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AI and IA:
Utopia or Extinction?

Edited by
Ted Peters

Artificial Intelligence, Transhumanism, and Frankenfear

Ted Peters

> 'The will to mastery becomes all the more urgent the more technology threatens to slip from human control.'
> – Martin Heidegger[1]

Abstract. Even if AI (artificial intelligence) at a level beyond rapid computation, machine learning, and cute gadgets never comes to pass, theologians must speculate along with transhumanist visionaries about the prospect of superintelligence, the prophesied extinction of *Homo sapiens,* and the survival of a posthuman species. While advances in AI technology that benefit humanity should be celebrated, extravagant utopian promises should be met with a healthy dose of Frankenfear, that is, caution.

Key Terms. Artificial Intelligence, Intelligence Amplification, robot, robot-calypse, globotics, transhumanism, H+, posthuman, anxiety, *imago Dei,* theology, Tower of Babel, Prometheus, Frankenstein

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1. Martin Heidegger, *The Question Concerning Technology and Other Essays* [*Die Frage nach der Technik* 1949], translated by William Lovitt in *Basic Writings,* edited by J Glen Gray and John Stambaugh (New York: Harper, 1977) 5. *Philosophical Posthumanism,* in contrast to Transhumanism, 'follows on Heidegger's reflection that technology cannot be reduced to mere means, nor to a reification, and thus cannot be mastered'. Francesca Ferrando, *Philosophical Posthumanism* (Heidelberg: Springer, 2019) 42.

ics (Lexington). He is author of a fiction thriller with a Transhumanist plot, *Cyrus Twelve*, with Aprocryphile Press. Visit his website: TedsTimelyTake. com.

In the climax of Dan Brown's best-selling thriller, *Origin*, antagonist Edmond Kirsch espouses a galvanic transhumanist philosophy. He announces triumphantly that the era of religion is past and that the future belongs to science. 'I believe we are on the brink of an enlightened new era, a world where religion finally departs...and science reigns.'[2] Science will deliver a material transformation that our religious ancestors could only envision spiritually. 'Humans are evolving into something different . . . We are becoming a hybrid species—a fusion of biology and technology.'[3] This hybrid species will create a utopian future, a future in which 'breakthrough technologies' will create such an abundance of humankind's critical resources that warring over them would no longer be necessary.'[4] Breakthrough technologies will lead to the end of war, to utopia. The era of religion is over now, because science has become our savior.

But, can we rightly call it 'salvation'? Not according to Bill Joy, founder of Sun Microsystems, who in 2000 pessimistically forecasted the extinction of the human race.

> As society and the problems that face it become more and more complex and machines become more and more intelligent, people will let machines make more of their decisions for them, simply because machine-made decisions will bring better results than man-made ones. Eventually a stage may be reached at which the decisions necessary to keep the system running will be so complex that human beings will be incapable of making them intelligently. At that stage the machines will be in effective control. People won't be able to just turn the machines off, because they will be so dependent on them that turning them off would amount to suicide.[5]

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2.   Dan Brown, *Origin* (New York: Bantam Press, 2017), 291.
3.   Brown, *Origin*, 411.
4.   Brown, *Origin*, 412.
5.   Bill Joy, 'Why the Future Doesn't Need Us', in *Wired* (April 2000); https://www. wired.com/2000/04/joy-2/ (accessed 11/28/2016).

Shortly after crossing this AI threshold, the human species will die off and be replaced by the post-human, by superintelligence.

How should soon-to-be-obsolete theologians think about this? This is the question computer scientist and Quaker theologian Noreen Herzfeld asks: 'Do our technologies threaten religion itself? We used to believe in the power of God. Have we replaced that belief with a belief in the power of our own technologies?'[6] Roman Catholic theologian Brian Patrick Green answers with a call to action. 'Scholars of religion and theologians should seriously engage technology because it is empowering humanity in ways that were previously reserved only for gods'.[7]

Here's the challenge: through technological self-transformation, *Homo sapiens* are about to summit the Tower of Babel. On the one hand, according to the Dan Brown scenario, we will find apotheosis atop the Tower of Babel; the successors to *Homo sapiens* will have become *Homo deus*. On the other hand, according to the Bill Joy scenario, the attempt to summit the Tower of Babel will end in tragedy, with the extinction of *Homo sapiens*. Worse. It will have been a self-inflicted self-extinction. Instead of utopia, we will have achieved oblivion.

Does AI (artificial intelligence) in computers or robots augmented by IA (intelligence amplification through deep brain implants) place our cyborg generation at a crossroads?[8] Is it utopia versus oblivion? Or, more specifically, will the pursuit of utopia inadvertently lead to oblivion? Can we anticipate a tragedy in the making? Does anybody

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6. Noreen Herzfeld, 'Introduction: Religion and the New Technologies', in *Religions* 8:7 (2017): 1–3, at 2; file:///C:/Users/Ted/Downloads/religions-08-00129-v2%20(2).pdf.

7. Brian Patrick Green, 'The Catholic Church and Technological Progress: Past, Present, and Future', in *Religions* 8:6 (2017): 2–16, at 1; file:///C:/Users/Ted/Downloads/religions-08-00106-v2.pdf.

