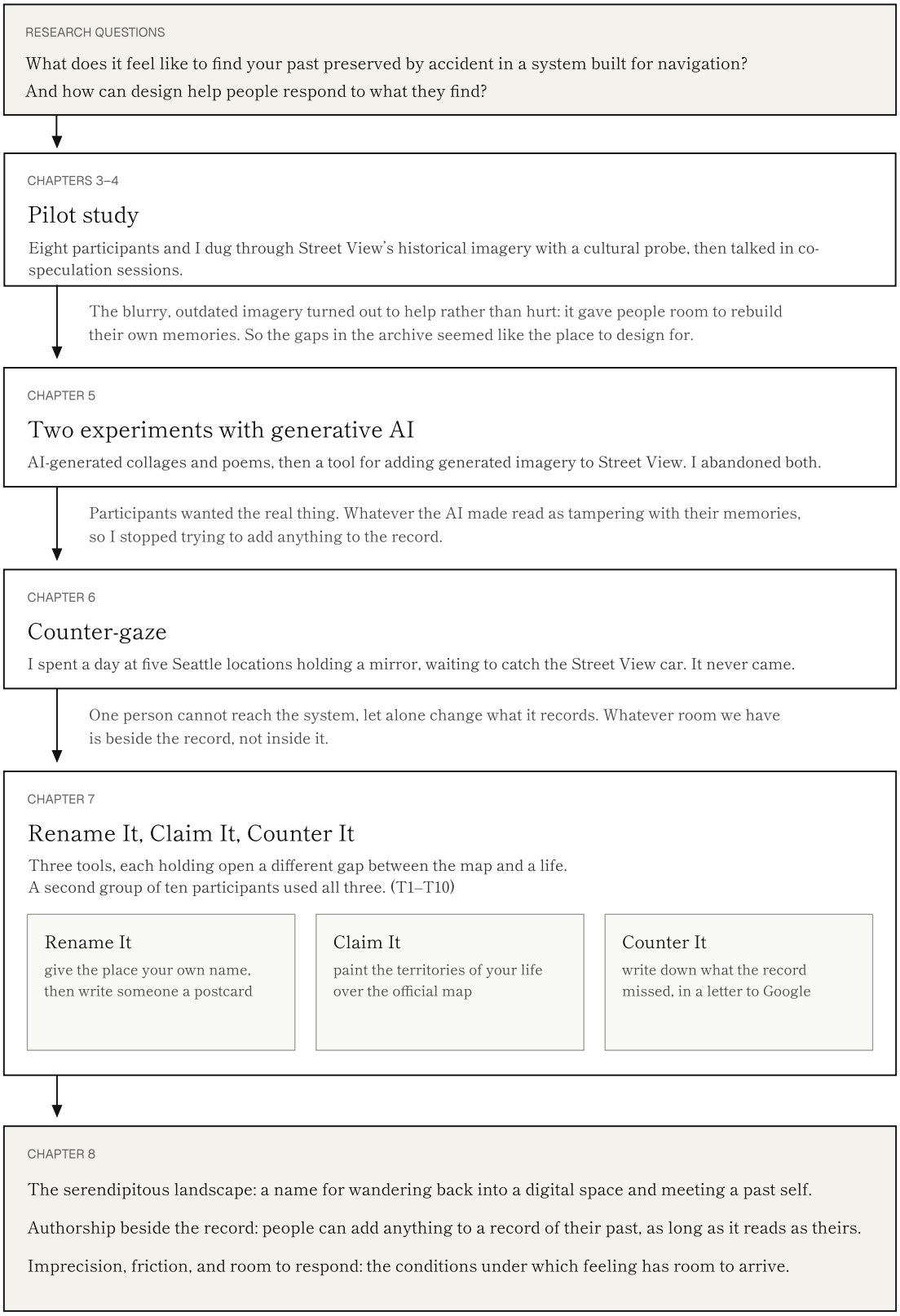
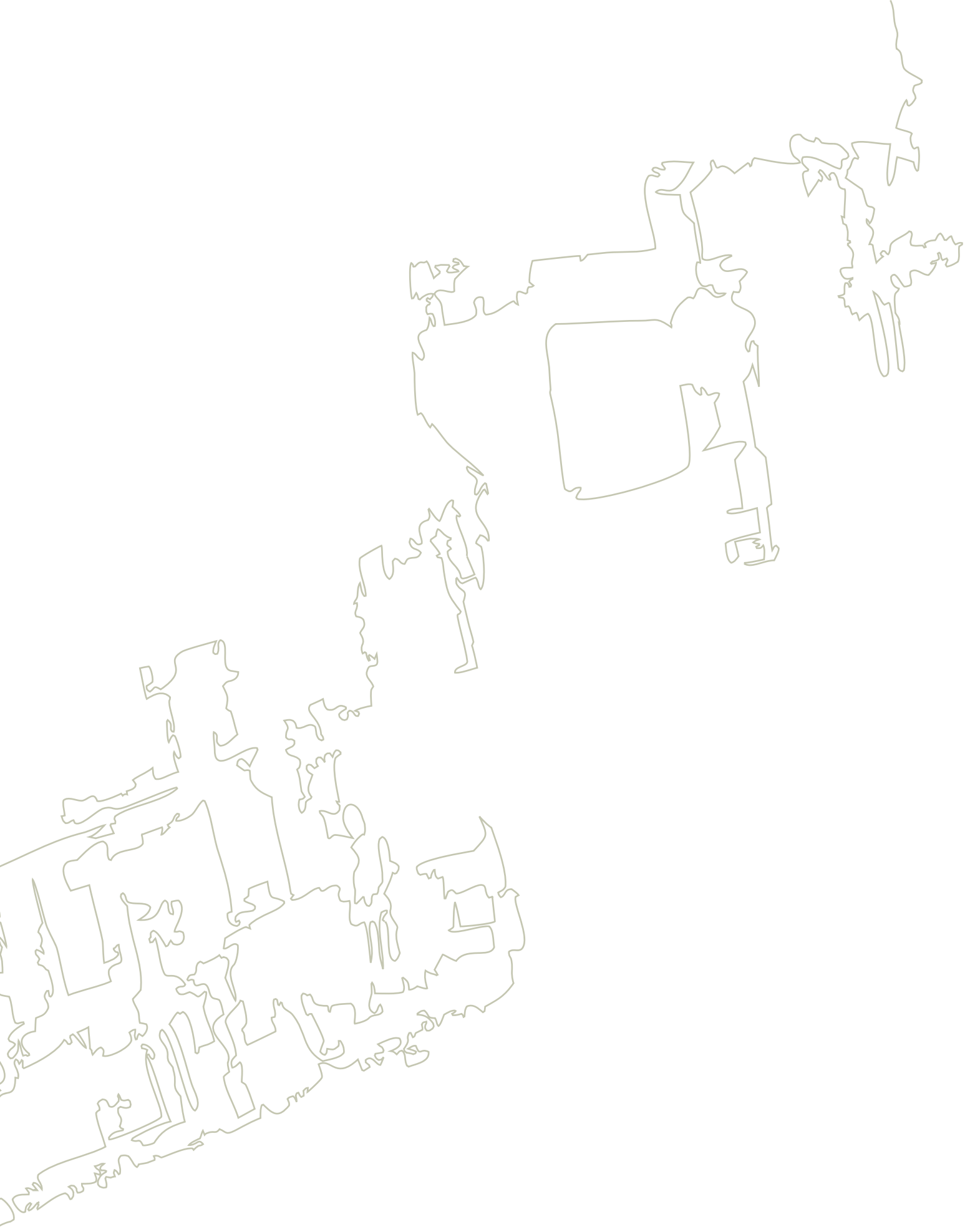


Fig. 2 — The research process. Each phase was shaped by what the phase before it found.

The thesis proceeds in seven movements, following the arc of the research itself. Chapter 2 assembles the theoretical ground: place and memory, the infrastructure Street View is, technology's forms of accident, psychogeography, punctum, slow technology, poetic data, first-person methods, and defamiliarization. Chapter 3 reports a pilot study in which eight participants traveled backward through Street View's historical imagery. Chapter 4 distills seven insights from that study. Chapter 5 recounts two failed attempts to design with generative AI, and what those failures taught. Chapter 6 documents a counter-gaze experiment confronting the asymmetry of the recording system itself. Chapter 7 presents three design tools (Rename It, Claim It, Counter It) and their deployment with ten participants. Chapter 8 names the thesis's contributions and reflects on what they mean for design research.





2

Related Work

2.1 Why Places Hold Memory

Gaston Bachelard's The Poetics of Space (1958) and Yi-Fu Tuan's Space and Place (1977) together establish the distinction this thesis depends on: space is coordinates; place is space saturated with human memory and intimacy. For Bachelard, the houses we have lived in are not backdrops to memory but its very architecture: we store our pasts in corners, drawers, and staircases, and revisiting the spaces revives the selves who occupied them. Tuan, writing as a geographer, gives the distinction its canonical form: space becomes place as we endow it with value through lived experience. Places preserve time, holding past versions of who we were.

Do these claims hold for digital geography? Not automatically. Bachelard and Tuan wrote about places people live in: meaning soaks in through the body, through years of daily use. A Street View panorama is only a photograph of such a place, taken by a machine, viewed on a screen somewhere else. Nobody has lived in it. There is no reason to assume that what soaked into the street also soaked into its image.

So this thesis does not assume it. Whether an image of a place can give back what the place held is one of the things the studies set out to test, and Chapters 4 and 7 return to the question with evidence: sometimes the image works, sometimes it fails, and the difference turns out to reveal how memory and imagery actually connect.

2.2 Street View as Infrastructure: Scale and Politics

Before Street View can be read as a memory medium, it needs to be seen plainly as what it is: infrastructure. Street View's best-known instrument is a fleet of cars with camera rigs on roof-mounted poles, but where cars cannot go the apparatus keeps going: Trekker backpacks carried on foot down trails, camels crossing desert dunes, snowmobiles, boats, trolleys rolling through museums. Whatever the vehicle, the logic is the same. The world is photographed on a schedule set by logistics, and the frames are stitched into a navigable surface built for routing, indexing, and advertising. The coverage is planetary; the attention is indiscriminate; no resident, hiker, or passerby chooses when they are worth recording.

Infrastructure studies gives this thesis its starting stance toward that system. Susan Leigh Star, a sociologist of science whose The Ethnography of Infrastructure (1999) made the pipes, standards, and cables of everyday life a legitimate object of study, describes infrastructure as relational and embedded, transparent in use to the point of invisibility, and visible chiefly upon breakdown. Her question is the one this chapter needs: how do you study something built to be unnoticed? This thesis adds a second route to visibility: misuse. Street View never broke for me; it became visible the moment I stopped using it for navigation and started using it to look for my grandfather. Brian Larkin, an anthropologist who studies infrastructure in Nigeria and asks what these systems mean to the people who live among them, supplies the other half of the stance. In The Politics and Poetics of Infrastructure (2013) he argues that infrastructures are not only technical systems but concrete semiotic and aesthetic vehicles that store forms of desire and fantasy. That is the permission this thesis needs to read a routing system as something other than a routing system. Street View holds at least two desires at once: Google's desire to make the world's streets accessible and useful, and, latent inside the same imagery, a person's desire to reach a past the company never intended to keep.

