

# The Influence of Transhumanist Thought on Human Enhancement

**by Jeff Sheets**

In the April 2017 edition of *National Geographic Magazine*, journalist D.T. Max describes his encounter with cyborg<sup>1</sup> Neil Harbisson. Color blind from birth due to a condition called achromatopsia, Harbisson had a fiber-optic sensor fixed onto the back of his skull. This device bends like a whip antenna over the top of his head with the tip in front of his brow. “A microchip implanted in his skull converts their frequencies into vibrations on the back of his head” and those vibrations “become sound frequencies, turning his skull into a sort of third ear.”<sup>2</sup> This technology includes a Bluetooth device so friends can upload new “colors.” But Harbisson is not only able to “hear” colors that fall within the capacity of the human eye, but he is able to detect a spectrum of waves such as infrared.

Max’s point in investigating this technological achievement with the human body is this: “Like other species, we are the products of millions of years of adaptation. Now we’re taking matters into our own hands.”<sup>3</sup> This movement to take evolutionary matters into human control is known as transhumanism and its vision is to bring “the radical removal of the constraints of our bodies and brains and the reconfiguration of human existence according to technological opportunities.”<sup>4</sup>

To remove human constraints and enhance the human condition seems like a grand idea, especially for the military. As Patrick Lin noted, humans are “the weakest links in armed conflicts as well as one the most valuable assets...the warfighters themselves.”<sup>5</sup> Why *not* upgrade the weakest, but most valuable asset in order to dominate the battlefield? With a more sophisticated Soldier, this should decrease the amount needed on the battlefield which in turn will should reduce casualty rates.

The Defense Advanced Research Projects Agency (DARPA), the Pentagon’s research and development department, is already moving in that direction. The Biological Technologies Office is one of six divisions at DARPA that “develops capabilities that embrace the unique properties of biology—adaptation, replication, complexity—and applies those features to revolutionize how the United States defends the homeland and prepares and protects its Soldiers, Sailors, Airmen,

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and Marines.”<sup>6</sup> There are various programs within the Biological Technologies Office. From Battlefield Medicine to Advanced Plant Technologies (“which seeks to develop plants capable of serving as next-generation, persistent, ground-based sensor technologies to protect... by detecting and reporting chemical, biological, radiological, nuclear, and explosive (CBRNE) threats”<sup>7</sup>), DARPA has many programs aimed at improving and bettering our nation’s warfighter and warfighting abilities.

Yet, some programs seem to point to or go beyond protective, therapeutic and/or medical purposes and instead move toward human enhancement with the “aim to stimulate and augment the human body beyond its natural capacities.”<sup>8</sup> For example, the Neural Engineering System Design program began in April 2016 with the purpose to “advance research into the development of a neural implant that is biocompatible and can enable two-way communication between the human brain and a computer.”<sup>9</sup> “Practical outcomes could be anything from replacing someone’s lost vision with a visual cortex prosthesis, to producing a brain-machine interface that allows one to control an artificial limb with their mind.”<sup>10</sup> Yet, as Michael Gross points out, the line between healing and enhancement has blurred. He points to the conference held by DARPA in 2017 entitled “Future of War” in which a person’s brain-computer interface was connected to an F-35 flight simulator, and she was flying the airplane.”<sup>11</sup> It would appear DARPA has plans for brain-computer interfaces that involve more than restorative function to those who are disabled.

The promises of a better, more advanced, fine-tuned soldier who is capable of going beyond the normal physical and mental boundaries confined by human limitations is a siren song of human enhancement in transhumanist thought and it is a tempting one. Yet, the focus of this paper is not a knee-jerk

reaction to medical advancement, a dismissal of technology, or the like. Nor is it just a critique of human enhancement though there are and should be concerns when it comes to change that has the potential to transform or change a person that could impact her or him not just physically, but emotionally, socially, spiritually, and so forth. Added to the debate on human enhancement is defining what constitutes an enhancement. Some may argue some “enhancements” are

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not invasive or life altering — like a cochlear implant<sup>12</sup> or increasing the ability to metabolize vitamins — while some enhancements (or some that are being researched) have very clear physical, psychological, and sociological implications, such as altering memories.

