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<u>Visual Recordkeeping – The Self Constructed through Images</u>

In this paper I will look into lifelogging, and specifically the process of using video or persistent photo taking as a mechanism for recording the visual information one experiences in life. While the term lifelogging is generally used to classify any kind of record keeping that aims to be comprehensive, in this paper I will use the term somewhat more narrowly to refer to the same logging process but using mainly images or video. The visual medium is particularly interesting because the primary purpose is not to translate reality into some other form (as many Quantified Self tools seek to do), but rather to capture reality in its rawness– i.e. as we directly experience it. Large collections of images at this stage are primarily used to trigger memories in the person who is viewing them, and until more advanced computer vision techniques are developed and refined, images will not be evaluated with the same kind of mathematical complexity that is used, for example, on quantitative measure such as body weight, caloric intake or location data.

<u>The purpose of Wearable Cameras</u>

Steve Mann is a professor at the Department of Electrical and Computer Engineering at Toronto University and was one of the first to undertake rigorous academic research into the area of lifelogging through pictures. In the mid 1970s he developed an initial model of wearable camera devices, which he termed 'WearCam'.

The initially bulky apparatus consisted of a head mounted camera, several antennae and a belt package which all served to facilitate communication with a local server that was able to carry out more complex computation where necessary.

In his paper titled 'Steve Mann: My "Augmediated" Life', Mann describes WearCam's primary function (newer versions are called 'EyeTap') as helping to improve one's eyesight (Mann n.p). Rather than 'augmented reality' which overlays an unmediated view of the world with various digital imagery (thus obscuring the view further), Mann advocated for a 'mediated reality' that uses image processing to enhance what the user would otherwise already be seeing. He talks about making distant road signs more readable, or using heat signatures to "see which seats in a lecture hall had just been vacated" (Mann n.p.). In another white paper, titled 'Wearable Computing: A First Step Toward Personal Imaging', he puts forward an application of video streaming for security purposes, explaining that "An advantage of having the image stream on the Web is that friends and relatives with wearable Web browsers can see where I have been and catch up with me. This constitutes a type of shared visual memory." (Mann n.p.). Seemingly undeterred by personal privacy concerns (or perhaps just very trusting of his friends and family) Mann seems to be much more interested in the usefulness of these cameras and in their ability to enhance life in the present moment than he is in their data recording capacities. In the same article he explains that his equipment is set up with a video buffer such that old video is often erased to make room for new data.

Gordon Bell, a Microsoft researcher, founder of MyLifeBits, and die-hard lifelogger, prefers a "Keep Everything" approach. In conjunction with many other data collection measures (including the digitization of all his office paperwork) for a while he hung from his neck a device he termed "SenseCam". SenseCam is a camera that automatically takes a picture every time the light in front of the user changes. For Bell, the camera served primarily as a way of recording events in his life that would otherwise have been forgotten. He remarks that his "SenseCam has captured many special moments, especially at parties, lunches and conference exhibits." (Bell 49) and furthermore says that "I enjoyed taking the SenseCam on walkabouts with my GPS. I could later reconstruct my travels on an animated map, with pictures taken along the way to tell the story." (Bell 49). In these examples, we see that Bell is using a Steve Mann style wearable camera technology as a 'memory aid', or more specifically a diary, rather than a way to augment or mediate reality.

The term 'memory aid' is confusing and merits some clarification. There is of course a difference between using this kind of device as a way of finding misplaced eyeglasses, a colleague of Gordon Bell's does (Bell 48), and using it as a diary, to reconstruct a version of yourself or to see "your life flashing before your eyes!" (Bell 49). Both cases might be viewed as 'memory aids' but there is a difference in the objectivity or the two. In the first case, the photos serve as a memory aid insofar as your memory is spotty or imperfect. In the second, the stream of photos are used as a building blocks from which you go about building the version of yourself that you most want to recall – much like a traditional, biological, nostalgic 'memory' might

do. That is to say, when looking back over a collection of SenseCam photos and selecting the wheat from the chaff, a filtration process must still occur and the photos that are selected no doubt reflect what the selector wishes to represent. Much like statistics, there is a sense that even the 'objective' stream of photographs collected by a SenseCam can be curated to represent a vast range of possible identities. The diary version of the memory aid is the far more interesting application for our purposes.