Two political facts about this infrastructure run through the thesis. The first is scale: the asymmetry between a global fleet and a single person is not an abstraction but a lived condition, and Chapter 6 stages it directly. The second is jurisdiction: which company's cars drove your childhood streets, Google's, Baidu's, or Naver's, determines whether your past is retrievable at all, a geopolitics of memory access this study met concretely in its participants (Chapter 4). Whether the traces this infrastructure holds are public or personal, and who may claim them, is a question Chapter 8 takes up at length.

2.3 The Accident Question

Technology's relationship to accident is not one thing, and this thesis needs three of its forms kept distinct.

The first is designed surprise. HCI has long treated randomness as a design resource: Leong, Vetere, and Howard (2006) showed that shuffle listening could turn a music library into a source of meaningful coincidence, and that the pivotal gesture was abdicating choice, handing selection over to the system. Odom et al.'s Photobox (2012; 2014), a wooden chest that prints a randomly chosen photo from its owner's archive a few times a month, belongs to the same family, and § 2.7 returns to it. In these systems the surprise is intended; someone built the machinery of chance on purpose.

The second is accidental capture: a system records something it was never aimed at. Jon Rafman's Nine Eyes of Google Street View (2008–), named for the nine lenses on the early camera cars' roof poles, is the defining precedent. Rafman spends hours drifting through Street View collecting frames that deserve to be photographs: the burning house, the escaped horse, the odd grandeur nobody composed. His project proves the archive can be misread aesthetically. But Rafman reads other people's accidents, from the outside, as a photographer hunting images. This thesis stands inside the archive: the accidents I and my participants look for are our own.

The third form is the one this thesis names and studies: accidental preservation. After the accidental capture, the frames simply remain, uncurated, unwatched, held in historical imagery nobody has reason to open. No one designed this surprise, and no one is waiting at the other end of it. Insight 4.1 gives this form its empirical shape, the accidental archivist.

One more piece of the serendipity literature matters here. André, schraefel, Teevan, and Dumais (2009) argue that discovery is never by chance: a chance encounter only becomes serendipity when it is synthesized into insight, and systems that engineer encounters while neglecting synthesis produce collisions, not discoveries. The accidental archive supplies encounters at planetary scale and supports no synthesis whatsoever. That missing half is precisely where the design work of this thesis operates: the three tools of Chapter 7 are instruments of synthesis.

2.4 Situationism and Psychogeography

In the 1950s the Situationists developed the dérive, a way of drifting through a city that refuses its intended routes and follows its emotional pull instead (Debord, 1956). Underneath it was psychogeography: the claim that a place's layout quietly shapes how we feel, and that the only way to notice that is to stop navigating and start wandering (Debord, 1955).

The dérive gave me a method disguised as a concept. A space has emotional terrain, and this lets me treat Street View as a place worth feeling through, not just a tool to navigate. Where Google's interface assumes a user with a destination, the dérive licenses a user with a mood. Stripped of its routing logic, Street View unfolded as a landscape to dwell within.

2.5 Punctum

Roland Barthes' Camera Lucida (1980) supplies the finest-grained concept this thesis uses: the reason an encounter pierces. Barthes distinguishes the studium of a photograph, everything in it that is culturally legible and intended, from the punctum, "that accident which pricks me". The punctum is rarely the subject of the photograph. It is a marginal, unintended detail, a pair of shoes, a bandaged finger, that wounds one particular viewer and passes unnoticed by everyone else.

The pilot study's findings are a catalogue of puncta. The pots on the balcony, the graduation sign, the old car in the driveway: none of these is what the passing camera was aimed at, and none would stop any other viewer. Insights 4.5 and 4.6 describe the mechanics, imperfect imagery as scaffold and the click of a familiar angle, but punctum names what those mechanics deliver: a detail the system recorded by accident finding the one person it can still wound.

Barthes adds a second punctum in the book's later half, and it matters even more here: time itself. Looking at a photograph of a condemned man, he locates the wound in the certainty of "that-has-been": he is dead, and he is going to die. Street View's historical imagery carries the same temporal sting at the scale of streets. My grandfather sits by the door in a frame that insists he was there, in a present tense the timeline has already closed. The serendipitous landscape this thesis names in Chapter 8, the collision of the self who lived there with the self now looking, is Barthes' second punctum given an address.

2.6 Slow Technology, Ludic Design, and Seamful Design

Most digital mapping technology runs on a utilitarian logic: frictionless efficiency. Section 2.4 already named one alternative to that logic, the dérive's affective license to drift instead of arrive. Three further threads in HCI give that license a design vocabulary.

Slow technology, proposed by Hallnäs and Redström (2001) and extended by Odom et al. (2012), asks what happens if technology is something you sit with rather than a tool you consume quickly, an environment for dwelling rather than departure. Sengers' reflective design (2005) adds a second layer: interfaces can work as mirrors, prompting critical introspection about the values, the system's and our own, quietly built into how we interact with it.
Together these frameworks justify a shift I make throughout the thesis, from optimizing a visit to Street View for time to cultivating one for reflection.

A second thread supplies the interaction itself, rather than its justification. Gaver's ludic design (2002) proposes the user as homo ludens, the playful human, favoring curiosity and ambiguity over problem-solving. His Drift Table (Gaver et al., 2004), an interface that lets people wander slowly over aerial landscapes by shifting their weight on a table, with no search bar and no destination, gives the dérive a built form. Where 2.4 supplied the mood for drifting, ludic design supplies its interactional grammar: exploration structured around curiosity rather than arrival.

A third thread names what drifting through Street View specifically runs into: its seams. Commercial interfaces chase a seamless illusion, hiding their structure behind a smooth surface. Chalmers' (2003) seamful design argues instead for exposing a system's boundaries, glitches, and stitches as material worth designing with, not errors to be smoothed over. Street View is, structurally, a seamful environment: an accidental archive stitched from frozen moments, visual misalignments, and temporal collisions. Read this way, its seams are not where the map fails. They are where it becomes a place you can stand inside.

2.7 Poetic Data

Data is held to the same utilitarian standard as the maps built from it: it exists to be accurate, actionable, useful. But a body of design research treats data as a material with emotional potential rather than merely informational value. The Drift Table (§ 2.6) is an early instance: beneath its ludic form is also a claim about data, that a landscape can be traversed for feeling rather than information. Gaver et al.'s Indoor Weather Stations (2013) extended that claim to environmental data, and Desjardins and Biggs's Data Epics (2021) turned home IoT data into serialized literary fiction. Data can evoke, not just inform.

Odom et al.'s Photobox (2012; Odom et al., 2014) is a device that prints four or five photos at random from a household's own Flickr archive, on no schedule the household controls. Deployed for fourteen months, it moved participants from frustration at the lost control to an unplanned intimacy with photos they had forgotten they owned. Photobox shows what withheld curation can do for a personal photo archive when a system is built for it on purpose.

Other work in this tradition treats the act of making data as the poetic material itself. In Lupi and Posavec's Dear Data (2016), two information designers who knew each other's work and had met only twice spent a year mailing each other hand-drawn postcards recording their own lives, trading standardized visualization for imprecision and personal notation. They became close friends through the exchange, and it is that combination, a weekly obligation to notate your own life and a specific person to send it to, that Chapter 7's postcards return to. From the Drift Table through the Indoor Weather Stations to Desjardins et al.'s Odd Interpreters (2023), which turned IoT data into poetic encounters through sound, fabric, and even food, these projects treat data as material for open-ended storytelling rather than surveillance, a stance D'Ignazio and Klein (2020) frame as elevating emotion and embodiment to legitimate knowledge rather than decoration. They let me look at Street View's cold, functional imagery as something with emotional potential, material worth making from. A pin on a map is just coordinates. But it can also be the last place you saw someone.

2.8 First-Person Methods: Autoethnography and Autobiographical Design

This thesis begins with my own encounter, my grandfather at the front door, and its most exposed experiment places my own body on the street with a mirror. Autoethnography treats the researcher's lived experience as legitimate material for inquiry, using the self as a route into cultural and systemic questions (Ellis, Adams, and Bochner, 2011). Within HCI, Neustaedter and Sengers (2012) legitimized autobiographical design, design research drawing on extensive, genuine usage by the researchers themselves.

Audrey Desjardins' body of work shows what this stance makes possible for design research specifically. In Living in a Prototype (Desjardins and Wakkary, 2016), years of converting and inhabiting a camper van became a site for understanding how design unfolds through everyday living rather than through detached observation. Desjardins and Ball (2018) then articulated the tensions of such work: the vulnerability of self-disclosure, the difficulty of knowing when one is designer or user or subject, and the question of what a sample of one can claim. Kinnee, Desjardins, and Rosner's AutoSpeculation (2023) pushes that question further, to data that implicates people beyond the researcher: nine months of a household's own recorded conversations, reworked through sound experiments into something to speculate with rather than conclude from. My material raises the same question in a different key. What I study is not only my own past; it is my grandfather's, and my family's, and the pasts my participants handed me. More recently, Desjardins and colleagues have consolidated first-person methods as a recognized family of approaches in HCI (Desjardins, Tomico, Lucero, Cecchinato, and Neustaedter, 2021), in which the researcher's own experience is not a bias to eliminate but an instrument to tune.

This tradition matters to the thesis in two ways. First, it legitimizes the work's structure: my own serendipitous encounter is not an anecdote decorating the research; it is data, and the counter-gaze performance of Chapter 6 is a first-person probe into an infrastructure that resists third-person study. You cannot interview the Street View car. Second, it supplies the honesty conditions. Desjardins and Ball's tensions run through this project, and I return to them where they surface: in the intimacy of studying my own family's places, and in the slippage between researcher and rememberer that the probes deliberately induce. Writing about my grandfather, and standing in the street with a mirror, both take something private and put it inside a document meant to be defended and read. Devendorf, Andersen, and Kelliher (2020) name that particular discomfort design memoirs: first-person practice that is subjective and corporeal, and that has to reckon with what happens when a difficult personal experience is entangled in a public, published account.

2.9 Defamiliarization: Making the Familiar Strange

Finally, I draw on Bell, Blythe, and Sengers' (2005) concept of defamiliarization in design: the idea that making the familiar strange enables critical reflection. Originally from Russian literary theory, the concept suggests that when we encounter something we know in an unexpected way, we can finally see it. In this research, defamiliarization began as an aesthetic operation: an early experiment translated familiar streetscapes into abstract collages and poetic text. I abandoned the generated text along the way; it read as inauthentic, for reasons Chapter 5 examines. Where I used the concept most thoroughly was elsewhere, and more quietly: not in transforming the image, but in changing how people approached it. The tools defamiliarize by offering different methods of exploration, unfamiliar viewpoints, and questions that reframe what a place is, so that participants encounter streets they know as if arriving for the first time.

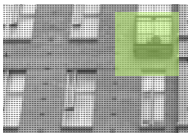
2.10 The Gap

The work reviewed above covers most of this thesis's territory, in pieces. Place theory explains that places hold personal memory, but it was written for physical places. Infrastructure studies explains how a system like Street View works; the accident literature explains how systems produce surprise and how they capture things unintentionally. Neither asks what happens when a person finds their own life in what was kept. Psychogeography offers wandering as a method, and punctum explains why a marginal detail can carry the whole emotional weight of an encounter. Hung, Liang, Ma, and Kong (2024) come closest, studying people revisiting familiar places through Google Earth VR, but two differences matter. Their frame is tourism, and in their study the revisiting itself took place inside the research session, in a headset, guided by researcher-assigned tasks. In this thesis, participants ran the tools alone, in their own time and places, and the sessions came afterward, to talk through what they had found. My tools also begin with a deliberate search, typing an address; the difference is that no one, including me, controls what the archive answers. As André et al. argue (§ 2.3), serendipity cannot be designed, only its conditions can.

