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My Extended Body - From Cyborgs to Robots to Cyborgs

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Opinion

Relationships between humans and technology are constantly fraught with controversy, utopian idealism and in particular, dichotomies. In a recent short communications article titled “Insight into Bio Inspired Robotics” by Shaikh and Begum [1] present a bio inspired model of robotics that among other things includes soft robotics, plantoids and cyborgs. This is an interesting article for many reasons, such as the mimicry of living organisms to generate form and movement (biomimicry), inspiration from nature to create intelligent robotics that exceed the imagination in terms of their embodiment, and relevant to this short piece, the relationship between robotics and humans. Often times cyborgs and cyborgism are considered new concepts. Particularly in light of movements such as body hackers, artists (Neil Harbisson, Moon Ribas, Stelarc and active scientist-developers Steve Mann and Kevin Warwick), the idea of the cyborg has become synonymous with the implantation of information technology into the human body. Discussions of the post-human focus on traits of artificial construction and especially the role that information has on the definition and framing of humans as a whole - the discourse and representation of human groups see e.g., Haraway [2].

While information involved in this shaping and being of humans is connected to information technology in today’s discourse, it may be observed that literally humans have been connected to their technology through language, performance and development throughout history. For, language is technology Bonvillian [3], Kramsch [4] and the oldest form of information technology that is known. Language is not simply a means of communication but is also the vehicle through which people make sense of the world Kelly [5], representing phenomena to oneself and then representing it to others. In cognitive science scholars many times refer to the Language of Thought, or Mentalese Fodor [6], to describe the connection between the language people use and mental representations.

From this perspective, humans have always been cyborgs. As Andy Clark (2001, 2008) points out, not only have humans always been cyborgs through their use of tools and aids for both physical and mental purposes, but, these tools and aids very quickly become (if they not already are) a part of people. The human brain shapes and adapts with the use of tools and is constantly in search of more technology to absorb and utilize. So, what does this have to do with robotics? The way we view robotics in relation to ourselves. Perhaps the greatest disconcertion with the developments and fantasies of robotics is the separatist treatment offered to the notion of robotics. Whether humanoid or industrial, robots have not so much been viewed as tools or extensions to humans, their bodies and cognition, but instead as artificial entities that operate separate to humans. Whether it be in relation to substituting human labor for robotic labor, or outright world take over, robots as an extension to the body and indeed linked to humans and their existence.

Thus, there are two ways in which a cyborg future with robots may be viewed: one in which as with the examples of the Terminator, Robocop, or any of the current practicing body hackers, the human body is being infused with information technological devices (or the other way around); and the other in which, although physically separate to humans, robots can be seen as a part of human psycho-physical systems extending (augmenting) human capabilities through space and time. In this light we may view human technological development from cyborgism (what humans have and always will be), to the imagined and separatist world of autonomous robotics (autonomous technology and AI being hot topics currently), back to cyborgism. Particularly in the areas of robotic emotions, sensations and overall intelligence Rousi [7,8] it is more and more likely that scholars and developers consider human organic-robotic synthesis. Thus, rather than just a cognitive and communicational connection with these all-encompassing tools enhancement and augmentation of the body will see the

literal merger of organic-mechanical systems. Once again, a dual approach may be taken towards the relationship between humans and technology, cyborgism and robotics, as this progress can be viewed in terms of either technological development, or indeed human development and evolution. The core to the argument of this article is that in addition to observing the advancement of robotic technology and artificial intelligence in light of cyborgism, we should be looking at robotic development in terms of human evolution. The division of humans from technology, and nature from culture should be provoked if not erased, as being human we cannot divide one from the other. From this perspective, robots are human extensions or augmentations, and perhaps in the future it will definitely be impossible to conceptually, discursively and/or physically separate robotic technology from humans.

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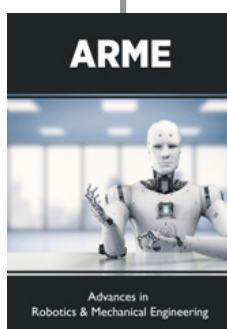


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