Life Logging as a Memory Aid

One of the sources of utility in these kinds of 'miss nothing' type data collection tools is their capacity to function as a memory aid, and furthermore, to help one come to terms with his/her own inadequacies. In a blog post on his website, Tim Ferriss, 'experimenter in lifestyle design', and author of 'The 4-Hour Workweek', writes "Most 'superheroes' are nothing of the sort. They're weird, neurotic creatures who do big things DESPITE lots of self-defeating habits and self-talk" (Ferriss n.p). He goes on to write a list of things he has done in the past 3 months, which includes several 'superhero defects' such as hitting the snooze button on his alarm, crying while watching a movie, and wearing the same pair of jeans for seven days in a row. He is explaining that throughout his life he finds himself doing things that many people would believe to be detrimental to his success as a writer, athlete and indeed productive human being. That is to say, in the culture of celebrity that we are currently living through, it is easy to be fooled into believing that

successful people are somehow different from the rest of us in that they rarely make mistakes, and rarely do mundane things. Many of us have difficulties coming to terms with the "human-ness" we witness in ourselves since the idealized versions of ourselves that we see, hear and read about do not display these deficiencies. In his article in Esquire magazine, after wearing a lifelogging camera for 6 months, A.J. Jacobs reveals a realization he has that: "My life is absurdly mundane." (Jacobs). Coming to terms with this mundanity is one of the biggest challenges of leading a successful life in the modern day and age.

In Civilization and its Discontents, Sigmund Freud discusses the 'oceanic feeling' that human beings experience as they come to terms with their own insignificance and physical minuteness. He describes the feeling as "a sensation of eternity, a feeling of something limitless, unbounded" (Freud 3) – Freud's analysis goes on suggest that this feeling is "the source of the religious energy" (Freud 4) upon which Churches and religious institutions are built. He eventually posits – not without contention – that the oceanic feeling one that is carried through from childhood and stems from the need for fatherly protection a child experiences. In Freud's words, "The derivation of religious needs from the infant's helplessness and the longing for the father aroused by it seems to me incontrovertible" (Freud 19).

Freud talks about the oceanic feeling as being one of "oneness with the external world" or a blurring of the separation between the self and the world. An infant, claims Freud, has no notion of self because he does not see things in the external world (i.e. his mother's breast) as being separate from himself. The oceanic

feeling occurs when the ego is not able to properly separate itself from the vastness of the external world. The resolution of the oceanic feeling then is recognition of the boundlessness of the world but also of one's own place within it. I would suggest however, that self-tracking in this way – when used as a means of recording everything - is another pathway through which one is able to come to terms with this 'oceanic feeling'.

One of the main advantages of enhanced memory services is that they allow the user to be confronted with 'all' of themselves and not just the portions of their past that have been selected for preservation in traditional memory. When we recount our pasts we rarely think back to the unremarkable, the hours spent sitting in front of the television, or the time between going to bed and falling asleep. Instead we only ever go back to the wild adventures, the weekend hiking trips, and the shock accidents. The long periods of mundanity occupy a significant proportion of lives but only a tiny fraction of our memories. Thus the traditional / biological memory creates a distorted notion of the past self, which (trivially) biases 'memorable' events over 'forgettable' ones. As a result, we experience the kind of syndrome Tim Ferriss discusses, and come to see our present selves as inadequate with respect to our past selves or the 'selves' we encounter in the media and in literature.

A.J. Jacobs, who spent 9 weeks with a lifelogging camera, also comments on the fallibility of memory, noting that "Study after study has shown that when we do recall an event, our memory of it is almost always self-serving, warped — or totally

fabricated." (Jacobs n.p.). That is to say, our memories are often constructed, or imagined at the moment of recall rather than at the point of recording. He goes a little further than this even, "the problem with reality — it's not really life. Reality is messy, nuanced, repetitive, and dull." (Jacobs n.p.) thereby rooting the problem not in memory but in reality itself. Gordon Bell also touches on the idea that a selective memory has been pervasive in digital recording in the past. At the present time – of Twitter, Instagram, and social networking - we still have to consciously make the decision to take out our camera, or our phone in order take a picture or post a status update. Bell remarks that "Parties, outings, and weekends are extensively digitally commemorated, but drives to school, study sessions, and dinner at the grandparents' are not." (21), implying that in the future lifelogging will also provide a mechanism of escaping from the selectiveness of memory. He argues that as the cost of storing data is lowered, through Moore's law and societal precedent, (Bell 5), we will no longer need to make decisions about which life events are worthy of being recorded. In fact, we may need to exert more cognitive effort into stopping something from being recorded that we will into recording itself. Tools like the Narrative Clip, and Looxcie's cameras provide a way to carry out 'always on' record keeping in this way, and to avoid the pitfalls of selective memory.