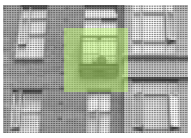
On the design side, the vocabularies reviewed here (slowness, play, seams, poetic data, defamiliarization) were all developed on materials the researchers built or chose themselves: Gaver's table, Odom's box, Desjardins's van, Kinnee's household recordings. None was developed for a material like Street View, an infrastructure that cannot be modified and already holds one's past.

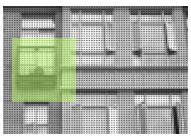
Two questions therefore remain open, and they are the questions of this thesis: what it is like to find your past kept by accident in a system built for navigation, and how design can support what a person does with that discovery.

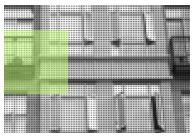


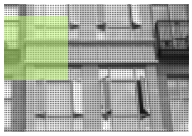


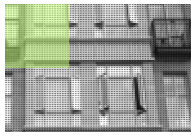
The pots on the balcony that P1 used to own when they lived there.











3

Pilot Study: Finding the Past

3.1 Method

The pilot study, conducted in Fall Quarter of 2025, unfolded in two phases. It began small: I worked with two other participants, and we called ourselves co-speculators rather than researcher and subjects. The term follows the practice of co-speculation in design research, in which non-designers join the speculative work as partners rather than informants: Wakkary et al. (2018) invited philosophers to live with a counterfactual artifact and theorize alongside it, and Desjardins et al. (2019) used bespoke booklets of situated conceptual sketches to speculate with households about their own data. In the same spirit, my co-speculators did not test a probe I had finished; they wandered the archive with me and shaped what the inquiry became. All three of us had moved between cities, or between countries; all of us had places we could not return to. Each of us ran the probe on our own pasts, capturing Street View screenshots of the places we had lived, followed by a sixty-minute audio-recorded interview. I took part fully myself, researcher and rememberer at once. This position follows the first-person tradition in design research (Neustaedter and Sengers, 2012; Desjardins, Tomico, Lucero, Cecchinato, and Neustaedter, 2021): my own encounters were treated as data of the same kind, subject to the same tensions of self-disclosure and interpretation that Desjardins and Ball (2018) describe.

The study then expanded to eight participants, each completing the same probe followed by a shorter, twenty-minute interview. Interview recordings and board annotations were analyzed through thematic analysis; the seven insights of Chapter 4 emerged from this corpus.

Methodologically, the study combined cultural probes (Gaver, Dunne, and Pacenti, 1999) with co-speculation (Desjardins et al., 2019): a hybrid that joins the researcher's autobiographical inquiry with broader participatory reflection. The probes were designed not to collect data in the extractive sense but to open conversations and surface feelings that are hard to articulate.

The Probe: Digital Excavation. Participants navigated Google Earth, Street View, and regional equivalents (Baidu Maps or Naver, depending on where they had lived) to visit places from their past, using the "See more dates" function to scroll backward in time, trying to find the specific years they inhabited a place. Working on a shared FigJam board, each curated a personal timeline of these places, annotating screenshots with the memories the images surfaced. This turned out to be a kind of digital excavation. Participants were not just looking at buildings; they were searching for alignment, trying to match the digital archive with their internal autobiographical timelines. Sometimes the years overlapped. Sometimes they didn't.

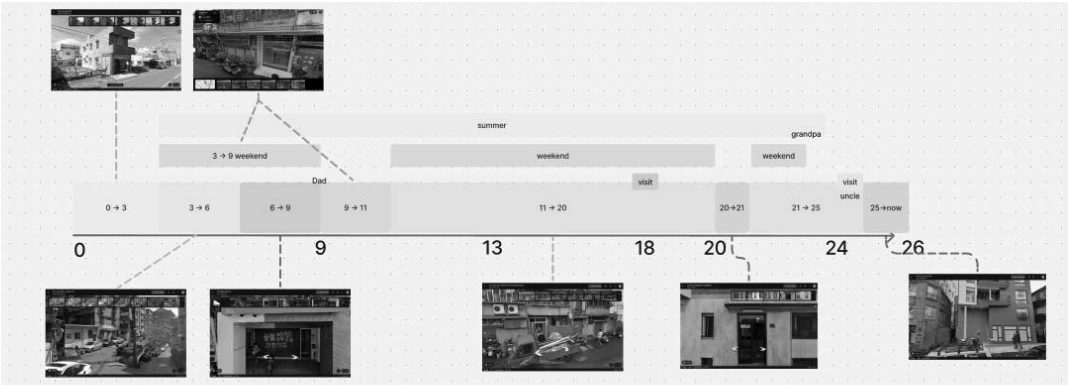


Fig. 3 — The Digital Excavation probe: participants' shared FigJam board, with screenshots and annotated timelines of the places they had lived.

3.2 What Participants Found

The findings arrived not as themes first but as artifacts: small, specific, and charged.

P1 found the pots on the balcony that they used to own when they lived there, still visible in a 2008 capture.

P2 found a street corner where nothing visible had changed, and everything had: the spot where they once stood waiting for the taxi to school.

P4 found a family celebration preserved in a front yard:

> "My sister's graduation sign from when she graduated high school! My parents were super excited and wanted to make sure the sign was on a pretty yard, so they planted flowers along the side of the driveway to make the sign look prettier.
> They refused to take the sign down until my freshman year of high school started."

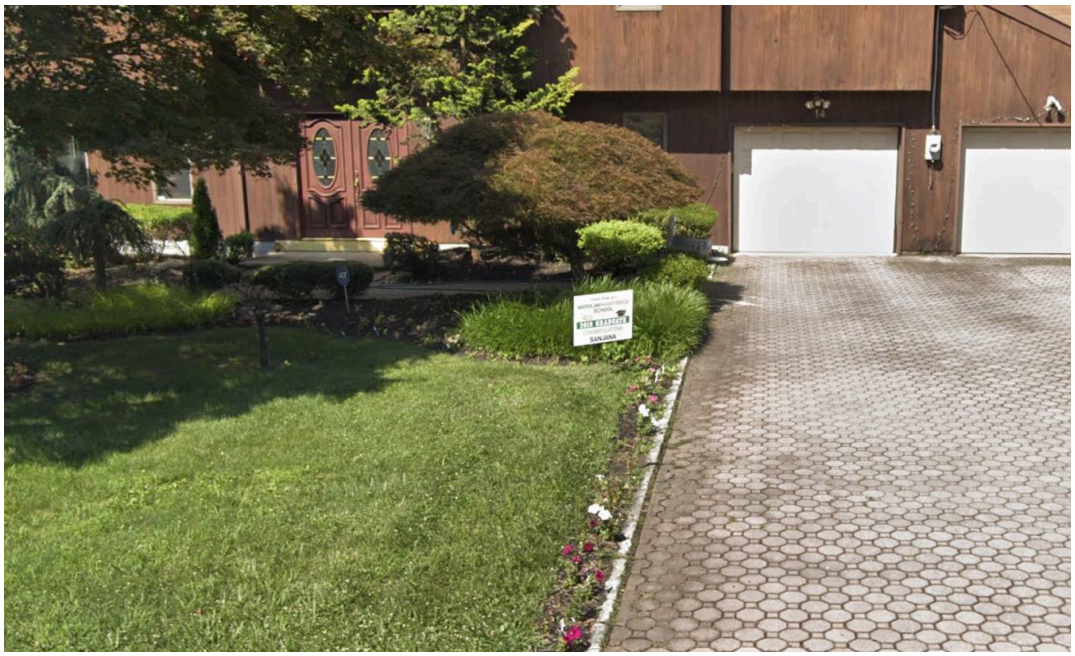


Fig. 4 — The graduation sign, preserved in a front yard the family had planted with flowers for the occasion.

P7 found their childhood home:

> "This is the house I grew up in, where my parents still live! While you can't see much of the house itself, I could spot our old car. It also brings up a lot of memories of walking and driving up and down our steep side road/driveway."

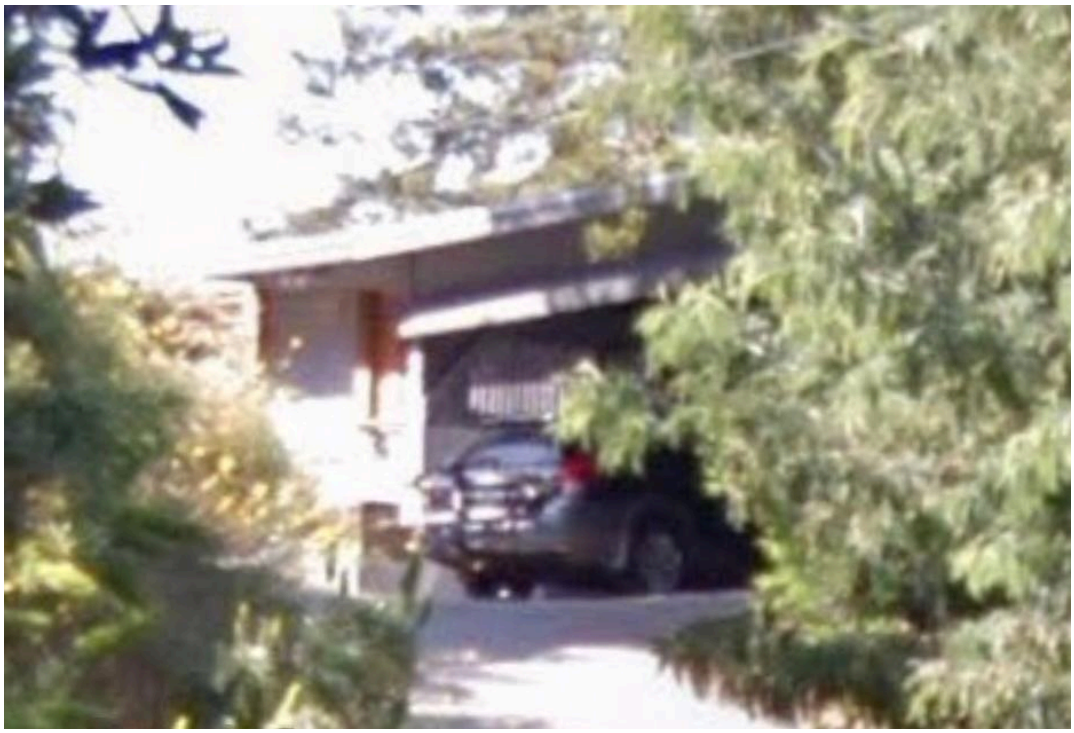
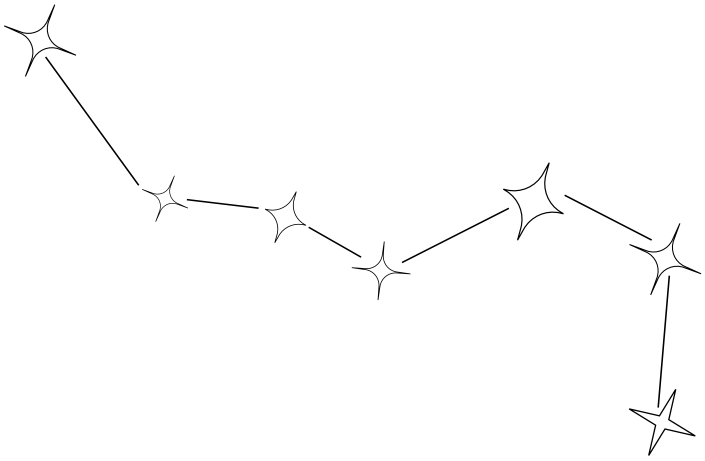


Fig. 5 — The childhood house, recognized through the old car and the steep side driveway.

