

## Twitter Chip

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The Chief Economist at Google, Hal Varian, was quoted as saying that in 2020 Google would exist as an implanted chip within the fabric of the human body (Millikan 2010 and Biggs 2011), envisaging the potential for direct mental linkage to the resources available through automated information search technology. In such a science fiction scenario our connectivity with the web and its power to augment human mental performance would be internalised within our biological systems, directly integrating our neural circuits with the internet and everything connected to it. The 'Google chip' would, by definition, be a two way connective technology - not mind to mind or thought to thought but mind connected to a knowledge repository that updates in real-time. We would be capable of sending and receiving information directly from our minds to the internet and, by extension, to those who are connected to it. However, whilst this resembles extended mind on a global scale, where the social dimension of network technology allows a novel re-envisioning of the 'Society of Mind' (Minsky 1988), it is not quite electronically mediated mind-reading. For that we would require another kind of implantable chip.

What if the super-successful micro-blogging service Twitter was to release a cortically implantable chip? This could be a chip that allows the endowed "client" to send and receive tweets by simply "thinking it so". Whilst not a mind to mind connection this is a mind to message to mind connection that might begin to approach an inter-mind dialogue resembling mind-reading. However, what if this 'Twitter chip' was able to output and receive not only the conscious thoughts of the client's, or sender's, mind but also their unconscious thoughts and feelings? Would we then enter the domain of mind-reading and inter-agent empathy? Would we be able to feel what each other is feeling, as it is felt? Could we ever again assume a convincing "poker-face"?

The question here does not concern what the technologies of the self might do for us but what they could do to us? The implications of such capabilities are profound, the probability being we would be required to re-conceive social relations and our apprehension of what it is "to be".

Currently this is science fiction. Whilst Varian may think an implantable cortical chip, connecting the mind to the net, might be a desirable possibility the science that would allow this to happen does not exist. There are numerous barriers to the realisation of this Cyborg's wet-dream; conceptual, technical, biological, legal, ethical and economic. Nevertheless, science fiction's function has often been not only to speculate on what our future might be but to consider our present through the cracked mirror speculation can offer, the subtle distortions thus offered revealing insights into contemporary realities. This is true for the dystopian work of Orwell and Huxley and the ambivalent but darkly tinged writing of Wells or Verne.

The science fiction novel Dhalgren (Delany 1975) describes a chaotic post-apocalyptic world, where people converge upon a large decaying metropolis; a place of mutable realities where inhabitants can re-invent themselves, almost literally, as whatever they wish. In the novel people possess a technology that allows its users to dress themselves in all enveloping holograms of their own design. The inhabitants of the ruined metropolis inhabit its streets in like-minded gangs, known as 'Scorpions', with members appearing in guises of their own crafting but sharing a commonality

that allows them to identify with their particular gang. Written a quarter of a century before Second Life went live on the internet, Delany's novel is a premonition of what has since come to pass in information space, where individuals appear to, and interact with, one another in any guise they desire. What if, along with our Google and Twitter chips, we could have a 'Second Life chip'? Such a chip, employing augmented reality technologies, would allow us to appear to others as our preferred avatar within the context of our daily lives, in the street, at work or at home. As Second Life would become our second nature it would come to envelope our first life.

In Delany's novel the lead character has no recollection of who he is and therefore seems a likely candidate for membership of a 'Scorpion' gang. However, he chooses to remain his (uncertain) self, un-augmented and, to a large extent, poorly differentiated, wandering the streets in search of clues that may reveal his identity. Dhalgren is a long and rambling text - or rather texts - with the second half of the novel existing as two parallel stories that only connect from time to time, a bifurcating narrative as fragmented as the identity of the main character and the metropolis he inhabits. The text is structured so as to mirror the confusion between what may or may not be real. The use of language in the novel echoes the schizophrenic mental state of its subject and his environment and functions as a meditation on the effects of such reality displacing technologies. In this respect Delany's novel seems to be prescient in respect of currently emerging technologies.

