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21W.784 Becoming Digital

Professor Aden Evens

E3D

Reinhabiting Our World through Wearable Computers

The desktop computer was a household revolution: for the first time in history, we had, for personal use, a machine of formidable capacity for data crunching, storage, organization, and, with the Internet, communication. Then, a new demand was made of the personal computer: to increase its instances of use. Hence, the demand for portability brought about the inventions of the laptop, PDA, and Blackberry. With these devices (and the parallel invention of wireless Internet), a user can work on his own computer at home, on the bus, or at a café at his convenience, creating the next stage in the evolution of computer-user relationship.

In his essay "The Gadget Lover: Narcissus as Narcosis," Marshall MacLuhan proposes a theory that can be used to explain the trend towards portable technology, as well as the very origin of computer technology. Much as a living organism numbs or blocks sensations in response to pain or stress, technology is a human act of "autoamputation," a reaction to external stress or overstimulation from the environment. For example, MacLuhan claims, in order to cope with the world's increasing speed of

communication and commerce, man developed the wheel as an extension or isolation of the function of the foot. Likewise, in response to our society's increasing exchange and processing of information, "man extended, or set outside himself, a live model of the central nervous system itself" – hence, computer technology (43). Next comes "closure": we embrace the amputated extension by putting it into use. By making computers portable, we come to terms with it by expanding its use in our lives. This "two-step" process by which man deals with the stresses of an accelerating world explains the impetus behind computer technology and its subsequent trend towards mobility (MacLuhan).

Unknown to the general public, the next physical form of the computer is currently being sketched out in research labs at universities and technological companies, as well as in limited commercial use. The exotic manifestations of this third stage of computer-user relationship are at the cutting edge of hardware and technology today: wearable computers. Websites of research labs at universities worldwide report tantalizing developments of video goggle displays, electronic eyes clamped over the real eye, and entire computer systems strapped to the body as a backpack or vest. In fact, the Wearable Computer Laboratory at the University of South Australia published a paper documenting the development of an "e-SUIT," or a business suit with a personal computer built in. LED's and button pads hidden in the cuffs and hem of the suit allow the wearer to enter appointments and be alerted to calls, messages, and upcoming meetings (Toney et al.).

This extended "embracing" seems to reach beyond the realm of MacLuhan's explanation. Portable Blackberries and PDA's, for example, have already facilitated the

use of computer technology to such an extent as to fulfill the stage of "closure." What is the need behind such a device as the e-SUIT? Another conundrum is that the attributes we desire from wearable computers do not fit into MacLuhan's model of our relationship with technology. [It isn't clear that wearable computing satisfies a need at all. Will it be adopted by our culture, or will it remain a technological orphan, of greater interest to the labs that develop this technology than to any actual users?]

According to Steve Mann's keynote address "Wearable Computing as Means for Personal Empowerment" at the 1998 International Conference on Wearable Computing, a wearable computer, unlike a desktop or a laptop, should be a constant, attentive mediator between the user and his environment, feeding him a constant stream of processed data for greater perception and interaction with his environment (Mann). This is contrary to MacLuhan's view of technology as an extension of the user, "autoamputated" so that he may be numbed to the information barrage of the outside environment. [It's not clear that these ideas are opposed, though perhaps they are. A mediator can still function to shut down certain internal functions. A wearable computer might obviate the need for certain corporeal gestures: if you can answer the phone with a blink of an eye, then you will no longer need to reach your hand out to it.]