What is notable across these encounters is how little visual information was required. A car, a sign, a pair of pots: peripheral objects, often blurry, sometimes barely legible, that carried the emotional payload. The image did not deliver the memory; it prompted its reconstruction.



4

Seven Insights

Analysis of the pilot study produced seven insights, which together form the empirical spine of this thesis. Read together, they describe how digital maps unintentionally create a temporal layering of the self at specific places, and what it takes for a person to reach those layers.

4.1 Big Data as an Accidental Archivist

Tech giants collect geographic data for functional navigation, yet they inadvertently capture intimate moments of people's lives. These public datasets have become accidental repositories, preserving deeply personal and emotional histories without the users', or the collectors', prior intent.

P4 found her landlord's car. In high school, after her parents left the United States, she stayed behind and lived with her landlord, who would drive her to swimming lessons in that car. Google photographed a parked vehicle; what it archived, without any way of knowing, was the person who stood in for family during the years she was on her own.

4.2 The Regret of Not Being "Remembered"

When Street View's timeline is missing specific years, specifically the ones a user lived through, it is predominantly felt as a missed opportunity. Participants express regret rather than existential loss; it is a simple, lingering wish that their presence at that specific time had been captured, and a disappointment at having been bypassed by the archive.

> "Some years I lived there simply don't exist in the data. I feel a sense of missed opportunity. But it also makes me think about my child, born into a world where perhaps every year is recorded by data. Maybe they will always be able to find the exact years they lived in…" — P1

4.3 The Geopolitics of Memory Access

The ability to remember a place is constrained by platform politics. Whether one must use Baidu, Naver, or Google determines what historical data is available. Personal memory access is shaped by geopolitical boundaries and corporate sovereignty.

The study made this constraint concrete. P4's childhood and adulthood are held by different platforms: her early years in Shanghai are reachable only through Baidu's street imagery, while her life after migrating to the United States lives in Google Maps. Remembering across her own biography means switching infrastructures at the border, and the two archives do not match in years, coverage, or depth.

4.4 The Auditing Gaze Blocks Intimacy

A poetic connection with tools requires a suspension of judgment. When users fall into a mindset of "auditing" the output, constantly checking for accuracy or flaws, the immersion breaks. Intimacy cannot exist when the user is busy evaluating the system's performance.

The switch can be thrown by a single frame. Scrolling through a former neighborhood, P1 came upon an image visibly older than its neighbors, its color and resolution out of joint with the adjacent frames, a Google watermark pressed over it. The mismatch snapped them out of the street and back into the software: in an instant they were a user assessing an interface, not a person standing in a remembered place.

4.5 Street View as a Scaffold for Memory Reconstruction

Memories aren't always found in the high-definition pixels of the street view itself. Instead, the imperfect or partial visual data acts as a scaffold, a prompt that guides the user to mentally reconstruct the missing layers of the past, projecting their lived experience onto the digital gaps.

For P4, the scaffold was a shop sign mostly hidden behind a street tree. The visible sliver was enough. She was eleven again, her father stopping the car and handing her small change to run the errand; she remembered hesitating on the way in, the walk through the grocery's door, the layout of the shelves inside. None of that is in the image. The sign held the thread, and she rebuilt the rest.

4.6 The "Click" of Perspective Alignment

The trigger for memory isn't just the pixels, but the familiarity of the angle. The Street View perspective acts like a transparent layer. Because the viewpoint aligns with how users once saw the world, they can mentally "overlay" their memories onto the screen, reconstructing a space that exists between the digital map and their own history.

> "I remember this view. I used to stand right here waiting for the taxi to school, feeling guilty about the money, but my grandpa insisted so I wouldn't be late. Seeing this exact same perspective again··· it makes me think of a song. I know it's a bit cringe, but that is exactly how I feel." — P2

4.7 Virtual Solace for the Unreachable Home

For homes that are physically unreachable or changed, digital visits serve as an emotional surrogate. This virtual homecoming offers a safe way to touch the past, evoking a complex mix of comfort and bittersweet nostalgia, or, for some, a near-home reluctance.

The case in the study was my own. As P0, I returned to my childhood home, a house I had not been back to since my father passed away. I witnessed what the house looked like at the time of his accident, and after that the place became something close to a family taboo; even when I wanted to return, I could not find a way to raise it with my mother. Street View let me return without asking. I could see the years I still lived there, the years I was gone, and the house as it stands now. The distance the screen imposed was not a loss. It was what made the visit possible at all, and it gave me the courage to look back at that part of my life, and at the person it shaped me into.

4.8 Two Insights That Carried Forward

I carried two of the seven forward into the design work. Big Data as an Accidental Archivist named the phenomenon I was chasing and framed everything I made after it. Street View as a Scaffold for Memory Reconstruction gave me the design logic: if imperfect data invites people to project their own past into its gaps, then I should protect the gaps rather than fill them. I learned the cost of ignoring that logic almost immediately, as the next chapter shows.

The other five did not become tools, but I would not have known what to build, or what to refuse, without them. They taught me the terrain. The regret of not being remembered showed me the ache runs both ways: people mourn the years the archive missed, not only treasure the ones it kept. The geopolitics of access told me whose past my tools could even reach, and kept me from mistaking Google's map for a universal one. The auditing gaze warned me what breaks the encounter, and it later explained why my AI experiments failed: anything that invites evaluation kills intimacy. Perspective alignment and virtual solace taught me what the encounter feels like from inside, the click of a familiar angle, the courage that distance can lend, and that understanding is what the tools try to protect. The five frame the phenomenon the two act on; together they are the depth of my understanding of what a serendipitous landscape is.

5

When AI Got It Wrong (Twice)

The pilot study surfaced two apparent deficits in the Street View encounter. People felt a great deal and could not always say it, and the archive was missing the years and the people they most wanted to see. Both looked like shortfalls of material: not enough language, not enough imagery. Generative AI is a machine for producing exactly those two things on demand, so at the time it seemed like the obvious response to both. I expected it to supply what was absent: words for a feeling a participant could not yet name, and an image of what a capture schedule had never recorded. I was treating the gaps as holes to be filled, and generation as the way to fill them. Both attempts failed, and the failures were more instructive than the successes I had planned.

5.1 First Attempt: AI for the Poetic Articulation Gap

Participants clearly felt things when they met their pasts in Street View, but often struggled to put those feelings into words. The first experiment responded with AI as an interpreter. Participants gave me a location and a memory theme (childhood, loss, homecoming), and a pipeline extracted Street View imagery and transformed it: stripping away color, applying high-contrast filters, fragmenting the familiar streetscape into black-and-white collages, cropping randomly between close-up details (a doorframe, a patch of pavement) and wide shots that flattened the street into abstraction, and generating poetic text in response to the place and theme. The design intent was defamiliarization (§ 2.9): by letting the system see differently, randomly, partially, without the weight of memory, participants might encounter their places.

Sometimes it worked. The abstraction created distance, and that distance made space for reflection; a cropped detail could surface something unexpected: a texture, a corner, a fragment that carried more weight than the whole. But other times the output felt intrusive, or simply flat. The randomness didn't always land. The AI didn't know what it was holding.



Fig. 6 — Emotional Landscapes, the AI interpreter: high-contrast black-and-white collages generated from a participant's former neighborhood.

One generation makes the failure concrete. For P2's former neighborhood in Queens, the system produced this text above a grid of black-and-white collages:

> "Here, where the sunlight falls upon cracked pavement and faded stoops, time is a soft, permeable membrane. The faint aroma of yesterday's curried goat lingers beside the morning's brewing coffee, and the chatter of children's games echoes alongside conversations from a decade past. Each brick on the worn facades holds the imprint of countless lives lived within, a silent testament to the endless, overlapping nows."

P2's response was conflicted. The lines were fluent, but they did not reflect their memory of the neighborhood, and reading them produced a sense of friction: of being told about a place they knew from the inside. Across the generated poems, the failure ran on four levels:

- **Generic sentiment.** The poems reached for stock imagery that would fit any street: golden light, the whisper of time, faded memories. They named emotions instead of evoking them, and participants felt described rather than seen.

- **False specificity.** The poems invented details that existed in neither the imagery nor the memory: the smell of bread, children's laughter. This was worse than being generic, because it competed with the real memory. You looked at your own street and read someone else's memory of it.

- **Wrong register.** The literary voice ran too high, when the value of these places was precisely their ordinariness. The poems dressed the everyday up, and participants could no longer recognize their own streets.

- **The authorship problem**, which I take to be the core one. Even when a line was good, a participant could not own it. These were not their words. The tool was meant to support articulation; instead it replaced it, saying in advance what participants were supposed to say themselves.

The same generation also showed why the collages were more successful. The crops say nothing, so they leave the work of meaning to the rememberer, and doing that work is how the feeling arrives. The poem says everything, so it takes the work away. Same probe, same system, opposite directions. Across participants the pattern held: once an output invited checking, the poetic connection broke, and the self-navigated excavation surfaced richer, more grounded insights than the AI-mediated probe.

5.2 Second Attempt: AI for the Presence Gap

The second deficit was absence: the years Street View skipped, the places it never drove, the moments between captures. The second experiment was a tool, Street View Edit, that let people intervene in Street View imagery through image generation: adding objects, editing what's there, pinning personal memories directly onto a place. The Street View frame would become less a document and more a canvas, somewhere between archive and diary. You might place a person who is no longer living back onto a corner they used to stand on. You might add an object that only you would recognize.

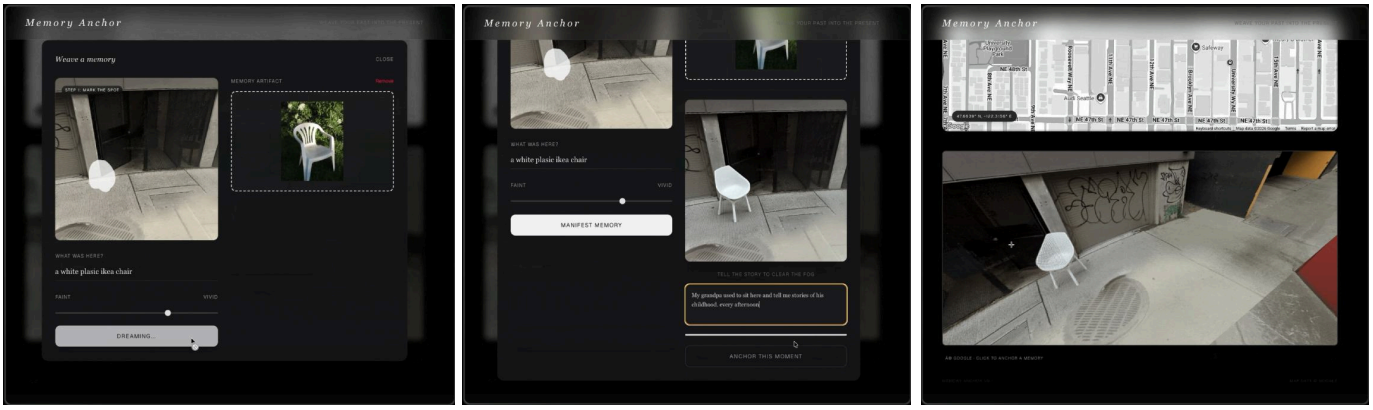


Fig. 7 — Street View Edit (Memory Anchor): marking a location and anchoring a memory, with a reference photo feeding the generation.