8. 'Often cyborgs and other posthuman hybrids are seen as figures of the monstrous, moral abominations resulting from the transgression of ontological boundaries. Just as a common ancestry with nonhuman animals seems to threaten the ontological distinctiveness of humanity, so too can the technological innovation of the cyborg, as it presumes an ontological kinship with the nonhuman machine.' Anne Kull, 'Cyborg or Religious? Technonature and Technoculture', in *Science et Fides* 4:1 (January 2016): 295–311, at 302; http://apcz.umk.pl/czasopisma/index.php/SetF/article/view/SetF.2016.016/8762.

remember the warnings of the Tower of Babel? Prometheus? Frankenstein?

The Immediate Frankenfear: The Robotcalypse

Anxiety over the long-term future of the human race has not set in yet. Where we find anxiety is in the fear that tomorrow's AI will eliminate today's jobs. Californians fear the coming of the *robotcalypse*, the loss of eight hundred million jobs to robots by the year 2030.[9] Not only Californians! Globalization combined with aggressive robotics has provoked a Frankenfear of an imminent 'Globotics Upheaval'.[10]

But, only some of us dread the loss. Others foresee opportunity, especially in Australia. 'The number of jobs in the merging industry around artificial intelligence (AI), including work on self-driving cars and smart digital assistants, is growing in Australia but so is interest from job seekers . . . the number of AI-related job posts has doubled since 2015 and, at the same time, search activity by job seekers has tripled.'[11] Optimists believe that new high-tech jobs will more than replace those lost. 'This job growth (jobs gained) could more than

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9. Tad Friend, 'Golden Boy 2.0: Gavin Newsom's Life in California Politics', in *New Yorker* (November 5, 2018): 18–26, at 22. 'For people who give purpose to their lives through their work, this loss will be very serious indeed. But many, if not most, people do not get their life's meaning from their work. Instead they get it from their family, their religion, their community, their hobbies, their sports teams, or other sources, and so life for many people may go on. However, all of this assumes that the unemployed will somehow be fed and sheltered, despite their lack of gainful employment; and this assumption might not be correct, particularly in nations with weak social safety nets. Inequality will almost certainly increase, as those who are masters of AI labor gather that slice of wealth that once would have gone to paying for human labor.' Brian Patrick Green, 'Ethical Reflections on Artificial Intelligence', in *Science et Fides* 6:2 (2018): 1–23, at 12.

10. Richard Baldwin, *The Globotics Upheaval: Globalization, Robotics, and the Future of Work* (Oxford UK: Oxford University Press, 2019).

11. Chris Pash, 'The emerging jobs being created in artificial intelligence in Australia', in *Business Insider* (March 12, 2018) https://www.businessinsider.com.au/the-emerging-jobs-being-created-in-artificial-intelligence-in-australia-2018-3 (accessed 10/2/2018).

offset the jobs lost to automation.[12] Does this mean our anxiety will be alleviated?

Worry over AI is not ubiquitous. Creative new applications of AI are bursting upon us like pop corn. Computerized art work seems to elicit no anxiety. The first two exhibitions of computer generated paintings took place in Germany in 1965. The Institute of Contemporary Arts in London held a show, 'Cybernetic Serendipity', in 1968. In 2018, Christies auctioned off its first portrait generated by an AI algorithm. After a half century, digital art has added only a slow lane to the fine arts traffic. Rather than worry about competition, ol' fashioned artists mixing their oils register at most an 'oh, hum'.

In Spain the police rely on AI to distinguish between fake and real claims of robbery. The police fed their computer, VeriPol, data from 1,112 robbery cases, some fake and some genuine. After deep learning, VeriPol outperformed cops by nearly twenty percent in tagging those cheaters who fake a robbery to collect insurance.[13]

In Sweden thousands of customers are buying smart chips the size of a rice grain with 2KB memory to be surgically inserted into their hands near the thumb. In the brain such a chip would provide intelligence amplification (IA); but in the thumb it electronically transfers information to share LinkedIn identification, to permit buying tickets to take the train, to pay for restaurant meals, and such. Some hold 'chipping parties' for the insertion ritual. Again, no anxiety here.[14]

The promise of AI robotics is actually ambiguous. There is a chance that good things might include risk. On December 5, 2018, a robot accidently punctured a container of bear repellent in the New Jersey warehouse of Amazon. In this instance, a dozen employees were exposed and hospitalized, one critically. Amazon robots have a

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12. Dom Galeon, 'McKinsey Finds Automation Could Eradicate a Third of America's Jobs by 2030', in *Futurism* November 30, 2017, https://futurism.com/mckinsey-finds-automation-eradicate-third-americas-workforce-2030.

13. Emiliano Rodriguez Mega, 'Lie-Detector AI', in *Scientific American* 320:2 (February 2019): 14.

14. Maddy Savage, 'Thousands of Swedes are Inserting Microchips Under Their Skin', National Public Radio (October 22, 2018) https://www.npr.org/2018/10/22/658808705/thousands-of-swedes-are-inserting-microchips-under-their-skin?utm_source=facebook.com&utm_medium=social&utm_campaign=npr&utm_term=nprnews&utm_content=2050&t=1540283166307 (accessed 23/10/2018).

history of making costly mistakes.[15] We need not worry that robots will set the bar of perfection too high.