Instead, the goal of this paper is to offer a critique of transhumanism as it is a key influencer and a key philosophy behind human enhancement thought especially at the intersection of humans and technology. Not all proponents of human enhancement are transhumanists, but all transhumanists advocate for human enhancement at some level. As Allen Port notes,

It is crucially important to give proper scholarly attention to transhumanism now, not only because of its recent and ongoing rise as a cultural and political force (and the concomitant potential ramifications for bioethical discourse and public policy), but because of the imminence of major breakthroughs in the kinds of biotransformative technologies that transhumanism focuses on, from genetic engineering to brain-machine interfaces to artificial intelligence.<sup>13</sup>

This paper will first briefly review the main tenants of transhumanism and engage this movement on their ideas of personhood, the physical body and the flaw in human nature.

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## Transhumanism

Transhumanism is a movement similar to humanism with the focus on individualism, addressing human need and using reason to solve problems. But transhumanism goes beyond its predecessor by focusing on what humans can become beyond their current evolutionary state with a focus on technology to aid in the further evolution of humanity. Max More, one of the key founders of the movement, originally defined the movement in the 1990s in “The Transhumanist FAQ,” the “Bible” of the transhumanist movement. He said then, “Transhumanism is a class of philosophies of life that seek the continuation and acceleration of the evolution of intelligent life beyond its currently human form and human limitations by means of science and technology, guided by life-promoting principles and values.”<sup>14</sup>

With the current version of this manifesto maintained by the organization entitled Humanity+ (or H+), More’s definition has been expanded by Nick Bostrom. Bostrom emphasizes two key components of transhumanism in his revised manifesto: improving the human condition and an emphasis on technology. In the first component, Bostrom lays out an almost utopian vision for humanity as transhumanism is “the intellectual and cultural movement that affirms the possibility and desirability of

fundamentally improving the human condition through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities.”<sup>15</sup> In his second component, Bostrom shows the hope placed in technology by noting that “the study of the ramifications, promises, and potential dangers of technologies that will enable us to overcome fundamental human limitations, and the related study of the ethical matters involved in developing and using such technologies.”<sup>16</sup>

The end goal of transhumanism in improving the human condition is to ultimately become “posthuman.” This transcendent state refers to “future beings whose basic capacities so radically exceed those of present humans as to be no longer unambiguously human by our current standards.”<sup>17</sup> Posthuman is a state of evolutionary “completion,” an almost utopian existence where humans are able

to reach intellectual heights as far above any current human genius as humans are above other primates; to be resistant to disease and impervious to aging; to have unlimited youth and vigor; to exercise control over their own desires, moods, and states; to be able to avoid feeling tired, hateful, or irritated about petty things; to have an increased capacity for pleasure, love, artistic appreciation, and serenity; to experience novel states of consciousness that current human brains cannot access.<sup>18</sup>

Stephen Garner, a theologian with a computer science background, notes in his article “Hopeful Cyborg” the hopefulness in human transformation that is found in transhumanism, “Transhumanism asserts that values such as rational thinking, freedom, tolerance, and concern for others is increased, which ultimately leads to an ever-increasing improvement of the human condition.”<sup>19</sup>

In order to achieve this posthuman state, transhumanism assumes that a higher level of intelligence will need to be reached. Ted Peters, co-editor of the *Theology and Science* journal at Berkeley, explains further, “the posthuman will need to cross the bridge into higher intelligence, a new level of intelligence that will take over evolutionary advance from that point on.”<sup>20</sup> This new level of intelligence is known as “the singularity.” Coined by Ray Kurzweil, Google’s Director of Engineering, the singularity is “that point in time when all the advances in technology, particularly in artificial intelligence (AI), will lead to machines that are smarter than human beings.”<sup>21</sup> Kurzweil believes that leading up to singularity, changes will happen so rapidly and deeply that the effects on human life will be irreversible.

