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Afterword: Minds and Machines: My Mind to Your Mind: the Melding of Minds and Machines

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As you may be able to tell from the title of this afterword, I am a *Star Trek* fan (aka a "Trekkie"); I was always fascinated by the concept of the "Vulcan mind meld." And now, technologies that may enable us to open "a window into the movies in our minds" are becoming a reality.[1] Clinical trials for brain implants for patients with traumatic brain injury or cognitive impairments due to stroke are scheduled to start in 2015,[2] with the hope that trials for patients with Alzheimer's will start within a year or two after that. One of our authors, Matt Lucas, examines the use of neuroprosthetics for children with neural injuries. At the other end of the spectrum, as the gray tsunami of aging baby boomers approaches, and they choose to use technology to improve their quality of life, these machine-mind mergers will become more commonplace and accepted as the standard of treatment.

This collection of essays for JET provides a small peek into the future of humanity, the evolution of the species that we currently call *Homo sapiens*, what challenges we face, and upon what questions we need to meditate.

Author Mark Coeckelbergh considers whether our quest for enhancement leaves us vulnerable in ways that we had not anticipated. Physical vulnerability is not the only vulnerability; he posits that there are existential and psychological vulnerabilities, social and emotional vulnerabilities, as well as ethical-axiological vulnerabilities. As he notes, "Whether… seen as composed of elementary particles or as relational nodes in a network-ecology, they remain vulnerable and 'mortal,' however virtual they might have become." He concludes that, rather making ourselves invulnerable, we should pay heed to the lesson of Achilles and other Greek myths, and realize that vulnerabilities are relational and should remain an essential part of the human (and

posthuman) condition.

Corry Shores reflects on whole brain emulation, the wildly random nature of our neurons, and identity; he speculates that the "brain's randomness is responsible for creativity, adaptation, and free choice," and that this randomness may be the reason our personal identities cannot be duplicated.

Mark Walker distinguishes between token and type identity, argues persuasively that preservation of either identity is a worthy goal, and suggests that there are considerable advantages (or at least apparent advantages) to being uploaded, including immortality and enhancement.

Nicholas Agar contemplates the pros and cons of a strong AI, and argues that uploading should not replace the option to maintain a biological substrate. If uploading the mind results in death of the biological substrate, this denies a future in which technologies compatible with the survival of a biological brain can rejuvenate our bodies and enhance our powers of thought.

Jeff Buechner contends that reality augmentation with fictional virtual beings is metaphysically impossible. He examines Saul Kripke's views on reference to fictional entities, and concludes there is an impenetrable barrier between real beings and fictional beings, and that the conflation of contexts and the resulting "actions performed on the basis of the fallacious inferences could jeopardize one's life in multiple ways."

Kim Lacey cogitates the cryogenic preservation of one's mind via digital suspension, as opposed to pharmaceutical suspension, and asks, "What does it mean to add to your existing self?"

James Ogilvy cautions, "Be careful of what you wish for" in terms of cognitive enhancement, because intelligence comes in many shapes, colors, and flavors other than simple logico-analytic or computational intelligence; for Ogilvy, human intelligence and nonbiological intelligence are very different concepts.

Laura Cabrera reminds us that with every new technology there are unintended consequences. Similar to the fear that our reliance on GPS and GIS systems is weakening our spatial literacy, Cabrera portends that increased ability to remember every event could overflow our capacity or that some memory enhancement interventions could impair our creativity and imaginative capabilities.

James Giordano and Roland Benedikter have some fun with the wise old Owl of Minerva, whose flight is representative of the clarity of hindsight. They assert that "the value of neuroethics is derived from its wider vision of the human and humanity – if not all sentient – beings in general, as both reflecting advancements and effects of neuroscience, and in acknowledgment of the bio-psychosocial view of organisms' reciprocal interactions with their environments."

And last but not least, Ben Goertzel and Joel Pitt, in their heartening essay, propose that an open-source AGI can and should be biased toward friendliness, and they offer nine ways to do just that. They take Yudkowsky's notion of Coherent *Extrapolated* Volition a step further, and proffer that with human collaboration, through a collective interactive process, Coherent *Blended* Volition can be designed. This blending process is present in what the authors term "The Global Brain" (the composite, self-organizing information system comprising humans, computers, data stores, the Internet, mobile phones and other communication systems) and supports deep sharing and collective engagement among human beings. Along the lines of "transparency is the best disinfectant," Goertzel and Pitt recommend that the development of the AGI be tightly linked

with the Global Brain.

Other useful suggestions include creation of an "AGI Nanny" and the fostering of deep, consensus-building interactions and commensurability between divergent viewpoints, similar to my call made in an article published in JET in 2003, about evolving notions of personhood.[3]

It has been an honor and pleasure to co-edit this fine journal issue with my colleague, Russell Blackford, an esteemed philosopher who has my tremendous respect and admiration. My many thanks go to him for his patience, perseverance, and kindness. It has also been an honor to review my colleagues' writing and I thank all of the authors for their willingness to undergo the challenging (and sometimes, unnerving) peer review process to produce this inspirational and stellar issue of JET. I'm sure the readers of this journal issue will find it both enlightening and useful.

Notes

1. Morris, Ian. 2012. Hitler would have loved The Singularity: Mind-blowing benefits of merging human brains and computers. *Mail Online*. February 6. http://www.dailymail.co.uk/debate/article-2096522/The-singularity-Mind-blowing-benefits-merging-human-brains-computers.html#ixzz2ZuRJznBI

2. Stat, Michael. 2013. Memory implants may start trials in 2 years. *Future Leap*. May 8. http://www.futureleap.com/news/memory-implants-may-start-human-trials-in-2-years/

3. Glenn, Linda MacDonald. 2003. Biology at the margins of personhood: An evolving legal paradigm. *Journal of Evolution and Technology* 13(1) (March). http://jetpress.org/volume13/glenn.html