Also, MacLuhan claims that "we relate ourselves to them [technological extensions] as servomechanisms ... An Indian is the servo-mechanism of his canoe, as the cowboy of his horse or the executive of his clock" (46). In Mann's address, however, the desire expressed is for the computer to become a part of the human mind and body, for it to be as "in constant operation" as the human brain, as "unobtrusive" in operation as the eyes and arms, and as "constant" and "attentive" a "mediator" between a human and his

environment as the nerve endings in his skin (Mann). Not only do we want to always be able to use computers, but we want them to be part of us. In fact, he goes so far as to say that "the 'always ready' capability leads to a new form of synergy between human and computer ... Human and computer are inextricably intertwined" (Mann). [You are wise to explore the tensions between Mann's ideas and MacLuhan's. But these tensions would be heightened by an acknowledgement of the ways in which these ideas also fit together and complement each other. To some extent, Mann is just rephrasing MacLuhan, even if there may also be a certain amount of disagreement.]

What appears to be happening in our society is a "3rd stage" to MacLuhan's process: *reabsorption*. First, we developed computer technology as relief from the constant bombardment of data in our steadily advancing world. Then, in MacLuhan's act of "closure," we proliferated among ourselves the use of computer technology. [I guess I didn't entirely understand this when you explained it before. How is the proliferation of computing technologies an act of closure?] Now, in our drive towards wearable computing, we are reabsorbing our technological extensions in order to take part once again in our heightened world, under neither numbness nor servility. Unlike MacLuhan's process of constant autoamputation and numbing in response to an accelerating world, reabsorption is a markedly more optimistic ending: we used to take part of our world, and end up, in full circle, being full inhabitants of it again. The repeated use of this cycle continuously heightens, through technology, mankind's level of intelligence and subsistence – though to what end comes this infinite ascent, we can not yet say.

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Self Critique

Not much to say: I am happy with my thesis, but wished I was able to flesh my ideas out

more, provide more discussion, and take further my ideas on what implications the "3rd

stage" of MacLuhan's process means for mankind (it was sort of a time issue)...

Hui Ying,

Your revision rehearses the two stages of MacLuhan's theory of our developmental relationship to technology, asking where wearable computing fits into this paradigm. You conclude that MacLuhan's framework does not adequately accommodate wearable computing, and so propose a third stage of the development. As an outline for an essay, this is exemplary. You bring a classic and important theory to bear on a new and significant trend in technology, then you introduce your own original augmentation to the theory, which not only makes sense of the trend and not only extends the theory but also shines a brighter light on culture's relationship to technology in general. This bold work is precisely what professional writers and theorists do; the willingness to develop an original and critical theory is well beyond the ken of most undergraduates. I hope you will continue to follow this model, as you will surely produce fantastic and essential work.

However, the method you employ in this essay is not implemented nearly well enough. You do not engage sufficiently seriously with MacLuhan's ideas to justify your revision of them; MacLuhan is a semi-deity of technology theory, and any proposal to amend his concepts must be examined very carefully. You also rely on an extremely scanty examination of the technology under consideration. You engage in very little thinking about what it means to wear computers, and your conceptualization of wearable computing is adopted from Mann with little critical investigation of his claims. Your basic insight is sound; that is, I agree that wearable computing is about bringing computers closer to our bodies and to our selves, incorporating them into our being at a level approaching the unconscious. But this is itself a complex and perplexing idea, deserving much greater analysis. How does a machine become a part of who we are? Do computers change our perceptions (as Friedman argued), and if so how fundamental is this change? Even an automobile becomes a kind of intuitive extension of human being, as the driver no longer thinks of the wheel as separate from himself nor the road as separate from the wheel. How is this different from the incorporation of technologies into our bodies as wearable devices? And if it isn't really different, then why does MacLuhan offer a purportedly inadequate theory to explain the phenomenology of wearable computing?

Aside from this lack of greater depth, I can't offer further critique. What you have written is excellent. The writing is wonderfully lucid and you successfully avoid redundancy and irrelevancy, stripping down your ideas to the necessary skeletons that get your points across. I want also to reiterate what I said above: despite my serious complaints about the execution of this essay, the outline you pursue is worthy of graduate or professional level academic writing and is most admirable in undergraduate essays. Still, I feel as though you didn't put as much of your thought into this as you could have, and the result is a promising but incomplete paper.