“The Transhumanist FAQ” is quick to point out that posthuman does not mean this is the end of humanity or “there are no humans anymore.” However, in order to achieve this, it states, “Radical technological modifications to our brains and bodies are needed”<sup>22</sup> to overcome physical limitations. These modifications or “enhancements” would entail “either the redesign of the human organism using advanced nanotechnology or its radical enhancement using some combination of technologies such as genetic engineering, psychopharmacology, anti-aging therapies, neural interfaces, advanced information management tools, memory enhancing drugs, wearable computers, and cognitive techniques.”<sup>23</sup>

Drawing from Peters once again, he says “The nose on this transformation face will be enhanced human intelligence. What follows this nose will be the observation that human intelligence will leap from human bodies to machines, making high-technology machines more human than we are.”<sup>24</sup> This leap can be made because intelligence can be boiled down to neural synapses that can be captured as data patterns and deposited into a computer known

as “uploading” (another Kurzweil credited concept). Kurzweil says, “Uploading a human brain means scanning all of its salient details and then reinstating those details into a suitably powerful computational substrate. This process would capture a person’s entire personality, memory, skills, and history.”<sup>25</sup> Kurzweil sees the singularity occurring by 2045.

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Some of the radical enhancements Kurzweil and others speak might seem far off, but in 2013 two MIT researches successfully implanted a false memory in the brain of a mouse.<sup>26</sup> The researchers utilized a relatively new neurological technique called optogenetics, “which employs lasers to stimulate engineered cells designed to react to them.”<sup>27</sup> One way to achieve this is through injecting wirelessly operated, implantable optoelectronic probes. There is potential for treatment of PTSD, depression, Alzheimer’s, and other diseases and disorders. But there is, as author Philip Perry points out, the potential to damage the self. “As our memory is the glue which holds our identities together, wouldn’t erasing a memory, even a bad one indelibly erase a portion of the person themselves? Though painful, our negative memories define us.”<sup>28</sup>

### **Is the Enhanced You Really You?**

This leads to one of the challenges within transhumanism and that is the concept of personhood. Dr. Susan Schneider, philosopher, cognitive scientist and professor at the University of Connecticut, points out, “When one considers whether to enhance in the radical ways the Transhumanist advocates, one must ask, ‘will this radically enhanced creature still be me?’”<sup>29</sup> Or to go even further as Gross asks, “Will an enhanced human being—a human being

possessing a neural interface with a computer—still be a human being?”<sup>30</sup> The answers to these questions depend on a true understanding of personhood. Returning to Schneider,

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For in order to understand whether you should enhance, you must first understand what you are to begin with. But what is a person? And given your conception of a person, after such radical changes, would you still be you or would you actually bear little relation to the person you were before? And if the latter situation is the case, why would embarking on the path to radical enhancement be something you value? For wouldn't it instead be a path which leads to your own demise, leading you away from your true self, ultimately causing you to cease to exist?<sup>31</sup>

So what is a person in regards to transhumanism? What does the idea of personhood look like? To start, remember that the long term vision of transhumanism is a posthuman state. These possible future beings possess “basic capacities [which] so radically exceed those of present human as to be no longer unambiguously human by our current standards”<sup>32</sup> A posthuman could be uploaded into a computer, robot or cyborg. But in this posthuman vision, one sees that transhumanism boils down the self to neurological connections: copy or capture the “program” or the patterns of the mind, much like a computer’s operating system, and the medium is virtually limitless into what she or he might indwell. This concept is referred to as the computational theory of the mind, although Kurzweil coined his own updated term for this concept, namely “patternism.” Returning to Schneider, she notes that patternism

is an “updated version” of the Psychological Continuity Theory. She explains this theory,

Put in the language of cognitive science... what is essential to you is your computational configuration—e.g., what sensory systems/subsystems your brain has (e.g., early vision), the way that the basic sensory subsystems are integrated in association areas, the neural circuitry making up your domain general reasoning, your attentional system, your memories, and so on; overall, the algorithm that the brain computes.<sup>33</sup>

The computational configuration or algorithm of the brain *is* the person. But this is not just Kurzweil’s idea. Schneider points out how patternism is appealed to in “The Transhumanist FAQ”:

A widely accepted position is that you survive so long as certain information patterns are conserved, such as your memories, values, attitudes, and emotional dispositions, and so long as there is causal continuity so that earlier stages of yourself help determine later stages of yourself. .... For the continuation of personhood, on this view, it matters little whether you are implemented on a silicon chip inside a computer or in that gray, cheesy lump inside your skull, assuming both implementations are conscious.<sup>34</sup>

Can personhood be simply defined as patterns or algorithms? Is being a human being simply a reduction to a “program?” Several issues abound. First, as Levi Checkett states, is that the “patternist philosophy of the transhumanists is just that—a philosophy and not a science.”<sup>35</sup> He goes on to add that the danger with contingent philosophical views such as patternism in our day and age is that they “are being taken to have the same certainty as scientific ones. Transhumanists, in taking their philosophical view to be scientific, risk great danger because patternist philosophy is not subject to the same

rigor or trials of strength as scientific theories.”

Second, patternism reduces down the complexity of humans (particularly the human mind) into much too simplistic of a model. Patternism confuses the patterns that can be mapped in the brain with the actual brain itself. Just as a Xerox copy of my hand is a “copy.” It is not my actual hand. Let me illustrate further. Kurzweil is optimistic with the potential to scan the brain and suggests that “with the information from brain scanning and modeling studies, we can design simulated ‘neuromorphic’ equivalent software (that is, algorithms functionally equivalent to the overall performance of a brain region).”<sup>36</sup> As Andrew Pilsch points out, “[Kurzweil’s] claims about reverse engineering the brain operate on the assumption that once we have accurately scanned the brain and developed models based on those scans, we will have a digital brain. Not a model of a brain. But an actual brain itself.”<sup>37</sup> Kurzweil is so confident that he has boasted, “The human brain is a complex hierarchy of complex systems, but it does not represent a level of complexity beyond what we are already capable of handling.”<sup>38</sup>

Kenneth D. Miller, professor of neuroscience at Columbia and a co-director of the Center for Theoretical Neuroscience, is not so optimistic as Kurzweil. Miller acknowledges that neuroscience is advancing rapidly, but says

The distance to go in understanding brain function is enormous. It will almost certainly be a very long time before we can hope to preserve a brain in sufficient detail and for sufficient time that some civilization much farther in the future, perhaps thousands or even millions of years from now, might have the technological capacity to “upload” and recreate that individual’s mind.<sup>39</sup>

Viewing the brain’s complexity as something science is “capable of handling” is not only confined to Kurzweil’s thinking. Doug Weber, neural engineer and former DARPA program

manager, noted in an interview with Michael Gross that there are others who associate the brain with a computer “where information goes from A to B to C, like everything is modular. And certainly there is a clear modular organization in the brain. But it’s not nearly as sharp as it is in a computer.”<sup>40</sup> The point is that when it comes to human enhancement, particularly those that involve the brain in some shape or form, to reduce its complexity to one model is an oversimplification.

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Another issue, as Schneider points out, is that even if patternism holds to be true, does patternism really allow for the enhancement of the individual while maintaining the survival of the actual self, of the person. She gives this example, “What about adding an intelligence enhancing working memory chip so that one can perform better in law school? Would this be too sharp a break in the existing ‘pattern?’”<sup>41</sup> Any outside manipulated insertion or deletion of memory adds or takes something away and the remaining “pattern” would be arguably different. In the case of a brain-computer interface that is connected to the internet, Jay Conte asks,

Would my “self” remain fundamentally the same, only having been augmented by the implant, or would a qualitative shift have occurred where “I” become constituted more by the Internet than the biological capacities that previously shaped my selfhood? Put another way, can selfhood be conceived in these +1 terms, or is it the case that the self exists only as a result of particular limitations that the very march towards enhancement seeks to overcome?<sup>42</sup>

And one last issue with patternism: it moves human identity into an individualistic-centered, individual-defined existence. Humans are not individuals whose existence is independent of others, but as Anderson explains, an individual human depends on other humans in what he calls “co-humanity.” He states that “Humanity as co-humanity means that the singularity of being a human person is determined by a significant encounter with another human person.”<sup>42</sup> Human existence to include personal identity is shaped dramatically and significantly by others; no person is an island! However, this does not mean that individuality or singularity is wiped away. Anderson says in regards to the individual, “This singularity, however, is experienced as a reciprocity of being, that is, a being of one with the other and also, to an extent, for the other.”<sup>44</sup> A human being, then, is dependent on others as well as God in fulfilling out his or her humanness.<sup>45</sup>