When you are presented with a more comprehensive e-memory – one which captures everything in your past – it becomes much more difficult to get away from the mundaneness of life and so you are forced to confront the oceanic feeling as more of an objective truth than a mere 'feeling'. It is difficult to look at an ocean of

your life filled with all its awkwardness, tedium and dullness (along with the excitement of course), and then continue to deny that same dullness. In my experience, you become more acquainted with your own finitude within the world, as soon as you have a more objective view of what your 'self' consists of. The total look at life forces you to accept that if great things are to be achieved, they must be achieved – as Time Ferriss claims - despite this dullness rather than in its absence.

Technology Used for Life Logging

The technologies developed by Steve Mann in the 70s and 80s were not designed to be suitable for mass market consumption, and indications are that it is not intended to be. The same is true of Gordon Bell and his SenseCam / MyLifeBits project, which he says "is not a commercial product; it is a research project." (Bell 39), however in recent years more promising work has been carried out with the purpose of building commercially viable life logging devices.

Perhaps the most exciting of these new lifelogging tools is the "Narrative Clip" (formerly called the "Memoto"). The clip is no larger than a few square inches and clips on to the wearer's clothing. It then automatically takes a picture every 30 seconds and uploads the image to a web server. After using the device for just a short period of time, the user will gain access to a broad library of 'snapshot' images from moments in their recent life. The device is also intelligent enough to not take pictures when it is in an overly dark environment (i.e. someone's pocket), and so doesn't need to be manually switched on or off.

One of the main strengths of the Narrative Clip is that it adheres to the so-called 'Low-Friction' data collection principles. Namely, that there is minimal effort and zero maintenance required to use the device. The bulk of the active labor involved in using the clip involves attaching it to your current outfit, at which point the data collection process becomes entirely passive, and thus low-friction.

Looxcie 3 is a competitor to the Narrative Clip and has a similarly small size at a fraction of the cost. Additionally, there are companies such as Pivothead, who are producing glasses with cameras embedded in them to serve as true 'point of view' lifelogging. The launch of Google Glass in the coming year also allows for this possibility although 'life-logging' per se doesn't seem to be its primary focus.

The promise of these devices is, as Gordon Bell notes, that in the future we shall all become life-loggers. Eventually, says Bell, "Abstaining from lifelogging will begin to seem more like avoiding the use of e-mail or cell phones, because so many advantages and conveniences will be forgone." (Bell 21). In the future, as the cost of these devices reduces and as they become more socially acceptable to wear in public, it is likely that lifelogging will become far more widely practiced.

Implications on the Self

An excellent case study of life-logging comes from A.J. Jacobs, who spent 9 weeks videotaping his life using a Looxcie 2 – a camera that clips on to the wearer's ear or hat and so creates a 'point of view' continuous video stream.

Jacobs noticed that upon first wearing the device his behavior immediately changed – as though the additional eye of the camera watching over him served as a parent figure. He noticed similar behavioral shifts in those who were close to him – for example his wife became much more careful in her gossiping (at least momentarily). His friend Jeremy grew frustrated because he had revealed something on camera that he would never have gossiped about off the record (Jacobs n.p.). The permanence, and validity of the video record can be intimidating. Those who are captured on video are required to express a version of themselves which can neither be destroyed or denied, and so people are more careful about how they present themselves. Another friend confessed to Jacobs: "I want to say things but I can't. It's so annoying" (Jacobs n.p.). However, this behavioral shift was short lived and the parenting role of life logging was not especially compelling. Once he became accustomed to the camera, Jacobs returned to his previously 'cured' habit of peeing in the sink rather than the toilet (Jacobs n.p.) and his wife could gossip freely once more. Perhaps both parties had grown familiar with the idea that even if they say something untoward on camera, it is unlikely to come back to bite them – perhaps we can call this 'trust'.

The most insightful anecdote from Jacobs's experiment reveals that 'victory' with the aid of lifelogging cameras is often bittersweet. When he had an argument with his wife and played the video back to her, he had hoped that with the objective video at hand they would both see eye to eye. Instead, she grew teary eyed and responded "I lived through it once — I don't need to live through it again." (Jacobs

n.p) – Jacobs sums up the incident by saying "I was officially the asshole. I won a minor skirmish, but lost the war." (Jacobs n.p). There is a sense of self-satisfied smugness that accompanies this kind of victory, and perhaps his wife even felt that he was 'breaking the rules' by using these devices to assist him. We all seek privacy and 'the right to forget', when we do things we are not proud of, and Jacobs's cameras breached that privacy. Additionally, there is a sense that the objective truth of the matter is not as important as the emotional content of the situation. The exact syllables that came out of his wife's mouth are irrelevant – what is relevant is that the two partners have sufficiently open channels of communication to understand what the other is saying even in cases when they are not perfectly articulate. Furthermore, even in the apparent victory, even when Jacobs has been proved right, he has achieved little. Perhaps such testimony would serve him better in a court of law, but at least in a home environment it appears lifelogging cameras should not be used to try to settle domestic disputes.

