

# Situated Remembering with Digital Technology

Chris Elsdén

Culture Lab, Newcastle University

c.r.elsden@newcastle.ac.uk

## ABSTRACT

Digital technologies which now capture many aspects of everyday human life increasingly act to mediate the process of remembering. This paper outlines a thesis that seeks to understand the *experience of remembering* as a socially situated activity, in the context of the design of personal informatics systems.

## Author Keywords

Memory; personal informatics; experience-centred design.

## INTRODUCTION AND BACKGROUND

Digital technologies allow vast capture of personal information in digital form on external devices [14] and offer new opportunities and challenges for human memory, as they act to mediate remembering in everyday life.

'Lifelogging' technologies often realised through novel, wearable sensor-rich devices, have provided a particular focus for HCI research [13]. However, Sellen and Whittaker [13] argue that we should look beyond the 'total capture' of everyday life and simply augmenting memory.

Meanwhile, Banks [1] has turned to consider the legacy of lives lived online, which create an inevitable digital by-product granting users ineffable digital possessions (e.g. social media posts, emails, usage history) [9]. Clearly the present has become very recordable with current digital technology, particularly given the proliferation of personal informatics (PI) tools reported by Li [8]. Each record offers a particular lens on the past. A credit card statement, a family photograph and a run-tracking app may all tell a different story about a period of time in one's life, and accrue significance over a lifetime. Furthermore, rather than being kept in a box under the bed, frequent use of digital systems has made these records of personal information much more visible, shareable and potentially accountable.

There are now many opportunities to reencounter fragments of the past. Designs like Facebook's timeline structure, and groups such as the Quantified Self movement actively encourage personal reflection upon these digital pasts; third-party apps, like 'Memoir' ([www.yourmemoir.com](http://www.yourmemoir.com)) reinvigorate historic social and locative media content offering reflection and reminiscence as valued experiences.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

DIS 2012, June 11-15, 2012, Newcastle, UK.

Copyright 2012 ACM 978-1-4503-1210-3/12/06...\$10.00.

## Changing Perspectives in Memory Research

Human memory remains an elusive and contested topic. However, Conway's Autobiographical Memory (AM) theory [6] has grounded most HCI memory research. It is concerned with memory in the real world, and proposes a much more dynamic, adaptive and reconstructive memory system resembling Bartlett's [2] original theories, rather than post-war experimental psychology and neuroscience.

Nevertheless, memory research has arguably remained principally the domain of cognitive psychology [3][7]. Harper et al. challenge this bias most strongly when they suggest exchanging "*memory as something-in-the-head*" for "*memory-is-a-resource-for-action*" to offer a new way to think about the design and use of wearable cameras such as Microsoft's recently commercialised SenseCam [5].

Harper's perspective, questioning what remembering actually achieves, demands a more social and cultural minded study of memory. This approach need not be opposed to AM theory or other cognitive perspectives, but as Middleton and Edwards [11] suggest:

*"...the heart of the topic, the sheer meaningfulness of memories, their content and organisation, (their personal and social significance, their context and occasionings in the flow of ordinary experience, cannot be accounted for by reference to mental processes alone."*

## RESEARCH PROPOSAL

This thesis will aim to understand the human *experience of remembering* as a situated action within socio-digital systems. Here, remembering is positioned as a meaningful, constructive, active and present-oriented process [2,10].

My thesis will therefore primarily focus on the work that is done through both remembering and forgetting within a particular context. For example remembering one's past with particular evocative objects may contribute to the construction and maintenance of identity, strengthening of social relationships or connecting to a place [7].

## Context: Personal Informatics

This thesis seeks to explore the experience of remembering with PI tools and their lifelong use. The growing use of these tools (e.g. smartphone apps, browser plug-ins or wearable devices) has made the routine details of the everyday more visible and recordable. Popular metrics to track include physical activity (e.g. Nike+) and diet (e.g. MyFitnessPal), although designer Nicholas Felton ([www.feltron.com](http://www.feltron.com)) shows, in the extreme, the diversity of what can be recorded and visualised. Exploring this context in terms of memory follows Rooskby's study [12] of PI as

'*enmeshed in everyday life*'. Extending current research, which largely focuses on the present and future-focused use of these tools for behaviour change, this will open the design space for their long-term, sustainable and social use.