To some extent the technologies that would allow our first life to be enveloped by Second Life are better developed than those required to manifest Varian's speculative Google "upgrade". Augmented Reality technologies that do not require the use of invasive systems, such as implanted chips and sensors, already allow us to mingle real and virtual imagery. Sekai Camera (Sekai 2011) is an augmented reality app that employs "Air Tags"; texts, pictures, videos or voice messages that users can view, share and annotate. The application augments your mobile communications device's camera with layers of data that are co-related with the things around you, whether commercial services, public information or the personal information of people who wander through the camera's field of view. Similarly, you can make public the stored user-profile on your device so that other's using the app can see your details displayed on their device, along with your own real-time self, as you physically pass through its field of view. Visually resembling the information bubbles that float above Second Life avatar heads, the effect makes the real seem that little bit less real, reality that bit more like its simulation.

The Aurasma app (Aurasma 2011) allows the user to co-locate imagery with real-world images. The user can match a stored image with any object or scene their mobile device can recognise (using the app's advanced graphical object recognition algorithms). Once the co-relation is established then whenever the same scene or object enters the visual field of the user's mobile device it is overlaid with the selected image, effectively masking it. This data can be shared with others so that whenever you appear in the visual field of another's mobile device you will appear not as yourself but as your preferred visual image - effectively replacing yourself with a graphic avatar.

Whilst both of these technologies require users to hold their mobile device up before them, as a tele-visual mediating device, revealing what is otherwise an invisible alternate reality, it is already similar, in character and application, to Delany's speculative 'Scorpion' gang holograms. It is not a great leap to imagine what the next steps might be in achieving something resembling Delany's vision.

It will not be long before we wear our iPhones and Androids like spectacles, rather than carrying them in our pockets or hands. With emergent augmented reality technologies, like Sekai Camera or Aurasma, we will be able to overlay data on our current view of the world via our "mixed reality head-up displays". We will be able to ensure that people, when wearing such systems, meet us in the street we will appear to them in our avatar guise. This technology is not yet a product we can buy but it is near to market. The technology to do this exists. The barriers to market preparedness are effective implementation (design) and, perhaps more importantly, user acceptance.

However, in respect of this last issue, I can imagine such a technology being a huge success, even whilst it would likely be highly contentious. I wonder whether there would be much resistance to its implementation amongst a younger demographic familiar with mixing gaming systems and social media and, as part of that, adopting various personae in differing social contexts. It is possible such a system could be a 'killer' app; an innovative product that will draw momentum from, and change, how people interact with one another. If this is ever the case there will be serious ethical issues to consider but, as we have seen during periods of rapid technological change, the chances are such considerations will lag behind implementation. This will be the case for as long as we are unable to secure the required resources to be morally prescient. We can never know which probable future we will occupy.

Nevertheless, 'andro-specs' are likely to be a technology we will one day wear, offering an augmentation of our capabilities of an ilk already pervasive in our society, not that different from our current capacity to shift time (through recording) and space (through networking). However, when systems with similar capabilities can be implanted within humans, and inter-connected to allow communications, things will be different. Whilst I do not find Varian's imagined future for Google entirely convincing, depending as it does on a reductivist view of the human that allows the complex problems inherent in such technology to appear surmountable, I nevertheless think it is eventually probable. The question is how much time we have, to consider what the implications of this technology will be, before it literally envelopes us?

Simon Biggs  
Edinburgh, 2011

#### Bibliography

Aurasma (2011) <http://www.aurasma.com/> accessed 10 July 2011

Biggs, S. (2011), *Becoming Borg*, <http://www.littlepig.org.uk/texts/BecomingBorg.pdf> accessed 19 July 2011

Delany, S. R. (1975) *Dhalgren*, Bantam Books, NY, NY.

Millikan, A (2010) *I Am a Cyborg and I Want My Google Implant Already*, The Atlantic, <http://www.theatlantic.com/technology/archive/2010/09/i-am-a-cyborg-and-i-want-my-google-implant-already/63806/> accessed 10 July 2011

Minsky, Marvin (1988) *The Society of Mind*, Simon and Schuster, New York.

Sekai Camera (2011) <http://www.tonchidot.com/en/services/> accessed 10 July 2011