From robots making a mess to robots cleaning up a mess we now turn. To clean up the radioactive mess left by the 2011 tsunami and nuclear meltdown at Japan's Fukushima power plant, mopper-uppers have sent in remotely-controlled robots, because radiation levels are too high for humans. Unfortunately, however, the androids have failed. They have been overpowered by radiation. This leaves Tokyo Electric Power Company (TEPCO) with a major decommissioning struggle on its hands.

Will the advance of AI exacerbate the rift between rich and poor? Melanie Smallman at London's Turing Institute fears that it will. The UK government just rolled out its *code of conduct for artificial intelligence (AI) systems used by NHS*.[16] Smallman complains: this is inadequate to regulate AI! Why? Because it underestimates the social upheaval that will follow. It fails to make a systems analysis which would reveal that AI innovations in medicine will widen 'inequality' as 'an unintended side effect'. The problem 'is embedded in the technologies themselves . . . investment in surgical robots draws funds from other treatments and centralises care in large teaching hospitals, requiring many patients to travel longer distances or forego care'. A leap forward in AI means a leap backward in social equality. 'The UK code is a missed opportunity to start things off right, to anticipate wider, inevitable problems and to keep the healthy system affordable and effective.'[17] In short, technological triumphs are morally ambiguous.

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15. Luis Matsakis, 'This wasn't even Amazon's first repellant accident', in *Wired* (12/6/2018); https://www.wired.com/story/amazon-first-bear-repellent-accident/.

16. Department of Health and Social Care UK, *New code of conduct for artificial intelligence (AI) systems used by NHS*; https://www.gov.uk/government/news/new-code-of-conduct-for-artificial-intelligence-ai-systems-used-by-the-nhs (accessed 2019). Deep Mind, founded independently in 2010 and acquired by Google in 2014, is adding a department of ethics and society; https://deepmind.com/about/.

17. Melanie Smallman, 'Policies designed for drugs won't work for AI', in *Nature* 567:7746 (7 March 2019): 7.

Should Sexbots Have Rights?

Here is an additional question: should robots have rights? More specifically, does the 'Me Too' movement require that we humans treat sexbots as persons with rights? Why might we ask such a question? Because one planner of a sex robot brothel requires that his customers seek consent from the robot before commencing with sex. 'Don't forget to ask your sex robot for consent', says Unicole Unicron.[18] Unicron's plan is to rent out life-sized Barbie style sex robots by the hour to customers who want to make love to AI with a vagina and other orifices. But only as long as the robot agrees to it. Yes, the sexbot will come equipped with a chat box to carry on a kinky sex conversation. But, we must still ask: is anybody home in such a robot? Is there a self? An agent? A person? If not, then might consent be superfluous? This controversy stirs up little more than a few smiles.

In short, the accomplishments, failures, and threats of AI have to date elicited at best an overreaching anticipation and at worst an "oh hum" response within the consuming public. Change and even progress are so expected that advances in AI are not likely to shock anyone. Producers of AI products tout only the utopian benefits their future will bring. The Inception Institute of Artificial Intelligence (IIAI), for example, places AI 'at the heart of a happier, healthier, and more productive global community'.[19] Such promises calm anxiety and excite enthusiasm, even if they are doubtful.

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18. Cited by Emily Shurgerman, 'California Cult Leader Unicole Unicron Plans Sex Robot Brothel--With a Twist', *Daily Beast* (11/24/2018); https://www.thedailybeast.com/california-cult-leader-uniclone-unicron-plans-sex-robot-brothelwith-a-twist?via=newsletter&source=Weekend. Real Doll already sells sexbots. https://www.yourdoll.com/160cm-sex-doll-golp-3/?gclid=Cj0KCQiArenfBRCoARIsAFc1FqfvOqLV_P6O43zZlNgX2LStEGQt1WIsgyUJCG9yvHvDyPysL3RnbsEaAh2xEALw_wcB.

19. 'Inception Institute of Artificial Intelligence: A Bold Initiative to Foster Global AI Research and Innovation', in *Science* 361:6408 (21 September 2018): 1168–1169. One issue being addressed is the doctrine of *technological manifest destiny*, according to which the purveyors of new technology shun responsibility for social impact. 'The polite term for the delusions that grip the lords of Silicon Valley (and their fans elsewhere) is *technological determinism*: the belief that technology is what really drives history and that they are on the right side of that history. It may also explain why they have manifested such blithe indifference to the malign effects that their machines are having on society. After all, if technology is the remorseless bulldozer that flattens everything in its path,

It is difficult to know if we are underestimating or overestimating the impact of new technologies. What we can perceive is tension. The underlying tension is the apparent misfit between human meaning, on the one hand, and the impersonal nature of science and technology, on the other. Philosopher Daniel Dennett brings this source of anxiety to articulation.

> When we start treating living bodies as motherboards in which to assemble cyborgs, or as spare parts collections to be sold to the highest bidder, where will it all end? . . .,We are entering a new conceptual world, thanks to science, and it does not harmonize comfortably with our traditional conceptions of our lives and what they mean.[20]

With this tension in mind, the task of the public theologian becomes one of mapping the road to meaning at the intersection of humanity and technology.

Can We Rely on AI to be Moral?

Will artificial intelligence be morally neutral? Or, morally responsible? If the latter, which moral code will our favorite robots live by?

Isaac Azimov introduced us to robot morality to make science fiction reading exciting. Recall the internal logic of the three laws.

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.