However, this context also extends much of the memory literature in HCI, which has often focused on more traditionally evocative digital media or those designed specifically with memory in mind. Li and Rooksby [8,12] report a wide range of self-tracking motivations, but few begin with a determined intention to create a long-term documentary record. Indeed often tracking occurs routinely through daily use of a technology (e.g. Google's web history and 'account activity'). Furthermore, the quantitative and seemingly objective nature of PI data may mediate remembering in quite different ways. Taken together I propose the following broad research questions:

RQ1: How can the experience of remembering and forgetting be mediated by personal informatics tools?

RQ2: How should we design to support the long-term use and value of personal informatics tools and data?

### Proposed Methodologies

Having outlined the scope for this thesis, from the Doctoral Consortium I hope primarily to provoke discussion around the best methodology to pursue these questions. An initial orientation study, interviewing participants about different historic PI data they have accumulated has already been undertaken. This work-in-progress [4] has provided a broad understanding and description of the research space, and has highlighted some potentially rich experiences mediated by different types of PI data. I intend to use this study to inform the design of speculative provocations to further explore emerging design spaces with participants.

Longer-term, during my thesis research, it may be appropriate to work for an extended period of time with one particular group or data type in a series of case studies. Perhaps the long-term deployment of a technology probe would prove insightful especially as a means to speculate about possible futures where PI data is more commonplace. Alternatively, a focus on non-use, non-recording and forgetting could be a useful counterpoint.

Following any of these approaches, different analytical frameworks could offer a good fit. Remembering as a subjective, situated action may invite an ethnomethodological approach, while experience-centred design appeals to phenomenological study of felt-life [15]. Finally, digital technologies are seen as mediating remembering, as part of socio-digital systems. Middleton and Brown among others have successfully turned to Actor-Network-Theory (ANT) as a means to understand such systems. Ultimately, although this offers inevitable epistemological challenges, a combination of these methodologies may be most appropriate.

### CONCLUSION

In recent years HCI has given significant attention to the affordances of the mass of digital data created through our everyday lives. By focusing on the *experience of remembering*, and renewing a socio-cultural perspective on memory, this thesis will consider the role of personal informatics tools in mediating our perspective of the past.

### REFERENCES

1. Banks, R. *The future of looking back*. O'Reilly Media, Inc., 2011.
2. Bartlett, F.C. Remembering: An experimental and social study. *Cambridge: Cambridge University*, (1932).
3. Brockmeier, J. After the archive: remapping memory. *Culture & Psychology* 16, 1 (2010), 5–35.
4. Elsdén, C. and Kirk, D. A Quantified Past: Remembering with Personal Informatics. To appear in *DIS Ext. Abs*, 2014, ACM.
5. Harper, R., Randall, D., Smyth, N., et al. The past is a different place: they do things differently there. *Proc. ACM DIS*, (2008), 271–280.
6. Van den Hoven, E. and Eggen, B. Informing augmented memory system design through autobiographical memory theory. *Personal and Ubiquitous Computing* 12, 6 (2008), 433–443.
7. Kirk, D.S. and Sellen, A. On human remains: Values and practice in the home archiving of cherished objects. *ACM (TOCHI)* 17, 3 (2010), 10.
8. Li, I., Dey, A., and Forlizzi, J. A stage-based model of personal informatics systems. *Proc. CHI 2010*, ACM 557–566.
9. Marshall, C., Bly, S., et al. The long term fate of our personal digital belongings: Toward a service model for personal archives. *Proc. IS&T Archiving*, (2006), 25–30.
10. Middleton, D. and Brown, S.D. *The social psychology of experience: Studies in remembering and forgetting*. Sage, 2005.
11. Middleton, D.E. and Edwards, D.E. *Collective remembering*. Sage 1990.
12. Rooksby, J., Rost, M., Morrison, A., and Chalmers, M. *Personal Tracking as Lived Informatics*. .
13. Sellen, A.J. and Whittaker, S. Beyond total capture: a constructive critique of lifelogging. *Communications of the ACM* 53, 5 (2010), 70–77.
14. Whittaker, S., Kalnikaitė, V., Petrelli, D., et al. Socio-Technical Lifelogging: Deriving Design Principles for a Future Proof Digital Past. *Human-Computer Interaction* 27, 1-2 (2012), 37–62.
15. Wright, P. and McCarthy, J. *Technology as experience*. MIT Press, 2004.