Kurt Medley

Seminar Paper 3

March 12, 2012

<center>The Loss of Control</center>

It seems like the forecasts surrounding the controversies of ambient intelligence (AmI) have been strewn across the early twentieth century up into present day in all forms of multimedia. From Orson Scott Card to *2001: A Spacey Odyssey*, one cannot dismiss the popular message portrayed by novelists and directors alike: the proliferation of technology warrants technological dependency, which in turn may or may not compromise human autonomy. Should converging technologies be implemented with a blind eye? The future reveals exciting new possibilities in the advancement of technologies through applied sciences but should the exponential rate by which technological advancement shadows the past be reconsidered?

Ambient intelligence implies the "response" of technologies embedded within certain environments. Whether that environment be at home, at work, etc. I find the nature of omnipresent technology entrenched within every contextual environment pervasive and non-progressive. Not in the sense of the complexity encompassed with such a technology, but by which human nature may be altered by such technology. This sort of contemporary phenomenon foreshadows the loss of autonomy and control over our surroundings as the nature of a continuously adaptable machine governs and delegates human tasks, relationships, and hobbies based on willingly (and non willingly) submitted feedback. This demonstrates a fundamental muddle for the ethical interpretation of such technologies and is worth examining closely.

As Tavani explains, three key technological components that make AmI possible are pervasive computing, ubiquitous communication, and intelligent user interfaces (IUIs). These threads of the functioning AmI structure each present their own unique social challenges. As previously stated, pervasive computing implies a fully integrated computing technology within any specified environment thats purpose is to adopt tasks human's deem irritating, boring, or tedious. Pervasive computing is made possible, in part, because of the increasing ease with which circuits can be printed or embedded into objects, including wearable, even disposable items (364). Mark Weiser envisioned ubiquitous computing as something that would function "invisibly and unobtrusively" in the background (364). The repercussions of such technology would then also be invisible and potentially very obtrusive. Imagine a scenario that recorded, virtually, every measurement of your body, every word you've ever spoken, every action you've ever made within the context of the environment that implemented a AmI system. A certain type of privacy-breach may then be considered. What could happen to this personal information? The second component to be featured in a theoretical AmI system may be the distributer of such information: Ubiquitous Communication.

As the name implies, ubiquitous communication describes the interlinked network of computer devices potentially interacting with any previously described AmI system. With the emergence of wireless communication technology like the wireless local area network (W-LANS) and the radio frequency identification (RFID), it wouldn't be hard to imagine an AmI broadcasting relevant consumer information to paying advertisers. Or a skilled technician accessing personally sensitive information. All of this happening "invisibly and unobtrusively" through the power of ubiquitous communication. As time rolls

along its seems humans become less concerned with what may unintentionally cause harm in the future and more with what convenience and profitability may bring today. Ubiquitous communication seems like a constituent part of the themes described in George Orwell's *1984*. A system that could allow for the unauthorized dissemination of personal information could result in a violation of privacy on many different levels. No aspect of our life will be secluded from "digitization," because virtually anything we say, do, or even feel, could be "digitized, stored, and retrieved anytime later". Because computers are virtually *invisible* in AmI environments (in the sense that they easily "disappear" from view), it is likely the users will not always realize that computing devices are present and are being used to collect and disseminate personal data (367). This sort of invisible and persistent observation/recording could have a potentially devastating effect on a person's breach of privacy.

Intelligent user interfaces describe the adaptability of AmI systems and their interactions with users. An AmI can then use information observed and recorded to adapt to a user's "preferences". With IUIs, computers can "know" and sense far more about a person that was possible with traditional interfaces, including information about that person's situation, context, or environment. IUIs in AmI environments also enable profiling, "the ability to personalize and automatically adapt to particular user's behavior patterns" (365). One might easily see both the convenience and efficiency with such an innovation. I could imagine a scenario where I'd come home after a long day of work, my AmI, using its IUI profiling system, begins boiling a tea kettle and fades in my favorite music at just the volume I prefer. Sounds serene! But maybe that day, in my spontaneity, I decided I needed to listen to a different genre of music. Or that I didn't want tea. These

are normal human decisions that could be altered by the profiling system within an AmI. A predetermined profile, tirelessly administered by an AmI (similar to how cookies work in web browsers and on web servers) could have supreme influence over the once cognizant decisions I freely made every day. One might argue that an advanced profiling system might eliminate distractions and increase efficiency of everyday life because the system would be specifically catered to the recorded patterns by which you usually follow. This is a loss of control and of autonomy. We react to our environment instinctually, and although outside observable influences may be undesirable, they are freely interpreted so. Objectionable outside influence should not be filtered out by a machine, but rather by human intuition. This is of course, how humans develop a unique and independent personality. The AmI, taken to the extreme, has the potential to create a homogenous and unimaginative character, influenced only by the initialized information provided by the user and then stored, and adapted by the AmI system.

An unmentioned type of behavior control, more a side-effect of ambient intelligence, is the idea of an embedded panopticon. The classic panopticon describes a prisoner in a cell, being observed by camera or by some other means, at random intervals. The method induces behavior control and optimization of that behavior. Because a prisoner would be uncertain of a specific time of monitoring, it would be in his/her best interest to behave favorably less suffer the consequences. Persons living in AmI environments can with 100% certainty know that they are being observed (368). This paranoia intuition may have an adverse behavioral effect. If AmI systems are implemented in a widespread fashion and in many different environments, coupled with the profiling abilities of

IUIs in optimized order, we could be systematically programming humans into developing in a homogenous, algorithm based fashion. An undesirable future.

Converging technologies like ambient intelligence, nanotechnology, and bioinformatics offer exciting opportunities in advancing sciences. Their future seems closer and more accessible everyday. But welcoming such technologies freely and not considering the ramifications they could induce, we are inviting a future filled with dependency, reliance, and machine manufactured personality.

Works Cited

1. Ethics and Technology; Controversies, Questions, and Strategies for Ethical Computing. Herman T. Tavani

2. Aarts, Emile; Harwig, Rick; Schuurmans, Martin (2001), *chapter "Ambient Intelligence" in The Invisible Future: The Seamless Integration Of Technology Into Everyday Life*, McGraw-Hill Companies

3. Zelkha, Eli; Epstein, Brian; Birrell, Simon; Dodsworth, Clark (1998), "From Devices to "Ambient Intelligence"", *Digital Living Room Conference*, June 1998