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then why waste time and energy fretting about it or imagining that it might be controlled? Determinism, in that sense, removes human agency from the picture. The role assigned to people is essentially that of passive or active consumers of whatever wonders the tech industry chooses to lay before them.' John Naughton, 'Think the giants of Silicon Valley have your best interests at heart? Think again', in *The Guardian* (October 21, 2018) US Edition, italics added; https://www.theguardian.com/commentisfree/2018/oct/21/think-the-giants-of-silicon-valley-have-your-best-interestsat-heart-think-again?CMP=share_btn_link.

20. Daniel C Dennett, 'How to Protect Human Dignity from Science', in *Human Dignity and Bioethics*, ed, U.S. President's Council on Bioethics (Washington DC: www.bioethics.gov, 2008) 39-59, at 41; https://www.academia.edu/38307610/Human_dignity_and_bioethics?email_work_card=thumbnail-desktop.

3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.[21]

Despite the use of these rules as a literary device, the logic illuminates our intuitive need to protect both human life and robotic existence. In a moral dilemma, protection of human life takes moral precedence. These rules seem clearer than Sinai's Ten Commandments.

But, how do we communicate this to the robot? As of this writing, no robots are sufficiently intelligent or autonomous to render independent moral judgments. This means that the first stage of AI moral development will have to be pre-programmed algorithmically according to human morality. But, whose human morality? How will AI programmers know what to dictate to the robot's decision tree? The Ten Commandments? Buddhism's Eightfold Path? The Scout Law? How will a robot handle differences in moral opinion let alone moral dilemmas?

A recent survey discovered such a range of public opinion regarding moral priorities that makes it impossible to formulate a single universal moral code. Survey respondents could not agree, for example, on what self-driving vehicles should do to avoid collisions or killing pedestrians. The researchers 'found that people from countries with strong government institutions, such as Finland and Japan, more often chose to hit people who were crossing the road illegally than did respondents in nations with weaker institutions, such as Nigeria or Pakistan.'[22] What!? And, the survey revealed that Europeans are more willing to sacrifice the lives of older pedestrians on behalf of younger people whereas, in contrast, East Asians are more protective of their seniors. Moral priorities apparently differ.

When self-driving cars finally fill the roads of Europe, should senior citizens migrate to China where Confucian respect for elders is still intact? Or, should seniors arm their canes, crutches, and wheel chairs with defensive electronics? Could we ask a Chinese AI engineer to invent an electronic wand that shuts off the engine and applies the brakes of a self-driving car just before impact? And sell it

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21. Isaac Azimov, *I, Robot* (1950).
22. Amy Maxmen, 'Self-Driving car dilemmas reveal that moral choices are not universal', in *Nature* (24 October 2018) https://www.nature.com/articles/d41586-018-07135-0.

in Europe? But, then, who will program the wand? Is there a reason for Frankenfear here?

A healthy dose of Frankenfear might be realistic, at least according to Brian Patrick Green. 'Just as human intelligence is a powerful force, so too will AI be. Just as humans can apply their intelligence towards evil ends, finding ever newer and more fiendish ways to harm each other, so too will AI, at the bidding of its human masters.'[23] In short, what we should rightly fear is ourselves. The activity of robots will mime human sinfulness.

Where does this leave us? It means our ethicists will have to work overtime before autonomous machines such as self-driving vehicles jam our highways.

> Even if ethicists were to agree on how autonomous vehicles should solve moral dilemmas, their work would be useless if citizens were to disagree with their solution and thus opt out of the future that autonomous vehicles promise in lieu of the status quo. Any attempt to devise artificial intelligence ethics must be at least cognizant of public morality.[24]

Now, note what this debate presupposes. It presupposes that autonomous robots will not be intelligent in the full sense of having a self that deliberates, decides, and acts according to its own commitment to a moral code. That moral code will be decided in advance by an ethical engineer at the assembly plant. Retrodictively, what does this imply about the present level of artificial intelligence?

Is Artificial Intelligence Really Intelligent?

Artificial intelligence isn't. Computers make superb calculators, to be sure.[25] But, intelligent they are not. Will machines ever be intelligent?

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23. Brian Patrick Green, 'Ethical Reflections on Artificial Intelligence', in *Science et Fides* 6:2 (2018): 1–23, at 8.
24. Edmund Awad, Sohan Dsousa, Richard Kim, Jonathan Schulz, Joseph Henrich, Azim Shariff, Jean-Francois Bonnefon, Lyad Rahman, 'The Moral Machine experiment', in *Nature* (24 October 2018) https://www.nature.com/articles/s41586-018-0637-6.
25. Machine learning amazes us, to be sure. Yet, the algorithmic analysis process requires further development before machine learning can be trusted. 'Machine-learning tools can also turn up fool's gold--false positives, blind alleys, and

Probably not. 'Robots that can develop humanlike intelligence are far from becoming a reality...[AI] still belongs in the realm of science fiction.'[26]

Ask Noreen Herzfeld. As mentioned above, Herzfeld is both a professor of computer science and a theologian. She provides detail on the question of artificial intelligence in an article elsewhere in this volume. After six to seven decades of attempting to construct a machine with intelligence, she notes, the accomplishment rate is zero. 'We do not yet have intelligent computers. We may never have them.'[27]

Since the term *artificial intelligence* was coined in 1955 by John McCarthy, the concept has been gradually refined. Some distinguish between weak AI and strong AI. Weak AI or narrow AI consists of harnessing the speed of machine computation for a specific or narrow task. Nobody is particularly bothered by the manufacture and distribution of weak AI gadgets.

