

Do we need an ethics of forgetting in a world of digital ‘memories for life’² ?

Martin Dodge

(m.dodge@Manchester.ac.uk)
Geography, School of Environment and Development,
University of Manchester

Introduction

I am interested the potential of pervasive computing to create life-logs; personal archives that document every action, every event, every conversation, and every material expression of an individual’s life. I want to suggest emerging life-logs have the potential to become oppressive ‘memories for life’ and that an ethics of forgetting needs to be built into the development of life-logging technologies. Rather than seeing forgetting as a weakness or a fallibility I argue that it is an emancipatory process that will free pervasive computing from burdensome and pernicious disciplinary effects.

Life-logs

A life-log is conceived as a form of pervasive computing consisting of a unified, digital record of the totality of an individual’s experiences, captured multi-modally through digital sensors and stored permanently as a personal multi-media archive (cf., O’Hara et al 2006; van Dijck 2005). Operating from an ‘interior’ perspective, life-logs will produce a very different way of knowing the history of individuals because they take an opposite vantage-point of surveillance: not top-down, but from the inside, looking out. Data is automatically generated by material objects used on an every day basis by an individual, such as a phone, computer, television, car, etc., on individual usage (when, where, how long used, but also on content – what was done, was

¹ Based on a forthcoming article, co-authored with Rob Kitchin, “‘Outlines of a World Coming into Existence’: Pervasive Computing and the Ethics of Forgetting”, *Environment and Planning B*.

² A phrase ‘borrowed’ from www.memoriesforlife.org.

chosen, was said, etc). In addition, the embedding of computing into ‘dumb’ machines (like fitness equipment and household appliances) will make them ‘self-aware’ ‘history-enriched’ digital objects to some degree, able to monitor and communicate their usage. These automated forms of sousveillance are being complemented by scopophilic tendencies – the conscious self-creation and public sharing of personal thoughts and experiences, for example, through blogging and webcams.

The conception of life-logging is fuelled, in large part, by:

- the roll-out and adoption of ‘technologies of convenience’ that systematically measure many aspects of social and economic life (e.g. electronic payment, smart ticketing),
- the recognition that digital storage capacity is growing exponentially at the same time that cost and physical size is rapidly falling,
- digital sensors are becoming smaller and more autonomous.

At present life-logging is patchy in nature (in terms of what is actually captured), is not-continuously collected, and individual streams of data are not being amalgamated into a single, unified archive. Moreover, some present capture technologies are generally still externally controlled and monitored objects and infrastructures – they are third-person surveillance technologies (that create biographies) that have first person potential (to create autobiographies); the cameras are pointed at the person rather than being pointed by the person. Yet, significant progress is presently being made within the computer science community in exploring the socio-technical feasibility of life-logging³.

Digital memories

Artefacts have long been recognised as analogues or foils for memory. In the case of archives – such as diaries or photo albums – they record events, people and places as snapshots in time and space. For people who know the individuals in the archive,

³ For overviews see: Werkhoven P, 2004, *Experience Machines: Capturing and Retrieving Personal Content*, E-Content Report 9, ACTeN, August, www.acten.net; the proceedings of *CARPE* conferences also reveal much technical research, www.sigmm.org/Members/jgemmell/CARPE. The Microsoft Research project *MyLifeBits* is probably the most comprehensive life-logging experiment currently underway, <http://research.microsoft.com/barc/mediapresence/MyLifeBits.aspx>.

context provides emotional connections and further meaning, but for others the archive simply provides a factual account. Here, there is a distinction between what one might call thin memory and thick memory. Thin memory is factual and easily formalised within a media as textual/numeric records, sound, image, etc. Thick memory is embedded, emotional, context rich, immaterial – it is remembrances that constitute who a person is and provides a sense of self.

Diaries can provide some resonances of thick memories, but artefacts such as mobile telephones and emerging wearable computing can only at best provide hints as the material they record and store are largely one-dimensional and lack the interpretation, meaning, and emotive interconnections that a human mind would add. For example, a vista stored within a life-log is simply a view of a place – a collection of 1s and 0s that constitute a picture. It is a thin memory composed purely of factual information (intensities of colour). It may have some metadata associated with but it lacks semantic and emotion meaning. For the person to whom the log relates the picture can prompt thick memories, for others it, at best, provides only hints of the wider emotional register and personal meaning. Integral meanings are not attached because they were not collected and are not collectable. Life-logs are therefore good for recording thin memory only – the factual details of everyday life, providing a living archive of the minutiae of interactions, transactions and mobilities.