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### **Embodiment**

The posthuman of transhumanism has a conspicuous missing piece. It lacks a realistic, holistic and integrative view of the body. This is not a new philosophical quandary as over the centuries, many have debated the worth, the role or value the body has in relation to personhood. Veli-Matti Kärkkäinen says in *Creation and Humanity*, “most common people... have stuck with some sort of dualist (non-monist) way of thinking of human nature” and “in academia nondualistic explanations rule.”<sup>46</sup> The problem with a dualist approach to personhood is it creates a diminished view of the body and material world. Kärkkäinen suggests this can lead to several problems to include locating “humanity (human uniqueness) in the soul rather than in the human person as a whole,” regarding the soul in

terms of intellect “which elevates rationality as the vital principle,” and dethroning “the divine Spirit (ruach) as the principle of life.”<sup>47</sup> On the other hand, a strict materialistic monism fails to acknowledge human complexity.

One of the challenges in transhumanism’s anthropology is its dualistic outlook. Celia Deane-Drummond explains this well, “In reaching for control of the human person and its future, transhumanism entirely misses the possibility that human beings are complex creatures who resist reduction to functional mental units.”<sup>48</sup> With a person’s humanness reduced to mental data that can potentially be captured through data mapping, transhumanism ultimately has little regard for the body. This leads to an escapist approach to the body: if it can be repaired or part replaced, transhumanism’s ultimate solution is to separate that data from the brain, become disembodied, and then “uploaded” into some form of a digital framework.<sup>49</sup> The body then becomes no more than a prosthesis that can be enhanced or exchanged for a different technological, biological or cyborg dwelling.<sup>50</sup>

This diminished view of the body then leads to a way of thinking that divorces the human from the rest of the natural world. Stephen Garner notes that the distinction in Christianity (as well as other theological traditions) is that it recognizes “humans are embedded in a wider physical and social world. Human beings are caught up in relationships with not just one another but also the natural world.”<sup>51</sup> With this in mind, Garner views that a critical piece when it comes to engagement with transhumanism is to take “into account various theological and scientific portraits of humanity, as individuals, as communities, and as creatures in the natural world.”<sup>52</sup> Separation from the physical body (or enhancement that leads in a post human direction) disrupts this interconnectedness of human beings with the rest of the natural world.

Transhumanism’s dualism, as Hannah Scheidt points out, not only dismisses the human

body, but “rejects its relevance to and necessity for consciousness, thought, and experience.”<sup>53</sup> Transhumanists such as Kurzweil “largely imagine the brain as the master control center and ignore interactive physicality.”<sup>54</sup> Yet, Scheidt, as others affirmed, says that “perception, intelligence, and consciousness are products of a holistic process in which parts [receive] meaning only in terms of the whole.”<sup>55</sup> She uses this example to drive home this point of the brain’s connection to the body for cognitive function:

Notes in a melody, similarly, have value only as part of the whole composition, rather than the melody being recognized in terms of independent identified notes. Perception, understood this way, is accessible only to a subject who can anticipate an experience holistically rather than approach it through step-by-step formal analysis... It is the intentionality and materiality of the body that anticipates, discovers, and confers meaning.<sup>56</sup>

And if the cognitive could be separated from the body and still exist, this would usher in a new reality, a new meaning for everything.<sup>57</sup>

In closing out this section, I think an aspect of what it means to be human entails being finite and being connected to this limited and frail human body. This does not imply that we stop trying to restore, repair or take care of our physical selves, but it means we come to terms with the idea that being human is a holistic reality involving the physical as well as the cognitive.<sup>58</sup> Take one of these away and that reality is morphs into something other than human (minus the physical) or simply a body (minus the cognitive).