What about strong AI? The goal of the strong AI movement, in contrast, is to create *artificial general intelligence* (AGI)—that is, a machine capable of performing any task the human brain can perform. Strong AI is classically defined as 'interactive, autonomous, self-learning agency, which enables computational artifacts to perform tasks that otherwise would require human intelligence to be executed successfully'.[28]

The model for strong AI to emulate is human intelligence.[29] Strong AI'ers want to design a robotic competitor, or even superintelligence

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mistakes...and wasted scientific effort'. Patrick Riley, 'Three pitfalls to avoid in machine learning', in *Nature* 572: 7767 (1 August 2019): 17–19, at 17.

26. Diana Kwon, 'Self-Taught Robots', in *Scientific American* 318:3 (March 2018): 26–31, at 31. With the advent of quantum computers, what can we expect? More speed. Greater capacity. But not intelligence. 'Quantum computers are a not-yet-existent technology in search of problems to solve', Editors, 'Computer games', in *Nature* 564:7736 (20/27 December 2018): 302.

27. Noreen L Herzfeld, *In Our Image: Artificial Intelligence and the Human Spirit* (Minneapolis: Fortress Press, 2002), 94.

28. Mariarosaria Taddeo and Luciano Floridi, 'How AI can be a force for good', in *Science* 361:6404 (24 August 2018): 751–752, at 751.

29. In my own study, I find definitions of 'intelligence' rare. Rather, levels of intelligence seems to be the target of discussion. I launch the thesis that biological life and intelligence belong together. 'Where There's Life There's Intelligence', in *What is Life? On Earth and Beyond*, edited by Andreas Losch (Cambridge UK: Cambridge University Press, 2017): 236–259. See also: Ted Peters, 'Intelligence:

in the form of a machine superior to *Homo sapiens* in calculating capacity, creativity, and awareness. To date, nothing.

Herzfeld notes that this challenge has led many in the field to attempt to construct true AGI by reverse engineering the human brain. Current attempts such as MIT's Mind Machine Project, the US BRAIN Initiative, and the European Union's Human Brain Project are trying to map the connectome of the brain in much the same way the Human Genome Project (1990–2002) successfully mapped human DNA. Even though the Human Genome project was a large and expensive undertaking, reverse engineering the human brain would be even more difficult. It is estimated that the brain contains roughly 80 to 90 billion neurons, each of which can potentially be connected to thousands of other neurons.[30]

This method of reverse engineering what is biological to make an electronic emulation, note, does not begin with a theory of machine intelligence. Rather, what nature through evolution has bequeathed *Homo sapiens* becomes a model to copy. This method begins with a biologically wet brain and then attempts to create a dry electronic copy. With this method, could we reasonably expect the design of a post-human superintelligence? Or, at most, a replication or simulation of what we have inherited from our biological evolution?

Scholastic theologians thought that the creator would necessarily be more complex and more intelligent than what gets created. 'No effect exceeds its cause', said Thomas Aquinas.[31] This implies that God is more complex and more intelligent than us creatures. Might this classic theological principle of causation apply to today's human AI creators? Are we limited to creating robots dumber than we are? If so, does this lessen the Frankenfear?

Can the Dry Machine Brain Mimic the Wet Human Brain?

As of this date, the model of intelligence Strong AI'ers and AGI'ers wish to emulate belongs to the human brain, mind, and self. As the frontier of AI research and development progresses, so also does neu-

Not Artificial, But the Real Thing!', *Theology and Science* 17:1 (February 2019): 1–5; DOI: 10.1080/14746700.2018.1557376.

30. See: Noreen Herzfeld, 'The Enchangment of Artificial Intelligence', elsewhere in this volume.

31. Thomas Aquinas, *Summa Theologica*, II-II, 32, 4, obj 1

roscience and our knowledge of the human brain. Let's pause to parse some of the implications for awareness, consciousness, and selfhood.

We know from experience that our wet brain intelligence is integral to awareness, consciousness, and selfhood. Would this apply to machine intelligence as well?[32] Before pressing further, however, we should distinguish between general awareness and consciousness. Beyond awareness, we who are conscious experience our self as a Self. Might an intelligent robot develop a Self? According to the phenomenology of Eugene d'Aquili and Andrew Newberg, 'Strictly speaking, consciousness involves the generation of a Self as an element in subjective awareness'.[33] If AI is modeled on human intelligence, then we must ask about selfhood.

To date, no computer exhibits selfhood. If you try to relate personally to anything with the label 'Artificial Intelligence', you'll quickly become aware that nobody's home. Even so, we must speculate.

Is a future robot likely to generate first awareness and then a Self? The answer is not yet clear. 'As with the brain, so with artificial intelligence ... However much we study the complexities of neuro-epistemology, the relationship of consciousness of subjective awareness to the machine, any machine, is a mystery and likely to remain so.'[34] In short, no one at this point can forecast what machine selfhood might look like.[35]

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32. In *What Computers Still Can't Do: A Critique of Artificial Intelligence* (Cambridge MA: MIT Press, revised edition, 1992), University of California at Berkeley philosopher, Hubert L Dreyphus, denies that a digital computation device could become intelligent in the Strong AI sense. Strong AI could not, in principle, mimic human intelligence. The human intelligence we know is always physically embedded; so intelligence is contextually relevant even while it expands to larger circles of relevance. 'To learn a natural language a computer has to have a body; it must be embodied to be embedded.' *What Computers Still Can't Do*, 181. Dreyfus' prognostication pre-dates the era of computer deep learning. Deep learning machines at this point are unpredictable. What might happen?