That said, life-logs clearly have significant implications to the recording of the present and thus how the past is *recalled* as opposed to remembered. In terms of what is captured there is a qualitative shift in the granularity and fidelity of recording media and thus quality of the data held, and also in complementarities between media to create multi-dimensional archives (the same events captured by different technologies and subsequently linked together). This is accompanied by a quantitative shift in terms of the volume of personal data captured and the mobility of capture.

While these technological shifts have the potential to provide rich autobiographical narratives that are of potential use and value to the individual life-loggee, allowing the replaying of life events, they raise broader social and political questions. In particular there are questions concerning who owns life-logged data, how it can be used, and the limits to what is captured.

In relation to ownership, while the material within a life-log is autobiographical, and will be held by the individual, there are questions concerning access and control. For example, who has rights to access other than the creator? To what extent can the material be sequestered for legal cases and what is the legal status of such material? Do data take on the same status as biological memories? Or are they seen as *more* objective and true? What happens when there is a discrepancy between the statements of individuals and their life-log? Are there any other third parties that can have access, such as government security agencies or employers? Would access by third parties (including legal use) be restrictive or non-restrictive (e.g., all data will be available or only selected portions either by date or media)? Would other people captured by the life-log have claims to access to its contents (such as a partner or friends or work colleagues)? What happens to the life-log at death? Are their inheritance rights and so on? Who has control of a child's life-log? Moreover, could the life-log be stolen and used, perhaps in the same way as stolen passports or identity cards? What would be the consequences for the person whose life-log was stolen both emotionally and materially?

Will life-logs be voluntary or will pressure or mandatory measures by state and capital force people to adopt them? If life-logs are accessible to third parties, in whatever form, then such access opens up potential for invasive profiling, social sorting and pernicious disciplining effects. (The life-log would be in many respects a marketers dream, enabling them to 'get inside the life' of consumer to a unprecedented degree.) For example, there is the opportunity to monitor lifestyle with the life-log providing base-line data that underpins services such as healthcare and insurance. Life-logs could extend social sorting practices allowing for preferential treatment of people that maximises profits and maintains the status quo, and penalises those that fit certain profiles. Moreover, there is the potential for eccentricities, indiscretions and minor infractions of the law to be identified and penalised thus encouraging more rigorous, self-disciplining behaviour and potentially leading to a society less able to tolerate difference. When every action is recorded in perpetuity, in a seemingly objective manner, and there is a likelihood that the consequences will be realised, then Bentham's panopticon becomes fully realised.

The vision of life-logs are that they seek to capture everything, storing it forever. It is not clear, however, to what extent a life-log will be editable, if at all. Should a life-log be editable like a diary or photograph? Should portions be open to selective, permanent erasing? Or just deletion from view, but with prospect of recovery? Further, should these acts of erasing or deleting themselves be witnessed and remembered by the life-log? Are there events and actions that should be excluded from capture or at least should there be an option to suspend recording? Can you press pause on the life-log? Would an act of deletion or suspension itself be considered a sign of guilt if the life-log were to be used in law? In addition, to what extent will it be possible to dupe the log, to unsettle the authenticity of the record.

Ethics of forgetting

I wish to suggest that such social and political dilemmas inherent in life-logs described above might be tackled through an ethics of forgetting (cf. Bannon 2006). In so doing, I want play devil's advocate to the drive to create technologies that 'store and manage a lifetime's worth of everything' by suggesting that memory should always be complemented by forgetting. I posit that forgetting is not a weakness or a fallibility, but is an emancipatory process that will free life-logging from burdensome and pernicious disciplinary effects; as Nietzsche suggests, forgetting will save humans from history .