## Fixing the Flaws in Human Nature

Finally, transhumanist thought does not deal with the reality of evil. Evil has much theological and philosophical baggage tied to it. But to ignore evil in the transhumanism discussion

misses a key piece in addressing not “What is a human?” but “What is wrong with humans?” For humanity to live to the fullest potential with intrinsic worth and as embodied beings, evil has to be put into the equation as it frustrates most definitions of what it is to live with meaning and purpose.

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The issue transhumanism presents is its view of evil, or the denial thereof. Author Matthew Eppinette points out that transhumanism’s “implicit claim is that people are basically good and technological advancement will somehow purify the human condition.”<sup>59</sup> Eppinette continues what he sees in the transhumanist vision, “In many ways it seems that the human condition covers only unintentional sorts of failings, and that if only everyone were given a proper chance, all would be well. Indeed, transhumanism sounds at times as if it denies the reality of evil.”<sup>60</sup> Peters also notes,

The pothole in the transhumanist road that Christian theologians point out is the naiveté with which believers in progress remove the ambiguities of human history, which leads them to maintain confidence in the good that progress can bring while denying the potential growth of evil.<sup>61</sup>

Stephen Garner sheds light on the key idea about evil as it relates not only to transhumanism, but to all humanity. Drawing from the 20<sup>th</sup> century theologian ethicist Reinhold Niebuhr, Garner writes that “evil... occurs because human beings constantly attempt to deny their creaturely dependence and achieve transcendence through their own efforts.”<sup>62</sup> Transhumanism’s drive



for independence and autonomy often blinds its followers to their own individualism and to their further separation from community. Like Prometheus, transhumanism attempts to wrestle fire away from the gods and be a god.

A reality check is in order for transhumanism regarding its view of evil and human nature as they possess implications for the individual and humanity as a whole. Peters concludes this could lead to devastating results in the future because at any time as human history has proved, “happy and fulfilled human beings may initiate evil and destruction.”<sup>63</sup> Drawing from a technological analogy, Peters makes a vivid parallel,

At the birth of the computer age, we should have been able to predict the coming of the computer virus, or something like it. Now, at the birth of transhumanist technology, similar predictions would be in order. A transhumanist spirituality would need to incorporate this kind of realism regarding human nature, a human nature not capable of changing through the augmentation of intelligence.<sup>64</sup>

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The point is this: technological enhancement cannot change the problem of evil. Transhumanism could potentially make people smarter, faster, stronger, and so forth, but at the end of all the enhancement, evil will not be vanquished.

So what could the implications be regarding human nature when it comes to enhancement? First, ethical standards would be shaped. Modern ethic approaches already face subjectivity when it comes to spelling out what is “good,” “bad,” “the greater good,” etc. When technology and human enhancement enter into the conversation

those ethical standards will be challenged. As Ciano Aydin points out, “It is naïve to assume that adopting new and emerging technologies will not affect our standards for determining what is ‘normal,’ ‘healthy,’ and ‘enhanced.’”<sup>65</sup> And Aydin goes even further to say that as standards ethical standards shift this “could indeed come with ‘violating’ the humanist value system.”<sup>66</sup> What an enhanced human sees as “fitting” and “normal” will not necessarily align with an unenhanced human’s concept of the same concepts.

A second implication regarding enhancement on human nature is a societal one. Transhumanism views enhancement as a means to free the human condition from its constraints (disease, aging, etc.) as well as a tool to have control over “desires, moods, and states” while increasing the “capacity for pleasure, love, artistic appreciation, and serenity.”<sup>67</sup> However, Patrick Smith is not as optimistic and thinks that the transhumanism utopian ideals regarding enhancement could backfire into dystopian ones. He raises these questions when looking at the long term implications for society: “How can human societies be sure that radically enhanced beings will not oppress or wrongly oppose the unenhanced? How do societies keep the unenhanced from rising up against those perceived to be better off?”<sup>68</sup>

And lastly, human enhancement from a transhumanist perspective needs to recognize radical enhancement could equal enhancing flaws. Lord Acton famously said, “All power tends to corrupt and absolute power corrupts absolutely.”<sup>69</sup> Any human enhancement has the potential to corrupt morally. Any human enhancement pursued must take into account that the person receiving the enhancement has a human nature that is flawed and any enhancement has the potential to “enhance” those flaws in the person’s character, integrity, etc. Even something as little an excremental

increase in strength or cognitive ability has the potential to “corrupt” or change a person’s moral position rather than better it.