33. Eugene G D'Aquili and Andrew B Newberg, 'Consciousness and the Machine', in *Zygon* 31:2 (June 1996): 235–252, at 239.

34. D'Aquili and Newberg, 'Consciousness and the Machine', 251.

35. Could a robot pass the Turing Test and appear to be a self when engaging a human person who is a self? Perhaps. 'Critics of Artificial Intelligence claim that a machine will never have a capacity for self-reflection; in other words, it will always lack a sense of self ... But ... it is perfectly viable to elaborate an algorithmic program that allows the machine to report its own internal states. This seems to be a sufficient criterion to affirm that a machine can indeed have

In addition, we need to factor in embodiment and relationality. Human intelligence as we have come to know it is biological and communal. Would this apply to robotic intelligence too? According to the school of *Embodied AI*, 'it is impossible to abstract intelligence from bodily features and bodily conditions'.[36] Impossible?

Theologian Anne Foerst, formerly an AI researcher at MIT working on the Cog project, holds to a relationalist model of the *imago Dei*. The *imago Dei* is not a superior quality we as a species possess such as reason, freedom, moral capacity, love, or virtue. Rather, we humans bear the divine image because God has promised us an everlasting relationship in the Kingdom of God.

This relationalist model implies that we cannot rely on an innate human quality to distinguish us from other living creatures or from artificially constructed creatures. 'The image of God does not distinguish us qualitatively from animals and, for that reason, cannot distinguish us qualitatively from machines.'[37] To say it another way, one could construct a robot with embodied intelligence that is relational and capable of developing a sense of self over time. In the future, we may be invited to dinner by robots in the neighborhood.

Both AI research and neuroscience are consistent with biblical anthropology, according to Ian Barbour.

> Recent work in neuroscience is consistent with the biblical emphasis on embodiment, emotions, and the social self . . . The biblical view does indeed conflict with the determinist and materialist philosophical assumptions of many neuroscientists but not, I suggest, with the data and theories of neuroscience itself.[38]

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an inner sense of reflection'. Gabriel Andrate, 'Philosophical Difficulties of Mind Uploading as a Medical Technology', in *Philosophy and Medicine* 18:1 (Fall 2018): 14–29, at 17; https://www.academia.edu/37633487/Philosophical_Difficulties_of_Mind_Uploading_as_a_Medical_Technology (accessed 10/23/2018).

36. Anne Foerst, 'Cog, a Humanoid Robot, and the Question of the Image of God', *Zygon* 33:1 (March 1998): 91–112, at 100.

37. Foerst, 'Cog, a Humanoid Robot, and the Question of the Image of God', 108.

38. Ian G. Barbour, 'Neuroscience, Artificial Intelligence, and Human Nature: Theological and Philosophical Reflections', in *Zygon* 34:3 (September 1999): 361–398, at 374.

So far, so good. What remains to be discerned is whether all these traits could in the future apply to a hybrid or even a fully mechanical robot, to artificial intelligence.

More. Might this artificial intelligence become superintelligence? Might the current generation of techie whizzes create a superintelligence which surpasses our biological inheritance? Will our hybrid and mechanical children be smarter than us who gave them existence? If so, will our children revere us as their creators or discard us as outdated?

Regardless of the likelihood that human intelligence will be surpassed by machine superintelligence, theologians and others should feel responsible for speculating about its implications. Trans-humanists—both religious and anti-religious—are already planning for a future transformation into a world where the post-human dominates.

Bill Joy has issued a warning: 'Our most powerful twenty-first century technologies—robotics, genetic engineering, and nanotech—are threatening to make humans an endangered species.'[39] Anticipation of the extinction of the human species to make way for a new post-human species becomes, for some, an existential threat. It prompts anxiety. To this long range challenge we now turn.

Posthuman Superintelligence?

'High-performance computing is set to soon overtake the human brain', writes Paul Davies.[40] Davies forecasts a future where wet human brains will be replaced by dry computational machines. 'We can now foresee a tipping point when this longstanding relationship between the biological and non-biological realms will become inverted. Instead of life forms such as humans designing and making specialized machines, machines will design and make specialized life forms.'[41] Following the inversion, we *Homo sapiens* will exist only if the machines we create to be our overlords will allow it. More than likely we will go extinct while a species of our disembodied posthuman progeny survive.

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39. Joy, 'Why the Future Doesn't Need Us'.
40. Paul Davies, *The Eerie Silence: Renewing Our Search for Alien Intelligence* (Boston: Houghton Miflin Harcourt, 2010) 157.
41. Ibid, 160.

In the lexicon of the transhumanists, whole brain emulation will lead to this human, or better, post-human existence, disembodied and living in the computer cloud. "Post-human minds will lead to a different future and we will be better as we merge with our technology," touts Henrique Jorge. 'Humans will be able to upload their entire minds to The Living Cyberspace and BECOME IMMORTAL.'[42]

In the lexicon of Natasha Vita-More, Executive Director of Humanity + Incorporated, *Post-human* refers to 'a person who can co-exist in multiple substrates, such as the physical world as a biological or semi-biological being. The future human ... will live much longer than [today's] human and most likely travel outside the Earth's orbit.'[43] Does *post-human* describe what will survive after today's *Homo sapiens* have gone extinct?