Human memory is fallible and does not constitute a perfect biological life-log. People forget. Schacter (2001) details six forms of forgetting, three concerned with loss and three with error⁴. Loss-based forgetting consists of transience (the loss of memory over time), absent-mindedness (the loss of memory due to distractedness at the time the memory relates to); and blocking (the temporary inability to remember – 'it's on the tip of my tongue'). Error-based forgetting consists of misattribution (assigning a memory to the wrong source), suggestibility (memories that are implanted either by accident or surreptitiously), and bias (the unknowing or unconscious editing or rewriting of experiences). Life-logging aims to overcome both problems of loss and error with respect to thin memories. A life-log will keep a perfect digital record of

⁴ Schacter notes one other problem with memory – persistence, the recalling of events that would rather be forgotten.

events and activities that does not decay or fade, technologies will record an exact record; distractedness will be minimised through cross-referencing of life-log sources; and blocking will be minimised by search and visualisation capabilities. A life-log will minimise errors because the technology will not be open to misattribution, suggestibility or bias – it will be an exact record of what the sensor ‘saw’ and will not be open to re-interpretation and re-working. Moreover, the life-log will be augmented through the recording of detail beyond what an individual notices or knows (e.g., each ‘memory’ will be augmented by exact time-space co-ordinates). Moreover, it will add order, precision, completeness, multiple angles (taken from different technologies to provide a multimedia ‘memory’), instantaneous recall of the whole archive, searchability, filtering, and allow analysis (such as cross-referencing, charting of development, producing value-added, multimedia recollections, working out space-time envelopes of activities, and so on) to what human memory or existing memory technologies (such as photo album) can achieve. In other words, the life-log will not forget, but will also augment through added detail. And yet, forgetting is an inherent part of memory.

Perhaps, in the process of designing and implementing life-logging, forgetting should be an integral part of any system. This should happen from the bottom-up and be a core feature of the life-log, rather than from the top-down wherein legislation or organisational policy is used to regulate life-logs. So, rather than focus on the prescriptive needs for privacy protections, one should envisage necessary processes of forgetting, following Schacter (2001) six forms, that should be in-built into the system ensuring a sufficient degree of imperfection, loss and error. The goal is to make the system humane and yet still useful. For example, in relation to a journey across a city. Transience could be achieved by ensuring the fading or loss of details over time proportional to the length of time lapsed between generation and present. Just as a person would simply start to forget parts of the journey, so the life-log would gradually degrade the precision of the record with time. Absent-mindedness could be ensured though distractedness being in-built into the sensing technologies of capture. The log would record the whole journey, but miss out certain pieces of data because a recording media was switched off or was directed at something else. Blocking would be incorporated at the time the life-log was being queried. At other times, the query would be answered with no problems. Misattribution could be achieved by the

specific mis-recording of part of an event, but not the whole event. For example, part of a journey would be *randomly* misattributed (e.g., having a coffee in Starbucks rather than Caffè Nero), but the overall journey in terms of travelling from A to B is correct. In other words, misattribution is meaningful in relation of time, space and context. It is not the adding of false memories, but rather ‘tweaking’ of an past event. Suggestibility would consist of the plausible rescripting of *certain* events after a particular time. Here, part of the journey would take a subtly different, but believable, route (like taking street A rather than street B). Bias would be re-writing *all* events based on pattern recognition; it rescripts the data in line with past behaviour, decisions and preferences to create a record that is consistent and plausible but subtly different. The journey would be an impression of the route rather than a perfect recording, highlighting the things seemingly more important; it becomes a ‘memory’ not a recording. Over time the extent of suggestibility or bias would increase, adding a degree of uncertainty into the capta. Overall, then, a range of algorithmic strategies could be envisioned such as erasing, blurring, aggregating, injecting noise, data perturbing, masking, and so on that would be used ‘upset’ the life-log records.

Conclusion

Digital ‘memories for life’ have many implications with regards to the regulation of everyday life, potentially significantly changing the conditions through which life unfolds. To counter negative implications I have suggested the development of an ethics of forgetting that is materialised through the ‘loss of memory’ in a life-log. While building fallibility into the system seemingly undermines life-logging, it maybe the only way to ensure that humans can forget, can re-work their past, can achieve a progressive politics based upon debate and negotiation, and can ensure that totalitarian disciplining does not occur. A fallible life-log, underpinned by an ethics of forgetting (an ethics that works at both micro (individual – being able to live with yourself) and macro (collective – being able to live in a society) scales) allows humans to be fallible, to evolve their social identities, to live with their conscience, to deal with ‘their demons’, to move on from their past and build new lives, to reconcile their own paradoxes and contradictions, and to be part of society. Life-logs are unforgiving of mistakes because of their ubiquitous and ‘merciless memory’ (Galloway 2003); forgetting allows forgiving. Without fallibility life-logs might

never happen because people will oppose their development. In that sense, forgetting may be an essential ingredient to pervasive computing.

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