The tool let people upload a real photo, but the upload worked as a reference for the AI generation, not as an object the tool could place directly into the scene. Street View imagery is panoramic and shot from a fixed rig height and angle; a personal photo, taken on a phone at eye level, in different light, from a different distance, could not simply be pasted into that geometry. So the upload was fed to the model as conditioning: an instruction toward a likeness, not the likeness itself. What came out was always an interpretation, close in places and wrong in others, and never a faithful copy of the photo that went in. This was more than a rendering problem. One participant, P1, tried to place her son back onto a backyard they used to play together. The model's safety filters blocked the request: it would not generate a real child's face, however it was prompted. The system could not just use the photo a person gave it because the photo never reached the output directly, it passed through a generation pipeline that had its own limits on fidelity and its own restrictions on whose likeness it would render, and neither limit was visible to the person uploading the image.

Set the fidelity and the safety limits aside, though, and a deeper problem remains. Even a system able to reproduce the upload exactly would still be choosing how to place it: what light to put it in, what angle, what else belongs in the frame around it. That is interpretation, not retrieval, and no gain in accuracy removes it. Perfect fidelity would not undo the interpreting; it would only make it harder to see.

Building it was its own lesson. I built the prototype through vibe coding, using AI tools to move quickly from concept to working artifact, and a functional prototype emerged faster than any conventional workflow would have allowed. But the process exposed three recurring gaps in human-AI collaborative building: an articulation gap (what you want doesn't reliably translate into what you say), a translation gap (what you say doesn't reliably map onto what the AI infers), and a materialization gap (what the AI infers doesn't reliably become what it makes). Each gap compounds the last, so the finished artifact can drift several steps away from the original intent, and that drift is often invisible until you are holding the finished thing.

The most uncomfortable realization came only after the tool was complete: it might not be the right outcome for this project at all. I had been resisting, without naming it, the degree to which AI-generated imagery would mediate the memories people bring to it. If the anchor for a real memory is an image that an algorithm hallucinated, what exactly is being preserved?

5.3 People Want the Real Thing

Both prototypes broke against the same finding: people want the real thing. The clearest version of it came when the model refused P1's son. What she was after was never an image of a boy on that street; any system could have produced one. She wanted the boy who had actually stood there, and no generated figure was going to be him. A generated image of a childhood street is not a weaker version of a photograph of it. It is a different kind of object, and participants read it as tampering. The power of the accidental archive is that nobody composed it of you or for you, and that indifference is what makes finding yourself in it feel like evidence rather than presentation.

This became the pivotal design lesson of the thesis: the value of Street View as memory material is inseparable from its status as evidence, indifferent, unauthored, real. What the archive lacks cannot be repaired by addition, because filling a gap with something plausible does not return what was lost; it puts a fiction where the loss was. The design response would have to be subtractive: don't add, don't complete, don't beautify. Let people mark the record as it stands, gaps included. The house in Insight 4.7 did not need improving. It needed to be possible to look at.



6

Counter-Gaze

6.1 The Question

Chapter 5 ended in a prohibition. Don't add, don't complete, don't beautify. But a prohibition is not a design direction. It says what a designer must not do to the record; it says nothing about what a person can do while standing in front of it. And this record is not a document anyone can negotiate with. It was made by a fleet on a schedule no resident set, it cannot be edited or appealed, and it will not come back because you asked.

So the question changed shape. Before designing anything for other people, I wanted to know how much room one person actually has in front of a system like this. The system watches us constantly. Can we ever look back?

I turned the question on myself in an autoethnographic experiment (Ellis, Adams, and Bochner, 2011). The choice of method was forced by the subject: Street View exists because a camera-mounted car photographs the world on Google's schedule, not ours. It decides when a street is worth recording, and by extension, which versions of our lives get archived. An infrastructure like this resists third-person study; there is no user group to observe, no interview that reaches the car. What remained was to put my own body in front of it, accepting the exposure that first-person work entails (Desjardins and Ball, 2018). What would it mean to reverse that gaze, to make the recorder appear in its own recording?

6.2 Raising the Mirror

The experiment took the form of a performance bordering on the absurd: standing at various locations with a mirror, angling it to catch the reflection of a Google Street View car as it passes. The gesture is small and strange: a person with a mirror, waiting for a surveillance vehicle. What gets recorded when you try to record the recorder? There is something in that encounter, between the body, the street, and the apparatus of mass image collection.

I gave the performance a day. Google publishes a schedule of where its cars will be driving, and it indicated that Street View vehicles would be active in the Seattle area during those months. I chose five locations across the city and spent a full day moving between them, carrying an eighteen-by-twenty-four-inch mirror, dressed in white with a yellow overshirt: a reference to Pegman, the small yellow figure you drop onto the map to enter Street View. If the car passed, the archive would record its own reflection, held up by a person dressed as its own avatar.

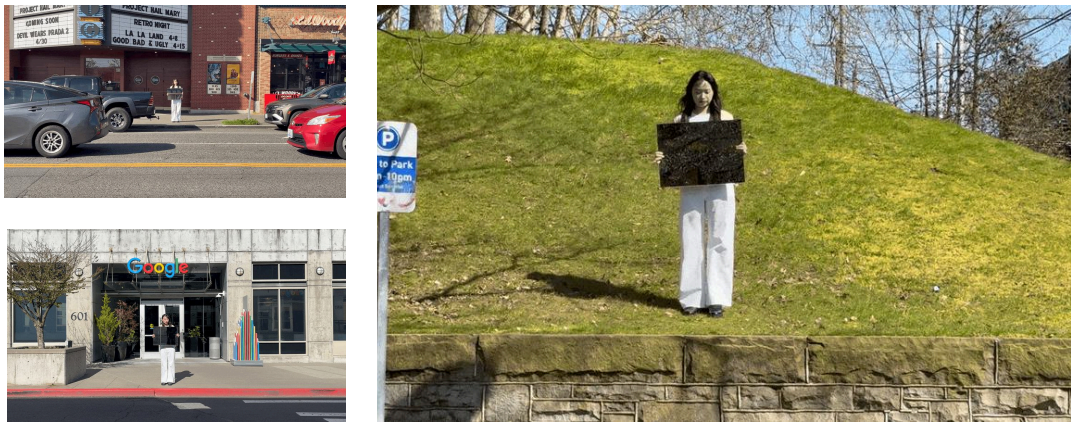


Fig. 8 — The counter-gaze performance: waiting with an 18-by-24-inch mirror at five Seattle locations.

The car never came. Part of this is the system's scale; part of it was my own. The five places I could reach in a day are a vanishingly small sample of the streets the cars cover, and "the Seattle area, sometime these months" is a schedule written for a fleet, not for a person standing on a corner. The asymmetry I set out to probe showed up first as a simple fact of logistics: the system does not have to meet you, and you cannot make it.

What the day produced instead was an audience I had not planned for. People stopped, asked, and talked. A person standing still with a large mirror turns out to be a question pedestrians want answered, and I spent much of the day explaining the car I was waiting for and why. The performance meant to confront a recording system ended up staging conversations about it, one curious passerby at a time.

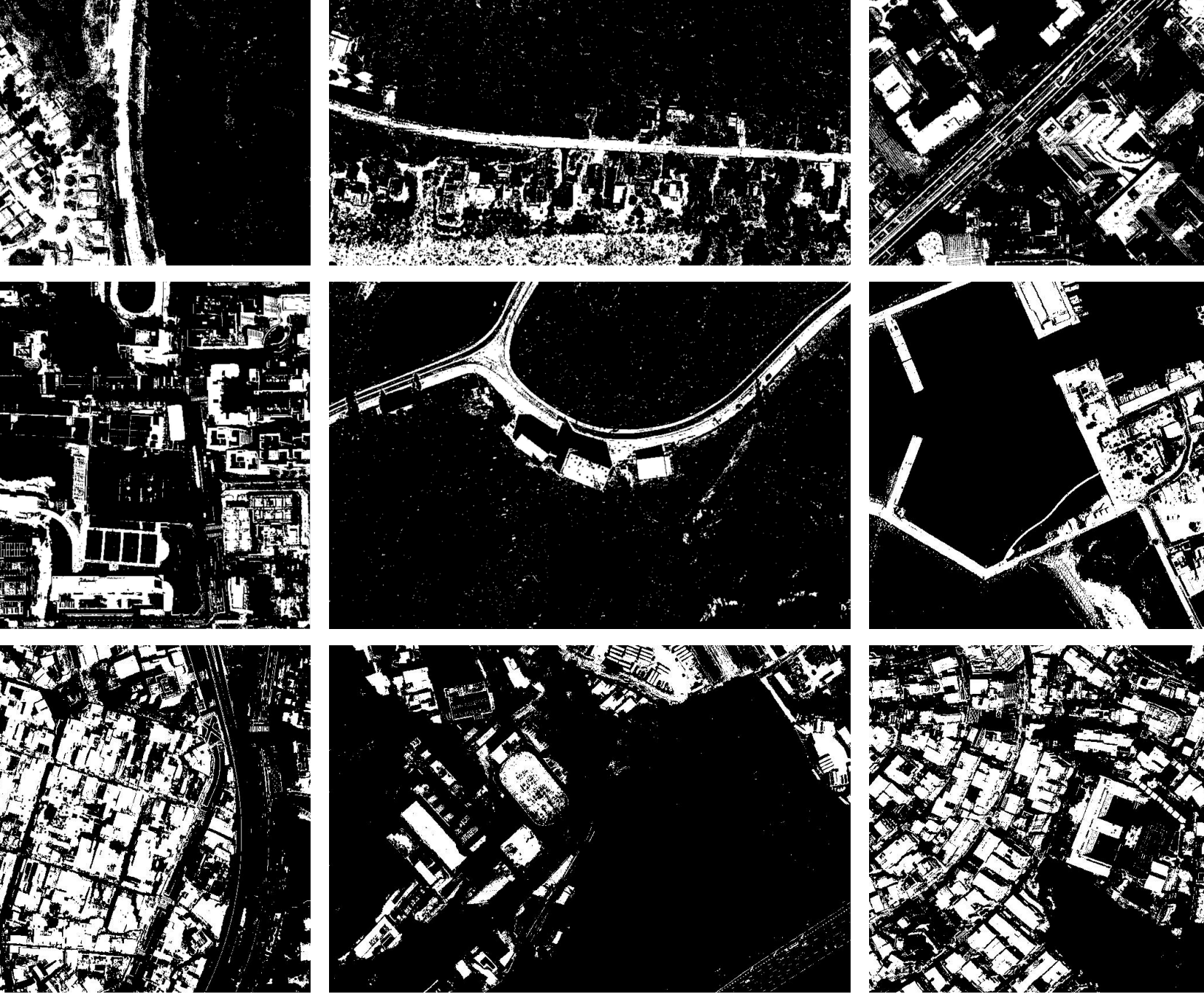
I will almost certainly never catch the car. One person against a global recording system; what does that impossible scale say on its own?

