

Body and Enhancement Technology: An Introduction

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In the 1970s US television series *The Six Million Dollar Man*, the lead character, Steve Austin, was rebuilt to be “better, stronger, and faster” with the help of the latest technology, after a near-fatal accident. With technological modifications, a man barely alive turned into a bionic man, a cyborg whose physical and cognitive capacities outperformed ordinary human beings. Can we call Steve a human, or a superhuman, or a transhuman? Although Steve’s story is just fiction, this special issue of *EASTS* intends to shine a spotlight on the issue his case raises: What happens when technology merges with the human body? One thing that was made clear in the TV show is that Steve’s technological interventions were done for therapeutic purposes, in the sense that lost bodily functions were replaced and restored. And yet at the same time those therapeutic interventions resulted in the enhancement of his capabilities.

This special issue brings together original scholarly articles whose research concerns the interrelationship of the body and technology. Human enhancement is about applying science and technology to expand our cognitive and physical capacities. Enhancement technologies point to interventions to improve human functions or characteristics beyond what is necessary to sustain health, blurring the boundaries between therapeutic and augmentative (Hogle 2005). Contributions to human enhancement come from developments in fields as diverse as surgery, sports medicine, stem cell research, gene therapy, pharmaceuticals, cybernetics, prosthetics, nanotechnology, and computer science and engineering. Enita A. Williams (2006) has pointed out that one major factor driving the development of enhancement technologies is the convergence of four research areas: nanotechnology, biotechnology, information technology, and cognitive science.

As this convergence technology advances, the intersection of human beings and the technological environment has grown increasingly diverse and complex. Advances in biotechnology and genetic technology have expanded the horizons of the human condition from birth to death; have presented new social, ethical, and regulatory challenges for humanity; and have begun to offer new hopes and expectations. These advanced technologies also pose ethical, legal, societal, and regulatory challenges that are situated in various cultural, historical, and political contexts. As to the

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unforeseen health risks and moral hazards of emergent biotechnologies, Phil Bereano once suggested that “we should read some more Greek tragedies. They show us that humans can’t always predict what the future is going to be, and that our arrogance and pride often lead to disasters” (quoted in BBC News 2000).

The capacity of the body can be enhanced with the aid of technologies, and how we define the “normal” human is contentious. The theme of enhancement challenges the boundaries of the normal and the natural. With the application of—and fusion with—technology, bodily functions can improve, be enhanced, or even outperform normal functions. The merging of technology with the body, in particular, blurs the distinctions between *able-bodied*, *disabled*, and *enhanced*. This is most prominent in prosthetics and bionic medicine, which challenge perceptions of what is normal, beautiful, and possible (Romney 2012). Aimee Mullins is an athlete, activist, and model who was born without fibulae and who had both legs amputated in infancy. Yet with the aid of advanced prosthetic engineering and design, Aimee has had over a dozen different prosthetic legs. For her, a prosthetic limb does not simply represent the need to replace or restore a loss; it stands as a symbol of her empowerment to create new identities by designing her own body (Mullins 2009). But it is not only that the boundary between normality and disability is being blurred; it is also that the distinction between disabled and enhanced is becoming fuzzy. And that is why the articles in this special issue of *EASTS* also explore topics associated with a wide range of emergent technologies. All the contributions, either directly or indirectly, take up this question so as to facilitate further discussion and research. A common theme running through these articles is the complication and problematization of the idea of enhancement in relation to aesthetics, genetics and musculature, cognitive enhancement, and social institutions. With their investigations into the intersections between body and technology, the contributors attempt to dissect the concept of enhancement in a globalized context.

The articles brought together in this special issue derive from the two-day workshop “Body and Enhancement Technology,” which was held at the Humanities, Imagination, and Technology (HiT) Center at Pohang University of Science and Technology, in Pohang, South Korea, 4–6 October 2012. HiT is a research center established in 2011 to bridge the seemingly unbridgeable chasm between two cultures (to borrow from Snow 2001 [1959]): humanities and technology. Consilience, convergence, or collaboration has been talked about for some time among stakeholders such as governments, industry, and worldwide academia, and HiT was founded to facilitate and cement collaboration between those two camps: the humanities and social sciences, and engineering and science.