## Conclusion

Transhumanism is a key influencer and a key philosophy in the arena of human enhancement. This paper has explored only several of the challenges that transhumanistic thought brings to the table to include the concept of personhood, embodiment, and human nature. In its attempts to deal with the main issues of humanity—weakness, suffering, death, etc.—the long term vision of transhumanism compromises humans which it ironically wants to save. A posthuman state moves beyond humanness into a realm that brings death of beings human current state, both individually and corporately.

The alternative is not to view technology as “bad” as technological advancements have often brought positive impact to societies, but to continue to wrestle with the implications any modification to a human being might have on his or her being to include not just the physical dimension, but the emotional, social, spiritual, and so forth. With discernment in mind, we then evaluate technological enhancements to ensure those enhancements do not compromise, in the words of Kilner, human dignity and destiny. **IAJ**

## NOTES

- 1 A common definition of “cyborg” is a Webster’s Dictionary states: “a person whose body contains mechanical or electrical devices and whose abilities are greater than the abilities of normal humans.” *Webster’s Dictionary*. <https://www.merriam-webster.com/dictionary/cyborg>. (accessed on October 28, 2017).
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- 3 Ibid.
- 4 Fabrice Jotterand. “At the Roots of Transhumanism: From the Enlightenment to a Posthuman Future,” *Journal of Medicine and Philosophy*, Volume 35, 2010. 617.
- 5 Patrick Lin. “More Than Human? The Ethics of Biologically Enhancing Soldiers,” *The Atlantic*, February, 16 2012, accessed on February 26, 2019, <https://www.theatlantic.com/technology/archive/2012/02/more-than-human-the-ethics-of-biologically-enhancing-soldiers/253217>.
- 6 Quoted from the Defense Advanced Research Projects Agency website, accessed on January 29, 2019, <https://www.darpa.mil/about-us/offices/bto>.
- 7 Ibid.
- 8 Nayef Al-Rodhan. “Transhumanism and War,” *Global Policy Journal*, May 18, 2015. Accessed on February 3, 2019, <https://www.globalpolicyjournal.com/blog/18/05/2015/transhumanism-and-war>.
- 9 Rich Haridy. “DARPA backs 6 brain-computer interface projects,” *New Atlas*, accessed on February 6, 2019, <https://newatlas.com/darpa-brain-computer-interface-investment/50445>.
- 10 Michael Joseph Gross, “The Pentagon Wants to Weaponize Your Brain,” *The Atlantic*, November, 2018. 88.

11 Ibid.

12 A cochlear implant, as defined by [www.cochlear.com](http://www.cochlear.com), is “an electronic medical device that replaces the function of the damaged inner ear. Unlike hearing aids, which make sounds louder, cochlear implants do the work of damaged parts of the inner ear (cochlea) to provide sound signals to the brain.” Cochlear.com, accessed on March 4, 2019, <https://www.cochlear.com/au/home/understand/hearing-and-hl/hl-treatments/cochlear-implant>.

13 Allen Port. “Bioethics and Transhumanism,” *Journal of Medicine and Philosophy*, v. 42 (June 2017): 239.

14 Nick Bostrom. “The Transhumanist FAQ. Version 3.0” World Transhumanist Association. Accessed October 2, 2017, <http://humanityplus.org/philosophy/transhumanist-faq>.

15 Ibid.

16 Ibid.

17 Ibid.

18 Ibid.

19 Stephen Garner. “Hopeful Cyborg,” in *Transhumanism and Transcendence*, edited by Ronald Cole-Turner (Washington, D.C.: Georgetown University Press, 2011) 87.

20 Ted Peters. “Progress and Provolution: Will Transhumanism Leave Sin Behind?,” in *Transhumanism and Transcendence*, edited by Ronald Cole-Turner (Washington, D.C.: Georgetown University Press, 2011) 68.

