

# Autobiographical Design:

## A Method for Investigating Lifetime-scale Design Challenges

In this paper, we express our shared interest in consideration of long-term design impacts for human-computer interaction (HCI). We also present autobiographical design as a particularly useful method for design processes meant to be relevant over longer time frames. We conclude by sharing our three case studies of designing for longer term and indeterminate interactions using autobiographical design.

### Long Term Design Thinking is in the Interest of Future Stakeholders

Formalized product design emerged to facilitate large-scale corporate entities developing products for individuals after the onset of the industrial revolution [4]. In contrast, the human portfolio of social technologies has evolved since pre-history, developed through exploration and testing by individuals, partnerships, and small family and tribal groups. Many of these innovations—nuclear families, formalized romantic partnerships, small talk, celebratory social feasts, etc.—have persisted and evolved for thousands of years.

As designers, like human societies of the past, we have an obligation to leave future generations richer in information technologies, a higher quality of life and more diverse options for action than our current generation began with.

Over the long history of humans living with this duty, curious individuals and small groups have developed artifacts, tools, spaces, and technologies, such as storytelling, bequeathing artifacts, or the inheritance of a family home, to enable the enrichment of their children. In recent decades, researchers have explored these behaviors and emergent tools and technologies with respect to HCI [3,6]. Within HCI research, first-person research methods often exist on the scale of an individual or family-unit and offer longer term engagements than those commonly used in other design research methods, for example in user testing, field deployments, and participant observation.

### Autobiographical Design Methods for Long Term Design Processes

We propose that autobiographical design offers an opportunity to bring the scale of design and design research back to the individual. Thus, enabling the application of pre-existing social technologies to research drawing on “extensive, genuine usage by those creating or building the system” [5:514].

Using autobiographical design, the designer lives with the systems he/she designs over long, sometimes indeterminate, periods of time. During the process, the designer observes and iterates upon the design, refining, adjusting and evolving the system to fit her needs. In this way, she generates an

By Aubree Ball, Audrey Desjardins, and Dominic Muren

School of Art + Art History + Design  
University of Washington  
Seattle, U.S.A.

aubreeb@uw.edu  
adesjard@uw.edu  
dmuren@uw.edu

intimate understanding of the user’s needs and the real constraints of designing and building the system.

Examining cases of long-term (multiple years in our cases) and evolving design processes can help us better understand how people adapt systems to their unique needs and living patterns. Thus, forming a better understanding of how to design time-resilient, enduring systems. While it is not the only method we can envision for long term design challenges, it can be a useful tool for exploring questions which are highly nuanced and personal, such as wearable devices, personal tracking, or technologies for domestic settings, to name a few.

### Three Cases of Autobiographical Design

We briefly introduce our three individual cases of using autobiographical design research methods. The first author, Ball, is in the process of concluding her master’s thesis in design and is conducting design research on herself and her family by building tangible internet-of-things (IoT) systems to support ludic communication inside their home. During the project, the family lives with three ludic systems, each informed and inspired by the previous. They range from (1) a set of four small portable projectors to synchronously



Fig 1. The first author's partner and children engaged in an ideation activity



Fig 2. Interior of the van conversion project



Fig 3. The vintage suitcase housing ready to be augmented with a custom-trained book suggester

share YouTube videos among family members, (2) modifying a legacy intercom system, which was installed in the house in 1974, into a Voice Over Internet Protocol (VOIP) system, and (3) a system of illuminated wall interfaces to share tactile interactions from one shower to another asynchronously. The process of designing non-productive, unexpected, and delightful computing systems has created a new way of engaging in co-speculation with her children (figure 1). The design process itself has opened conversations around interactions (social, political, physical) they want to see in their environments. Thus, creating a new method of knowledge and value transfer from one generation to the next within her family.

The second author, Desjardins articulates new concepts around the making of smart homes and domestic IoT systems to be used over long periods of time and to evolve with its inhabitants. For the last five years, her partner and her have been designing, building, and living intermittently in a camper van [1] (figure 2). Part of the findings from this autobiographical design inquiry include, firstly, that cycles and pauses are crucial to an effective and personal process of design and building of our home. Specifically, time to experience materialized design decisions, time to let new ideas rise, and pauses to let us experience the van during seasons of traveling were central to designing appropriate elements for today and future days. This echoes findings articulated by Friedman and Yoo [2] around pauses in research projects. Secondly, this slow design process has allowed us to respect our skill level in craftsmanship: we designed based on the tools and materials that were accessible to us. Designing at the level of accessible skills and tools is a way to design for enduring time and for resiliency, supporting future repair or redesign in the van.

Lastly, Muren, the third author, is in the early process of creating an Artificial Intelligence (AI) artifact that seeks to enhance the perceived value of its embodied intelligence by making it one-of-a-kind (with no back-up or cloud-hosting) and enabling precisely user-directed training. The intent is to create a device which has some of the real value of human intellect. It is precious because it is unique, and quirky specialized. The device is a beautifully adorned vintage suitcase computer hosting a Neural network classifier trained on hundreds of images of covers and interior illustrations of the author's collection of 1960s-1980s Appropriate Technology books (figure 3). It is capable of field training via digital images captured with an onboard camera. Additionally, it can indicate items in its vicinity via an onboard projector. The device will be tested by using it as a suggestion engine while in bookstores. Currently, it is being "trained".

In these three projects we have explored designing unique systems to support ludic communication between family members, designing and building a recreational home with a partner, and training a bespoke artificial intelligence device for personal use. We found that autobiographical design can be used to explore speculative futures, to engage in long-term and indeterminate processes, and to explore HCI at the scale of historic human social technologies.

### **Questions to Explore in the Workshop**

To expand our thinking beyond the three cases above, we hope to engage in discussions around the following questions during the workshop in May.

How can autobiographical design become multigenerational? For example, when designing for challenges beyond the length of a career (or lifetime), how can an autobiographical design practice be passed

down to its next generation of designer(s)? To family members? To students? To colleagues?

How is knowledge transferred from the autobiographical designer? How would formats such as tutorials, diary entries, or synthesized analysis be used?

What topics or domains within long term design are best suited for autobiographical design?

What tools or prototyping methodologies are particularly apt for autobiographical designs which address lifetime-scale problems?

How can we balance the 'egocentric' perspective of autobiographical design with a more outward looking approach for broader impact in multi-year (multi-decade) uses of technology?

What can we glean from fields outside HCI that regularly engage with longer-term projects, such as architecture, to complement autobiographical design or vice versa?

### Short Biographies

Aubree Ball is Master of Design candidate in the School of Art + Art History + Design at the University of Washington in Seattle. Her professional background is in industrial and architectural design, and her master's thesis work is in interaction design research. Aubree uses design in physical space and form to explore and reflect on peoples' relationships to emerging technologies.

Audrey Desjardins is an Assistant Professor of interaction design in the School of Art + Art History + Design at the University of Washington in Seattle. Trained as an industrial designer and interaction design researcher, she uses design as a way to critically reflect on people's creative tactics to make, adapt, and transform their homes and to investigate potential futures in domestic spaces. Her work results in new methodological frameworks and design guidelines to inform the design of interactive artifacts that are more appropriate and nuanced to fit in people's homes.

Dominic Muren is a Senior Lecturer of interaction design in the School of Art + Art History + Design at the University of Washington in Seattle. With a background in mechanical engineering and consumer product design, his research is concerned with democratizing the production of objects for human use. His work produces novel manufacturing methods and technologies, as well as new ways of integrating design and designers into local communities of production.

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