Among the concrete benefits of having the cameras with him at all times, Jacobs lists such seemingly trivial outcomes such as recovering a half-filled crossword puzzle, winning an argument with his young son, along with some more meaningful events such as capturing his children's first trip to the zoo. The sense of self that Jacobs creates for us is one that is tremendously interested in objectivity and facts. There is an almost superhuman ability to step outside of time and space. He takes pleasure in the fact that he can go back in time with his video recordings and figure out, once and for all, 'what actually happened'. Nora Young, in her book

'The Virtual Self: How Our Digital Lives Are Altering the World Around Us", offers a counter argument to this position, arguing that "digital life fundamentally time-shifts and place-shifts us out of the here and now. It is precisely this disembodied, distracted, digital life we lead, I argue, that is creating the urge to document the physical body" (Young 3). In Young, we see the process of tracking as a diffusion of the self away from the traditional real-life self towards more of a digitally conceived self. The act of recording allows Jacobs to divorce himself more from the present moment since he is safe in the knowledge that he shall be able to return to it at will.

Privacy Concerns

Nora Young, Steve Mann, and Gordon Bell all offer valuable commentaries on lifelogging and it's relation to privacy. Young tells the story of Ilene Feldman, a schoolteacher who allegedly threw herself down some stairs in order to get out of a classroom observation session (Young 97). Unbeknownst to her, the entire incident was captured on a school CCTV camera and so it became immediately clear to officials that the fall was deliberately engineered. The point here is that the CCTV camera was able to take a space that would otherwise have been private (an empty stairwell), and turn it into a public one. Had she wanted to get away with it, Ilene would have been wise to look thoroughly for cameras before trying to pull this particular stunt. Therefore, the best mode of self-preservation for Ilene in this case was a kind of paranoid overkill – she should have checked and then rechecked in order to make sure she wasn't being watched. One can take the example and

extrapolate to a world in which everyone carried Steve Mann style personal CCTV cameras. Such a world would surely require each individual to adopt an ultra conservative, almost paranoid self-regulation towards their own behaviors for fear of what may be being captured by those around them.

Steve Mann uses the term 'sousveillance' to describe the kind of Little Brother society that many envision will be birthed if personal photography and life-logging become prevalent. If everyone around you is carrying a camera, then you are likely being watched at all times, at least while you are in public.

Bell believes that the privacy question is one that will be solved as new social constructs fill the space currently occupied by confusion. Bell claims that "Our culture will need to develop a whole new body of etiquette about who may record who when and where. Our sense of privacy will continue to evolve, as it has since everyone knew everyone else's business in the village life of agricultural economies" (Bell 15). Exactly what our notions of privacy will 'evolve' into remains unclear. There is the hint in Bell that these kinds of technologies will allow us to live more comfortably within our own skins rather than in the masks that we construct to display to the outside world. "It won't erase human nature's capacity for self-deception, but it will surely make the truth of what happened around us more available" (Bell 8). Perhaps we will all find solace in the openness that sousveillance will force upon us.

It seems that concern over privacy in the lifelogging domain is correlated to three factors: trust, permanence and concreteness. One might consider telling a

good friend a secret in person preferable to writing a letter which in turn is preferable to sending an email. The thought being that the in-person conversation is destroyed as soon as it has occurred, the letter can be destroyed upon request, while the email lives permanently on the internet and can be excavated only by those who know how. Similarly, privacy is less of a concern around people who we can trust not to harm us, and an incriminating videotape is more intimidating than a witness testimony because of the concreteness (or provability) of the fact in question. Therefore, the very legitimate privacy concerns about lifelogging stem from the fact that data recorded by a stray lifelogger who happens to wonder across my path has so much power over me, and I have so little power over it. If Steve Mann happens to catch me breaking the law (or perhaps falling down the stairs), I have little defense except to trust that he will not take his video tapes to the authorities. This uneven power dynamic feels unwarranted, unearned and unjust.

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