The theme of body and enhancement technologies was a deliberate choice aimed at opening a dialogue between engineers and academics working in the social sciences and humanities, with high hopes that the hybridizing of imaginations and the mixing of scientific and technical knowledge with cultural awareness (Jamison, Christensen, and Botin 2011) might somehow find their place within engineering culture and education. On one side of the campus, engineers and scientists work on cutting-edge science and technology in the firm belief that scientific and technological advancements will improve humanity; on the other side, scholars look at technology and science with a critical eye. It is for this reason that the HiT workshop was designed to initiate conversation among scholars with similar interests and concerns and was arranged along

three streams: engineering cognition and perception, designing the body, and “plastinating” the body. Plastination is a preservation technique used to conserve cadavers or body parts. Inspired by the notion that body has acquired new meanings via merging medical technology with anatomy, the workshop treated plastic technology as a sort of plastination. The authors of the workshop explored the degree and extent to which body can be malleable and agency can be generated.

At the workshop, participants discussed cognition and memory through various lenses, such as computer-mediated technology and neuro-enhancement. In so doing, the very perception of human limits and capacities was problematized. Advances in biotechnology and genetic technology have expanded the horizons of our human condition from the moment of birth to the moment of death, and they present new ethical and regulatory challenges for us to deal with. In vitro fertilization technology, for instance, has opened up and expanded the horizons of human conception. The latest developments in genetics technology promise to engineer specific gene networks in muscles so as to give the benefits of a good workout to people who are unable to exercise due to obesity or complications such as diabetes, immobility, or simple frailty (Solon 2011). Plastic surgery is another area where the body can be examined as a malleable and plastic object in the contexts of global consumerism. Situating aesthetic practices and desires in a particular national context, one can explore the various notions of the body social, political, and aesthetic and better understand the ways in which the notion of the body is modified, altered, and regulated.

Each of these articles explores the body as a malleable and plastic object in the context of global consumerism and, as such, with reference to empirical cases and philosophical reflections. Through examples including aesthetic surgery, elite sports, and memories, we examine various notions of the body to better understand the ways in which the idea of the body is modified, altered, and regulated. Eduardo Zachary Albrecht’s article, “Embodying Progress: Aesthetic Surgery and Socioeconomic Change in South Korea,” addresses interrelated issues of social progress and aesthetic enhancement, exploring narratives of embodiment among young Koreans who have experienced aesthetic surgery. He finds that the body is made to be more economically productive through surgical technologies and that the transformed body may contribute to the progress of the country as a whole. So Yeon Leem’s article, “The Dubious Enhancement: Making South Korea a Plastic Surgery Nation,” investigates the coverage of plastic surgery in two major Korean newspapers from 1960 to 2009. Using media content analysis, Leem shows how the discourse of South Korea as a “plastic surgery nation” is constructed at both local and global levels. She pays particular attention to the role that statistics has played in the characterization of South Korea as a plastic surgery nation.

In his article “Blade Runner and Memory Devices: Reconsidering the Interrelations between the Body, Technology, and Enhancement,” Masato Fukushima suggests that discussion of enhancement within elite sports and digital technology is a probe for a greater value system. This discussion inevitably forces us to reexamine our own values with the help of the tentative conceptual scheme that his article provides. Jaehwan Hyun’s “Asians—a Doping-Friendly Race? Antidoping Research and Popular Discourse on Race in the Postgenomic Era” traces knowledge making in steroid doping regulations and its journey through the media and cyberspace. He shows that regulatory efforts against doping were “incidentally” linked to the shaping of the idea of

race in relation to genomics and personalized medicine, and especially that of Asian race. The collected articles have illustrated that the emergence of new technologies and their merging with the body may challenge our perception of normal human conditions such as cognitive capabilities, physical strengths, and beauty enhancement. The emergence of convergence technologies not only contests the boundaries of the human body, but also challenges our perception of humans and nonhumans such as superhumans and cyborgs. Situated in global Asia, the collected essays, I believe, may shed some interesting light on further discussion on body and enhancement technologies, considering ever-increased engineering efforts to augment human bodily functions.

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