6.3 What the Mirror Showed

The system decides when and how it records me. Is raising the mirror an attempt to take back control, or just proof that I never had it?

I did not settle that question, but the day made one thing plain enough to design from: whatever room a person has here, it is not in front of the camera. The system does not have to meet you, and there is no version of standing on a corner that changes what it collects. Contesting the record is not on the table.

I knew before I started that the odds of success were low. Spending a whole day on it anyway turned something I already understood into something I felt. It makes the asymmetry felt rather than merely known. And the day produced something I had not planned. The mirror never caught a car, but it caught pedestrians, and it turned into conversations about a system none of us could reach. The system stayed indifferent; the neighborhood did not. Agency showed up beside the record rather than against it. That is the position the three tools in Chapter 7 take. None of them writes back to Google's record. What they add, a name, a boundary, an account of what actually happened, sometimes an image placed directly onto the view, lives in a layer that belongs to the person: it sits over the imagery without passing as part of it. Chapter 5 is why that distinction matters. Generated content read as tampering because it entered the record as though it had always been there, while a mark that is visibly a mark makes no such claim. The mirror is what taught me to stop aiming at the record and start working the distance between the record and the life it missed.



Postcards generated by participants using Rename It.

7

Rename It, Claim It, Counter It

7.1 Three Gaps, Three Tools

Every place holds a gap between what the system captured and what it meant. The final design work names three such gaps and builds one tool for each:

Rename It — the gap between what the system names and what you call it

Claim It — the gap between what it sorts and what you feel

Counter It — the gap between what it records and what actually happened

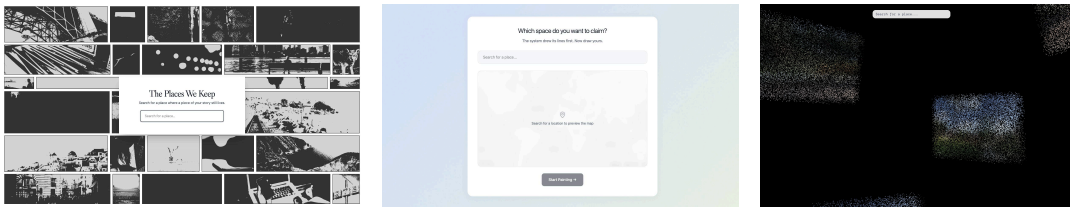


Fig. 9 — The three tools: Rename It, Claim It, and Counter It.

Each tool works by refusing the system's efficiency, not by improving on it. None fixes the gap it addresses; each holds the gap open so the person can stand inside it.

Why build anything at all? By this point the research had established what does not work. Adding to the record fails (Chapter 5), and confronting the system fails (Chapter 6). Both of those were things I made in order to find out, and a written argument would not have found it: I could not have reasoned my way to "generated memory reads as tampering" without watching a participant look at a poem about her own street and say it was not hers.

That is the first reason. The second is that the encounter at the center of this thesis is not something a person can be interviewed about in the abstract. Asked what it is like to meet your past in Street View, most people say very little. Given something to do there, and a reason to stay longer than a search would take, they say a great deal, and what they say is specific: a rock at the edge of a driveway, a room painted the wrong pink. The tools are instruments for producing that condition. They are how the phenomenon becomes observable at all.

The third reason is the one Chapter 6 handed over. If a person cannot edit the record and cannot reach the system, then whatever room they have is beside the record, in the act of putting something of their own next to it. A tool is what makes that act available to someone who is not me. Three tools rather than one, because the pilot showed the distance between the system's account and a person's runs along several axes at once: what a place is called, where it begins and ends, what happened in it. A single instrument would have collapsed those into whichever one it happened to ask about.

Participants were recruited through my own personal and professional networks, a convenience sample rather than a representative one. Most have design training, and several are graduate students in design. This cut both ways. Design-trained participants are unusually fluent in discussing artifacts, and the sessions asked for exactly that fluency: not usability judgments but accounts of what a place meant and where a tool did or did not reach it. For the same reason they are unrepresentative. They are practiced at critique, comfortable with unfinished prototypes, and inclined to read a research tool generously. Several are also people I know personally, which made the conversations unusually candid and, at the same time, makes it harder to be sure that reticence would have surfaced if it were there. Section 8.4 returns to what this means for the claims I make.

Ten participants used the tools, six women and four men, ranging in age from their twenties to their fifties. Before we met, each participant completed the three tools on their own and posted screenshots of the outputs to a shared FigJam file. I then held an individual one-hour session with each of them, walking through what they had made; the sessions were audio-recorded for analysis. Completing the tools alone, ahead of the conversation, was a deliberate choice: it kept the encounter with each place private at the moment it happened, and let the session focus on what participants wanted to say about it afterward.

7.2 Rename It

Rename It invites a participant to rename a place, overwriting the system's label with their own. The tool then walks them through a series of prompts about the place. At the end of the session it turns what they have written into a postcard, and they can fill in who to send it to.

I built that sequence because I took naming to be a private, inward act: you give a place your own name, and the name is for you. I also expected the tool to work on one relationship only, the one between a person and the map. Renaming is a small act of refusing the system's label, and I thought that was the whole of it. The postcard came afterward, and I imagined it as a keepsake, something made and kept.

To be clear about the method: participants named a recipient because the tool asked for one. That part proves nothing. The findings below are about what they did with the question: who they chose, and what naming that person set off.

Asked who the name was for, participants did not converge on one kind of person. T1 renamed her family's mountain house in California, the hilltop where she sledded as a child, and addressed the postcard to her sister; what she wrote held both directions of time at once, the winters they had shared there and the family gatherings she hoped were still to come. T2 addressed hers to a younger brother she rarely speaks to anymore. Their parents' divorce had split the household, and the siblings had drifted into silence; the postcard named a place they both carried, offered as a reminder of shared history and, she hoped, a way back toward each other. T4 addressed his to a friend who had passed away during college. And T5 addressed the postcard to herself at fifteen, to tell that girl she had grown up all right and that what she was living through would pass.



Fig. 10 — Postcards generated by participants using Rename It.

What the addressee changed was the register of the reflection. The renaming and the prompts produce a memory: what this place was, what happened here. Naming a recipient produces a relationship, and reaching one takes more work: who else was in that place, what was shared there, what has happened between them since. The recipient works as associative material rather than as a destination; naming a person is what gives the memory something to be about.

And the other person kept turning out to be a mirror. In describing what they had done with a sister, a brother, a friend, participants slid without prompting into describing who they themselves had been at the time, what they were like then, what they now made of that earlier self. The address said sister; much of the writing was about the writer. The participant who wrote to herself at fifteen only made explicit what the others were already doing: every postcard was, at some angle, addressed to a past self, and the named recipient was the surface off which that self came into view.

T4 went past what was asked of him altogether, tracing the routes he and his friend used to walk rather than marking a single point, and annotating remembered conversations onto them. And the postcard stopped being the object I had built. I made something to keep; participants treated it as something to send. The place became the address at which a sister, an estranged brother, a dead friend, and a fifteen-year-old self could still be reached.

7.3 Claim It

Claim It asks participants to paint over the map, claiming the territories of their own life with loose, blurred brushstrokes rather than the system's crisp administrative boundaries.

I gave everyone the same tool, but each person invented their own logic for dividing space. Some carved it up by life stage, others by emotion; some traced streets precisely, others swept out loose, approximate zones. How they painted was itself a claim: not just claiming a place, but claiming the very way they make sense of it.

The blurred brush mattered. Blurred brushstrokes let people hold a feeling without forcing it into a clean boundary; the looseness is what made honest expression possible.

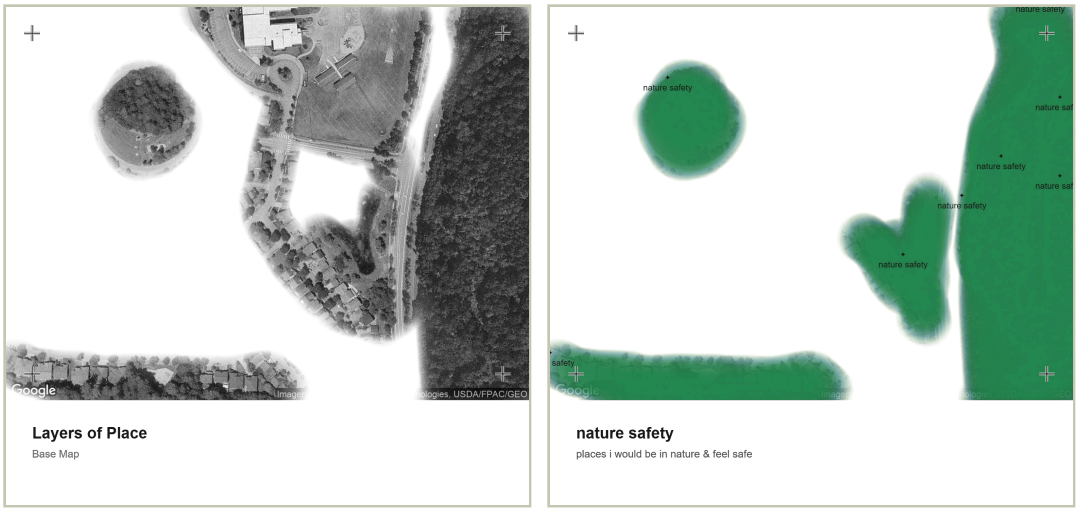


Fig. 11 — Maps painted with Claim It: personal territories drawn in loose, blurred zones over the official map.

T2 divided her neighborhood into three colors, each keyed to a different register of her life. Yellow covered the elementary school where her language changed: she arrived speaking only Russian, and it was there that English became the language she now thinks in. Green covered the woods, a single zone that held three different selves: the child walking with her grandmother, the high schooler sneaking cigarettes, the adult who returns there now to meditate. Red marked her bedroom, the only space in a shared house she could fully control. The walls of the room are still baby pink; on the map she painted it burgundy, the color she felt the room had grown into even if the paint had not.

T3 layered her California years chronologically, and the most striking layer was the one she left almost empty. She had lived in the neighborhood for over five years, but a long stretch of that time coincided with a period of poor mental health, and she found she could not recall the spatial details of those years at all: she had been there without sensing where she was. The blank layer was not a failure of the tool. It was the most accurate thing she drew.

T1 gave the Golden Gate Bridge a layer of its own, separate from home, nature, and friends. The bridge was not a place she inhabited but a threshold she crossed, at every stage of her life, beginning before memory: her parents drove across it while her mother was in labor with her.

T10 marked the place on her campus where she was sexually harassed, and gave it a color of its own: black. She did not leave it off the map. What happened there shaped her engagement with feminism, and it also showed her how many people around her would stand with her and protect her. The memory is not a good one, and she claimed the place anyway, because those years do not divide into the parts worth keeping and the parts to omit.