Anticipation of extinction combined with survival of a species more fit than us in intelligence implies evolution. It implies deep time and a totalistic vision. Today's transhumanists (abbreviated H+) work within the evolutionary paradigm and emphasize that through technology the human race can now both guide and speed up evolution.[44] 'We are about to abandon natural selection, the process that created us, in order to direct our own evolution by volitional selection—the process of redesigning our biology and human nature as we wish them to be.'[45]

The next stage in evolution will be called the 'Singularity', a threshold crossing where superintelligence will replace current intelligence. The first step to get to that threshold is to give birth to a machine more intelligent than us humans. That machine, in turn, will create one still more intelligent. Then the *intelligence ratchet* will take control of procreation and continue the chain of ratcheting up the level of intelligence, crossing the Singularity threshold.

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42. Henrique Jorge, 'Digital Eternity', *The Transhumanism Handbook*, edited by Newton Lee (Heidelberg: Springer, 2019), 645–650, at 650.

43. Natasha Vita-More, *Transhumanism: What is it?* (published by author, 2018) 31.

44. Nick Bostrom, 'What is Transhumanism?' https://nickbostrom.com/tra/values.html (accessed 10/19/2019). 'Transhumanism is no dogmatic, rigid philosophy with a fixed system of thought or goals defined once and for all. Instead it is a conglomerate of different memes which fit rather well together and support each other without competing too much.' Max More, 'Philosophy', http://www.aleph.se/Trans/Cultural/Philosophy/ (accessed 9/10/2018).

45. Edward O. Wilson, *The Meaning of Human Existence* (London: W.W. Norton, 2014) 14.

With the creation of 'superhuman intelligence . . . the human era will be ended', wrote science fiction writer Vernor Vinge in 1992. This threshold crossing he described as the *Singularity*, when AI becomes awake. The 'Singularity . . . is a point where our old models must be discarded and a new reality rules'.[46]

Computer scientist Ray Kurzweil prophecies that the Singularity will occur as early as 2045.[47] Leading up to the Singularity we will see how the pace of technological change will be so rapid and its impact so deep that human life will be irreversibly transformed.

The nose on this transformation face will be enhanced human intelligence. What follows this nose is the observation that human intelligence will leap from human bodies to machines, making high tech machines more human than we are. This can happen because—allegedly!— intelligence is not dependent upon our biological substrate; rather, as information in patterns, intelligence can be extricated from our bodies. Our intelligence can live on in an enhanced form even when extricated from our bodies and placed in a computer. 'Uploading a human brain means scanning all of its salient details and then reinstantiating those details into a suitably powerful computational substrate. This process would capture a person's entire personality, memory, skills, and history'.[48] Postbiological intelligence will live on in the computer cloud and, as long as no one pulls the plug, it will live

46. Verner Vinge, 'What is the Singularity', (1992) https://mindstalk.net/vinge/vinge-sing.html (accessed 9/10/2018).

47. Ray Kurzweil, *The Singularity is Near: When Humans Transcend Biology* (New York: Penguin, 2005), 136. 'The Singularity movement is a kind of secular religion promoting its on apocalyptic and messianic vision of the end times." William Grassie, "Millennialism at the Singularity: Reflections on the Limits of Ray Kurzweil's Exponential Logic'. *H+ Transhumanism and Its Critics*, edited by Gregory R Hansell and William Grassie (Philadelphia: Metanexus, 2011), 249–269, at 264.

48. Kurzweil, *Singularity*, 198–199.

everlastingly.[49] Nothing short of disembodied cybernetic immortality will have been achieved.[50]

Crossing the threshold into the Singularity is nested within a grand evolutionary vision, a vision that makes the technosapiens of our generation godlike.

> Evolution moves toward greater complexity, greater elegance, greater knowledge, greater intelligence, greater beauty, greater creativity, and greater levels of subtle attributes such as love . . . In every monotheistic tradition, God is likewise described as all of these qualities . . . evolution moves inexorably toward this conception of God, although never quite reaching this ideal.[51]

As creators of our own successors, this makes our generation *Homo Deus*. Well, almost.

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49. What can we expect to happen once our intelligence replete with sense of self is uploaded into the computer cloud? Knowledge would be communal and vast. The history of physical interactions which had converged to establish one's self through time would gradually dissipate. 'My sense of self depends upon memories and continued experiences of those in relation to whom I am defined; deny me access to those memories and those others, and my sense of self would quickly dissolve', John Puddefoot, 'The East Parochialism? Artificial Life, Intelligence and Mind: Some Theological Issues', in *God, Life, Intelligence and the Universe*, edited by Terence J Kelly, SJ, and Hilary D Regan (Adelaide: Australian Theological Forum, 2002), 111–140, at 133.

50. Is disembodied subjectivity conceivable? Yes, according to biologist and theologian Lucas Mix. 'Rational, subjective, and spiritual life may occur outside of conventional biology. Recent work on artificial intelligence and memes challenges us to think about the meaning of these concepts beyond traditional bounds. Historical reflection on angels, demons, stars, planets, and gods can provide key insights into how we can and should think about 'life' beyond the vegetable context', Lucas John Mix, *Life Concepts from Aristotle to Darwin: On Vegetable Souls* (New York: Macmillan, Palgrave, 2018), 255–256.