21 Dom Galeon and Christianna Reedy. “Kurzweil Claims That the Singularity Will Happen by 2045,” *Futurism*, accessed on October 17, 2017, <https://futurism.com/kurzweil-claims-that-the-singularity-will-happen-by-2045>.

22 Bostrom.

23 Ibid.

24 Peters, 68.

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- 36 Kurzweil, 147.
- 37 Andrew Pilsch, “Transhumanism: Evolutionary Logic, Rhetoric, and the Future,” 2011, Ph.D. diss., Pennsylvania State University, Accessed on February 25, 2019.
- 38 Ibid. 145.
- 39 Kenneth D. Miller, “Will You Ever Be Able to Upload Your Brain?,” *The New York Times*, October 10, 2015, accessed on February 7, 2019, <https://www.nytimes.com/2015/10/11/opinion/sunday/will-you-ever-be-able-to-upload-your-brain.html>.
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- 42 Jay Conte. “Transhumanism and the ‘Stable Self,’” Conference of the Canadian Political Science Association, 2016, access on February 7, 2019, <https://cpsa-acsp.ca/documents/conference/2016/Conte.pdf>.
- 43 Ibid. 54.
- 44 Ibid. 45.
- 45 True freedom is moving toward God and humanity. Anderson states, “We are not only determined by the other, and ultimately and originally by God, but we are made to respond in such a way that we do this ‘gladly,’ in joyful recognition of our own being. This is the image and likeness of God. Anderson, *Being Human*, 82.
- 46 Veli-Matti Kärkkäinen. *Creation and Humanity* (Grand Rapids: Eerdmans, 2015), 307.
- 47 Ibid, 309-310.
- 48 Celia Deane-Drummond. “Taking Leave of the Animal?: The Theological and Ethical Implications of Transhuman Projects.” In *Transhumanism and Transcendence*, edited by Ronald Cole-Turner (Washington: Georgetown University Press, 2011), 124.
- 49 Peters, 69.
- 50 Steven John Kraftchick. “Bodies, Selves, and Human Identity,” 47.
- 51 Stephen Garner. “Christian Theology and Transhumanism,” in *Religion and Transhumanism*, edited by Calvin Mercer and Tracy J. Trothen (Santa Barbara: Praeger, 2015), 234.
- 52 Ibid, 240.

- 53 Hannah Scheidt. "The Fleshless Future," in *Religion and Transhumanism*, edited by Calvin Mercer and Tracy J. Trothen (Santa Barbara: Praeger, 2015), 320.
- 54 Ibid, 321.
- 55 Ibid, 321.
- 56 Ibid, 322.
- 57 This reality separated from the body raises a host of questions such as: What does it mean to "taste" processed through sensors? What would social interaction look like? How do relationships develop? What does a sense of loss mean and feel like not connected to the physical side emotion? How are virtues developed such are character?
- 58 I would argue there is a "spiritual" dimension as well when it comes to humanity, but for the purpose of this paper the focus is on the cognitive and physical. Similar to Kärkkäinen's "multidimensional monism" or Ericson's "conditional unity," there are different facets or dimensions of humanness that are unified in their coexistence rather than separate, independent aspects such a dualistic models teach.
- 59 Matthew Eppinette, "Human 2.0," 202.
- 60 Ibid. 202.
- 61 Peters, 80-81. See: Ted Peters, *Anticipating Omega: Science, Faith, and Our Ultimate Future* (Göttingen: Vandenhoeck & Ruprecht, 2006) chapters 6, 7.
- 62 Garner, "Christian Theology and Transhumanism," 235.
- 63 Peters, 79.
- 64 Ibid, 81.
- 65 Ciano Aydin, "The Posthuman as Hollow Idol: A Nietzschean Critique of Human Enhancement" *Journal of Medicine and Philosophy*, 42, (2017): 322.
- 66 Ibid, 323.
- 67 Ibid, 322.
- 68 Patrick Smith, "Transhumanism and Human Significance," 155.
- 69 Ben Moreell. "Power Corrupts," *Religion and Liberty*, Volume 2, July 2010, accessed on April 19, 2019, <https://acton.org/pub/religion-liberty/volume-2-number-6/power-corrupts>.