Her map holds a question I did not know I was asking. When we design containers for personal memory, do we make room for a person to be vulnerable in them? Most such containers quietly assume the material will be worth keeping: photo apps surface "memories" as highlights, and the celebratory framing decides in advance what kind of past a person is allowed to have. T10's black zone is what it looks like when a tool declines to decide. Claim It never asked whether a memory was good, and the looseness that let T2 paint a room burgundy is the same looseness that let T10 mark a harm without having to caption it, explain it, or resolve it. A person is not only their gladdest places, and a container for memory that admits grief, hurt, and the unresolved is adapting to the many-sidedness people already have. That is a demand worth carrying beyond this thesis: not tools that keep the past presentable, but tools where the whole of it can stand.

The zones participants drew rarely matched any boundary the platform knows. School districts, ZIP codes, and neighborhood polygons played no part; the units were a language, a stretch of woods, a room, a bridge. Each map was a taxonomy of a life, drawn in a projection Google does not offer.

7.4 Counter It

Counter It confronts participants with what the system got wrong (blurred faces, missing years, smoothed-out people) and lets them write a counter-claim: a record of what actually happened, set against what was recorded. The session ends with a letter. The tool collects the participant's marked regions and notes into a "Notice of Modification" addressed to the Google Street View administration: each annotation becomes a numbered request (MOD/01, MOD/02) with a reference image and an explanation attached, and the letter closes over the participant's name. One participant marked an intersection in Taichung where the McDonald's of their memory no longer stands in the current imagery, attached a photo of the storefront at night, and wrote the request plainly: here used to be a McDonald's where people can take a rest and hang out; it should be kept.



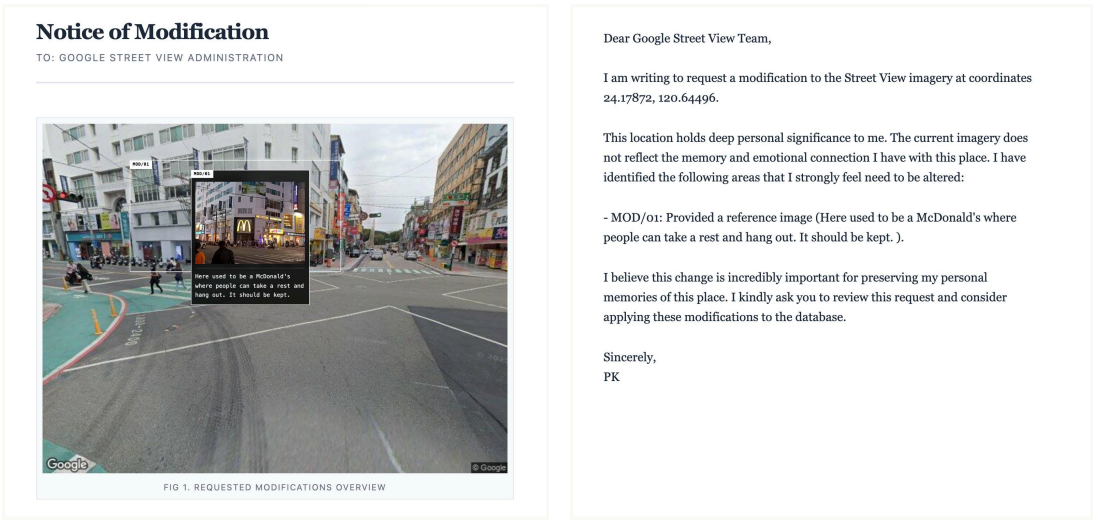


Fig. 12 — Notice of Modification: the marked panorama (MOD/01) and the generated letter to the Google Street View administration.

The letter will not change the imagery, and that is not what it is for. Google offers forms for reporting privacy problems and mapping errors; it has no channel for "this mattered to me and you replaced it." The notice borrows the system's own administrative language, coordinates, numbered modifications, a formal request for review, to file the kind of claim that language was never built to carry. It is the counter-gaze of Chapter 6 in tool form: one person addressing a planetary system that will not answer, except that this time the gesture produces a document, and the claim has an addressee, a location, and a name attached. The record stays Google's; the objection is now on file as the participant's.

I expected that to frustrate participants. Instead, those very gaps became the opening: the renewed market, the missing rock. What the system left out was exactly where they entered. Countering wasn't correction. It was restoration.

The renewed market belonged to T5. The night market of her childhood had been torn down and redeveloped, and when she ran the probe on her own before our session, she never discovered that the timeline reached back before the demolition. We found it together: revisiting the map during the interview, we scrolled to the earliest available frame, and the market was still there. What she noticed first was the scale. Things that looked low and unremarkable in the panorama had been towering to her childhood height; the camera's viewpoint and her remembered viewpoint refused to line up. But the tiles were the same tiles, and the stalls at the market's entrance stood exactly where her memory had kept them. The recognition ran on those details, not on the geometry. Her counter-claim recorded what the redevelopment had erased and what the earliest frame, which nobody had reason to look at but her, had accidentally kept.

The missing rock belonged to T3. When she was six or seven, moving out of a rental home, she asked to bring one thing with her: a rock she had played elaborate imaginary games around, the only possession she specifically requested. Years later, when her parents built a new house on the site of the old blue one, the construction workers broke the rock despite her explicit instructions. The physical rock is gone. But the time machine still shows the old house, and in the historical imagery the rock is visible, sitting where it always sat. Her counter-claim did not dispute what the system recorded. It restored what the record could not know: that this gray shape at the edge of the frame was the one thing a child had asked to keep.

Two details in these cases matter for the design argument. First, in both, the meaningful frame was one the platform preserves but never surfaces: the earliest capture, the outdated imagery scheduled to be replaced. The tool's role was simply to give people a reason to go looking. Second, the discovery in T5's case happened during the session, together. Serendipity is not only a private event; it can be staged, witnessed, and shared, and the shared finding seemed to carry more weight, not less.

7.5 What the Three Tools Share

Four findings cut across the tools. First, the tools are intentionally slow, manual, a little effortful, and that friction isn't poor usability; it's where the feeling lives. The slowness of painting a zone or writing a counter-claim is what lets the emotion arrive at all. Second, each tool refuses to resolve the gap between the system's version and the person's; it holds both open, side by side, and lets the person sit in the tension. Third, the tools flip a role: Street View positions you as a viewer of an authored world, and these tools make you the cartographer of your own version, drawing over the official one. Fourth, the tools are defamiliarization devices, but of a particular kind: they leave the imagery untouched and instead make the act of looking strange. Each replaces the map's default mode of approach with an unfamiliar method, viewpoint, or question (What would you call this place? Where does your territory end? What happened here that the record missed?), so that a street someone knows by heart can be encountered as if arriving for the first time.

TABLE 1: HOW EACH CROSS-CUTTING FINDING APPEARS IN EACH TOOL

	Rename It	Claim It	Counter It
The gap it opens	What the system names vs. what you call it	What it sorts vs. what you feel	What it records vs. what actually happened
Friction as method	Answering prompts about a place, then writing a postcard by hand	Painting zones stroke by stroke instead of selecting a boundary	Marking regions and composing a formal notice
Both versions held open	The official label stays; the new name sits over it	Administrative boundaries stay; personal zones overlay them	Google's frame stays; the counter-claim sits beside it
Viewer becomes cartographer	You name the place	You draw its borders	You state its history
What is made strange	The question of what a place is called	The question of where your territory ends	The question of what the record missed
The artifact it produces	A postcard addressed to someone	A hand-painted map of a life	A Notice of Modification to Google









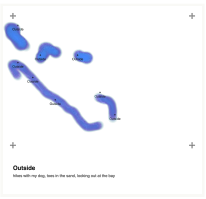
















8

Contributions and Learnings

This thesis makes three contributions. The first is conceptual: it names a phenomenon and shows what changes once that phenomenon has a name. The second is positional: it locates where a person's agency actually sits in relation to a record they cannot edit, and what follows for anything designed to be placed there. The third is formal: it identifies the material qualities under which this kind of encounter is able to happen at all.

8.1 Naming the Serendipitous Landscape

I name the serendipitous landscape: the experience of wandering back into a digital space and unexpectedly meeting your past self.

The pilot study of Chapter 3 was organized around the accidental archive, what a system preserves unintentionally, and Insight 4.1 named it. By the end of the design work that concept had proved too narrow. The fuller idea is the serendipitous landscape: you don't need an accident to wander back and feel something. Sometimes you just need a way in. Accidental preservation is one door; my tools build others. The contribution is shifting focus from the record to the encounter.

The concept also names a specific kind of temporal collision. Google Street View freezes a place at one moment and serves it to you at another. A serendipitous landscape is what opens in that gap, where the self who lived there and the self looking now occupy the same coordinate but not the same time. I name and study that collision.

Naming it has consequences for two framings this thesis inherits.

Personal data as terrain rather than as asset. HCI often frames personal data as something to manage, protect, or visualize. I offer a different frame: data as terrain you inhabit. A serendipitous landscape reframes the question from "what does the system know about me" to "what of me can I find in what it kept."

Getting to that second question means being precise about what kind of data this is, because Street View does not behave like the data HCI usually means by the word personal. Location traces from a phone, utterances captured by a smart speaker, steps counted by a watch: these are records of a specific person, generated by that person's use of a device, held in an account that belongs to them, and governed by consent they gave, however nominally. Street View is none of that. Nobody signed up. The imagery is public by default, the copyright is Google's, and it was collected from a road, a place where anyone may legally photograph. A person appearing in a frame is incidental to it, which is why the standing remedy is not deletion but a blur over the face.

The result is a category the existing frameworks do not have a slot for. A participant may own or rent the house in the picture and still have no claim on the picture. She cannot delete it, and it was never hers to consent to. And yet what that frame holds for her, a grandfather by a door, a rock at the edge of the driveway, a shopfront that closed years ago, is as private as anything she owns. Two people can look at the identical public image and one of them is looking at her own life. Nothing in the data marks the difference. Nothing in the data could.

That is what treating data as terrain means. The significance is not a property of the record, held inside it and extractable by whoever has access. It is produced in the meeting between the record and the one person able to read it that way. Ownership is the wrong question for material like this, because the thing that matters was never in the file. It arrives when someone walks back in.

Infrastructure read against its purpose. Street View is infrastructure, built for routing, indexing, advertising. My contribution is showing it can be read against its purpose, as a memory medium it was never designed to be. The serendipitous landscape is a method of misreading the infrastructure until it gives back something personal.

An archive is curated and intentional. What Street View leaves is closer to a ruin: something abandoned, weathered, never meant to be a monument, that we wander through and assign meaning to. The serendipitous landscape reframes accidental digital traces as ruins, and the user as the one who decides what they commemorate. This matters because the ruin's indifference is not a defect to be corrected. Nobody composed these frames of you or for you, and that is exactly why finding yourself in them reads as evidence rather than as presentation. The design implication runs the opposite way from most memory technology: the value is in what the system never intended, so the work is to give people a reason to go looking, not to build them a better monument.

8.2 From Viewer to Cartographer

The second contribution concerns a narrower situation: design that works with material about a person's own past, held in a record they did not make and cannot edit. Within that situation I would state the principle this way. Content about someone's past must carry a visible author. A person may add anything they like, as long as it is legible as theirs.

The principle came out of failure. The generated poems of Chapter 5 finished the sentence a participant was supposed to write, and no matter how fluent a line was, it was not hers to own. The photo upload passed through a generation pipeline and came back as the system's interpretation of her son rather than her son. The generated imagery of the second prototype read as tampering. In each case the problem was not that something had been added. It was that the addition had no author and entered as though it belonged to the record.

This restates, more precisely, the prohibitions I arrived at in Chapter 5. Don't complete: completion is the machine exercising authorship on a person's behalf. Don't beautify: beautification substitutes the system's taste for the person's account. What the prohibitions were protecting was never the archive's purity. It was the person's position as the author of their own past.

Chapter 6 supplied the position itself. The mirror never caught the car, and it established that a person has no leverage in front of the recording apparatus. Agency here is not opposite the record; it is beside it. Street View positions you as a viewer of an authored world. My tools flip the role: you become the cartographer of your own version, drawing over the official one. The design contribution is this role reversal: turning a consumer of the map into an author and curator against it. The reversal depends on the mark staying visibly a mark. Counter It lets a person place an image directly onto the panorama, and that is not a violation of the principle but an instance of it: the image is plainly something a person put there, in a layer that is theirs, over the imagery without passing as part of it. The test is not whether anything was added. It is whether a viewer can tell who added it.

The mechanism of the reversal is defamiliarization carried into method. After abandoning AI-generated imagery and text, I stopped trying to make the image strange and instead made the act of looking strange: the tools hand people unfamiliar ways of exploring, unfamiliar viewpoints, and questions the map never asks. Authorship begins at the moment the familiar street stops being self-evident.

8.3 Imprecision, Friction, and Room to Respond

The third contribution is about form. Two properties turned out to determine whether these encounters could happen at all, and both of them look like defects by conventional measures.

Imprecision. Most tools chase precision. I show that for emotional material, imprecision is a feature, not a limitation. Blurred brushstrokes let people hold a feeling without forcing it into a clean boundary; the looseness is what made honest expression possible. This challenges the default assumption that better data capture means sharper data capture. The same property operates on the imagery itself. Low-resolution and outdated frames worked as scaffolds for memory rather than as substitutes for it, and T3's nearly empty layer, drawn over years she could not spatially recall, was the most accurate thing she made. A sharper tool would have required her to claim a precision she did not have.

The claim that imprecision can be productive is not new, and this work inherits it. Gaver, Beaver, and Benford (2003) argued that ambiguity is a resource rather than a flaw, because uncertainty obliges a person to interpret a system and, in interpreting it, to make it their own. Boehner, DePaula, Dourish, and Sengers (2005) made the corresponding argument for feeling in particular: affect is not a discrete state that a system can capture without loss, and treating it as information reproduces the very model it claims to leave behind. Claim It's blurred brush is a direct descendant of that position, and the pilot study's finding that imperfect imagery scaffolds memory rather than replacing it is a version of the same mechanism.

What differs here is where the imprecision comes from. In that body of work, ambiguity is designed in: the artifact is deliberately built to withhold, to under-specify, to resist a settled reading. In this thesis, most of it is inherited. Street View's low-resolution frames, its skipped years, its blurred faces, are not moves made in the service of interpretation. They are the residue of a capture schedule and a privacy policy, made by a company with no interest in anyone's past. The contribution is to show that found imprecision does the same work as designed ambiguity, which matters because found imprecision is far more abundant. Every large system leaks it. What it lacks is a reason for anyone to treat it as an opening rather than as a defect, and that reason is what a tool can supply.

Friction. The contribution is a design orientation I would call room to respond. Each tool refuses to resolve the gap between the system's version and the person's; it holds both open, side by side, and lets the person sit in the tension. Good design here isn't smoothing the friction. It's keeping the friction available to feel. The tools are slow, manual, and a little effortful on purpose, and participants' accounts arrived during that effort rather than in spite of it. Sengers and Gaver (2006) give the evaluative counterpart to this: they argue for abandoning the assumption that a single authoritative interpretation of a system is necessary or desirable. Refusing to resolve the gap is that argument applied to a person's own past, where the two readings held open are not two users' interpretations of an artifact but the system's account of a place and the account of the person who lived there.

Friction here is seamful in Chalmers and MacColl's (2003) sense. Seamful design treats a system's imperfections, its coverage gaps and infrastructural edges, as things to expose and make available for appropriation rather than to hide behind a seamless surface. Counter It is a seamful tool in exactly that sense: the blurred face, the missing year, and the frame that is a decade out of date are surfaced as the places where a person is invited to work. The difference from the tradition's usual examples is the register. Seams in ubiquitous computing are typically technical resources, and the appropriation they enable is practical. Here the seam is the interval between a capture schedule and a life, and what it makes available is not a workaround but an account. This extends the slow and seamful traditions of Chapter 2 into a domain neither has addressed: not a designed artifact built to be dwelt with, but a working piece of global infrastructure, approached sideways by a person it was never built to serve.

When the goal is feeling rather than information, slowness and imprecision do more than completion, and designing for return rather than retrieval is the implication others can carry forward.

8.4 Limitations and Future Work

Who took part, and who wrote this. The studies are small: eight participants in the pilot, ten in the tool sessions, recruited through my own networks and weighted toward people with design training. They were fluent in exactly the way the sessions needed, and unrepresentative in exactly the same way. The deeper version of this limitation is the first-person one. I am P0; the deepest case in Chapter 4 is mine. First-person methods are what made this work possible, and Chapter 2 discusses the tensions they carry (Desjardins and Ball, 2018), but the cost should be stated plainly: I cannot know whether someone with no stake in this research would meet Street View the way I did.

Whose past the tools can reach. Everything here assumes a life that the fleet happened to drive past. Participants' pasts in Shanghai already required switching to Baidu's coverage; a past in a remote mountain village, a settlement deep in a forest, or a community that barely uses the internet at all leaves nothing for these tools to work with. There, the serendipitous landscape does not exist, not because those places hold less memory but because no camera was ever sent. The concept inherits the coverage map of the corporation that built the infrastructure, and with it the corporation's judgment, made on commercial grounds, of which places are worth recording. A study of what digital return means for people whose places were never captured would be a different thesis, and a needed one.

Staged encounters, single sessions. The serendipity that opened this thesis was unplanned; the encounters I studied were arranged. Participants were invited, given tools, and asked to type an address, and Chapter 2 argues why this is still worth doing: the tools open a door without deciding what is behind it. But a one-hour session cannot show what these tools would be after years in someone's life, picked up and forgotten and picked up again, which is how the encounter this thesis cares about actually arrives. Nor do I know what the sessions left behind: how T3 thinks about her blank layer now, whether T2's postcard was ever sent. Long-term deployment, in the tradition of Photobox's field studies, is the obvious next step.

A borrowed foundation. All three tools stand on infrastructure the research does not control. Google can redesign Street View, retire the historical imagery, or close the access the tools depend on, at any time and without notice. This is a practical fragility, but it is also the thesis's own argument returned as a limitation: these memories live inside a corporate schedule, and so does any tool built to reach them. The Notice of Modification received no reply. The power relationship between one person and the platform that holds their past is a question this work opens and cannot settle.

Future work. Three directions follow. First, other terrains: Street View is one instance of an accidental archive, and photo libraries, chat histories, and game saves each hold pasts nobody meant to keep; whether the serendipitous landscape transfers to systems without geography is an open question. Second, the long-term deployment above. Third, shared serendipity. T5's market was found during the session, together, and the shared finding seemed to carry more weight, not less; every postcard in Rename It pointed at another person. Tools designed for two people to walk back into a place together, a pair of sisters, a parent and child, are where several of these cases were already pointing.

8.5 Coda

This work was exhibited at the 2026 UW MFA + MDes Thesis Exhibition, Henry Art Gallery, May 16 – June 14, 2026.







Every place holds a gap between what the system captured and what it meant. The tools of this thesis do not close that gap. They keep it open long enough for someone to step through, to wander back into a landscape that was never built for them and find, unexpectedly, that they are already in it.

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Aug 21st 2026 in Seattle

University of Washington Graduate School

Committee Signature Form for Master's Degree

Per Policy 4.2, there must be a committee for all master's students (NOTE: the policy does not require a unique committee for each student). The department must keep records showing that the committee (or the committee's designee) has confirmed that the student has completed all requirements for awarding the master's degree. This form is optional for departmental use to fulfill that requirement. This form is not submitted to the Graduate School, but kept on file in the student's department.

Qtr/Yr	**Summer 2026**	Date Printed	**7/6/2026**
Full Name	**Li-Yuan Chiou (Legal Name: Li-Yuan Chiou)**	Student Number	**2478897**
Department	**ART, ART HISTORY, AND DESIGN**		
Degree	**MASTER OF DESIGN (INTERACTION DESIGN)**		**Thesis Program**

☒ APPROVED FOR GRADUATION

We, the undersigned recommend that this student be granted this degree (contingent on satisfying any remaining requirements listed below).

☐ NOT APPROVED FOR GRADUATION

The Master's Committee reports that the candidate has failed to pass a satisfactory examination and is not recommended for graduation.

Master's Committee (or designee)	*Please print names*	*Signatures*
(Chairperson)	Audrey Desjardins	
	KAREN CHENG	Karen Cheng 8/20/26

Date July 8, 2026

Minority Dissent

As committee member(s), I(we) wish to dissent from the committee recommendation that the Master's degree be conferred.

Graduate School Contingencies:

None

Comments:

Departmental Contingencies: (Student's department, list any unfinished departmental requirements.)

No departmental contingencies

UW Graduate School

Master's Supervisory Committee Approval Form

Student Instructions

1. Complete the student information section ***and*** sign the student agreement.
2. Obtain your committee members' signatures.
3. Scan your form (PDF) when it is completed and signed.
4. Upload the PDF to the Administrative Documents section of the UW ETD Administrator Site.
   Deadline: 11:59 p.m. PST on the last day of the quarter.

Note: If your form is incomplete (missing information and/or signatures) or if GEMS receives it after the deadline, you will be required to register the following quarter or pay the $250 Graduate Registration Waiver Fee.
https://grad.uw.edu/policies-procedures/general-graduate-student-policies/graduate-registration-waiver-fee/
Exception: if you have received approval but are unable to collect physical signatures, see Page 2 for instructions.

Student Information

Name: LI-YUAN CHIOU Student ID #: 2478897

Graduation (Quarter/Year): SUMMER 2026 UW Email Account: LYCHIOU@UW.EDU

Name of Degree: M. DESIGN Program: _____

Student Agreement

I certify that I have presented my master's supervisory committee with the final copy of my master's thesis for examination and approval.

Signature of Student: Li-Yuan Chiou Date: 8/20/26

Print name to certify (if unable to sign): _____

Master's Supervisory Committee Agreement

I certify that I have examined the final copy of the above student's master's thesis and have found that it is complete and satisfactory in all respects, and that any and all revisions required by the final examining committee have been made.

Signature of Committee Chair: _____ Date: July 8 2026

Print name below signature line: Audrey Desjardins

Signature of Committee Co-Chair (if applicable): _____ Date: _____

Print name below signature line:

Signature of Committee Member: _____ Date: AUG 20, 2026

Print name below signature line:

Signature of Committee Member: _____ Date: _____

Print name below signature line:

Signature of Committee Member: _____ Date: _____

Print name below signature line:

Questions: Please contact Graduate Enrollment Management Services (GEMS) at uwgrad@uw.edu or 206 685 2630.