51. Kurzweil, *Singularity*, 389. 'Modern transhumanism is a statement of disappointment. Transhumans regard or bodies as sadly inadequate, limited by our physiognomy, which restricts our brain power, our strength and, worst of all, or life span. Transcendence will not be found in the murky afterlife of the usual religions, but in technological and biological improvement', Brian Alexander, *Rapture: How Biotech Became the New Religion* (New York: Basic Books, 2003), 51.

Could Anything Go Wrong?

Transhumanism is 'the most dangerous idea in the world', says social critic Francis Fukuyama.[52] Why? Could something go wrong? Once our transhumanist friends have led us to the top of the Tower of Babel, might we fall off? Are there any risks here?

Like the Sorcerer's Apprentice, might our AI inventions get out of control? The editors of *Nature*, one of the two most important scientific journals in the world today, issue a warning.

> Machines and robots that outperform humans across the board could self-improve beyond our control—and their interests might not align with ours . . . Then there are cybersecurity threats to smart cities, infrastructure and industries that become over dependent on AI—and the all too clear threat that drones and other autonomous offensive weapons systems will allow machines to make lethal decisions alone . . . The spectre of permanent mass unemployment, and increased inequality that hits harder along lines of class, race and gender, is perhaps all too real . . . It is crucial that progress in technology is matched by solid, well-funded research to anticipate the scenarios it could bring about, and to study possible political and economic reforms that will allow those usurped by machinery to contribute to society. If that is a Luddite perspective, then so be it.[53]

According to Stanford computer scientist Stuart Russell, 'the real problem relates to the possibility that AI may become incredibly good at achieving something other than what we really want.'[54] To deal with the problem, Russell recommends that we carefully design the robot; 'the machine's purpose must be to maximize the realization of human values. In particular, the machine has no purpose of its own and no

52. Francis Fukuyama, 'Transhumanism: The World's Most Dangerous Idea', in *Foreign Policy* 144 (2004): 42–43.

53. Editors, 'Anticipating artificial intelligence', in *Nature* 532:7600 (28 April 2016): 413; http://www.nature.com/search?date_range=last_30_days&journal=nature%2Cnews&q=Anticipating%20Artificial%20Intelligence.

54. Stuart Russell, 'Should We Fear Supersmart Robots?', in *Scientific American* 314:6 (June 2016): 58–9 (58); http://www.scientificamerican.com/article/should-we-fear-supersmart-robots/.

innate desire to protect itself".[55] Somewhat like an ancient emperor trying to prevent a slave rebellion, we *Homo sapiens* can protect our species from a robot revolution only by designing them with a servant mind-set. But, let's pause to ask: would creating robots as our servants really protect us?

Let's pursue this argument another step. Into what servant mind-set would we most likely press our robots? Quite obviously, we will press our AI progeny into the service of our desires. Will that protect us from a robot rebellion? Not likely. Why? Because our artificially intelligent children may simply mirror ourselves, and we rightly fear ourselves.

Brian Patrick Green holds up that mirror.

> Artificial intelligence, like any other technology, will just give us more of what we already want . . . What skeleton of humanity will remain when technology has given us, or perhaps distorted or replaced, all our fleshly desires? What will this skeleton of humanity be made of? Will our technological flesh truly satisfy us, or only leave us in a deeper existential malaise, filled with angst, despair, and dread?[56]

In sum, what we should fear about our AI future is ourselves coming back to us in AI form.

There is one more angle: beyond the Singularity we might become servants to super computers. Our AI progeny might need to keep us around. Why? Because we *Homo sapiens* might be able to offer something super computers cannot do on their own, namely, benefit from diversity of opinion in cultural evolution. Here is the speculation of Neil Levy at Macquarie University in Sydney.

> We owe our intellectual capacities very significantly to our cumulative culture. Culturally embedded cognition allows us to distribute cognition across groups, allowing problems to be broken down into parts, with each solved separately and for our cognitive limitations to be transformed into virtues . . . For this reason, we ought to be wary of thinking that super-

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55. Russell, 'Should We Fear Supersmart Robots?', 59.
56. Green, 'Ethical Reflections on Artificial Intelligence', 18.

intelligent machines will have a longer, more extensive, reach than we do, in virtue of their intelligence.[57]

Superintelligent AIs will need us humans for their own growth intelligence, because the diversity of dynamic human cultures converge into a single *cultural ratchet*. 'The cultural ratchet may indeed provide an opportunity for AIs to increase their problem-solving capacities beyond our current levels, but in so doing it may allow us to increase our own capacities to the same extent.'[58] In short, we human beings will end up being of cultural value to our AI overlords.

Anticipating the risk that something could go wrong or that we might become servants to overlords we create reminds us of the classic myth of Prometheus and his modern heir, Frankenstein. Ian Barbour waves the danger flag. 'The dangers of human *hubris* and misuse of technological power (evident in myths from Prometheus and the Tower of Babel to Frankenstein) need exploration.'[59]

Should we Fear Prometheus and Frankenstein?

Might there be a risk here of the Frankenstein scenario?[60] Might the creation of immortality through technology risk creating a monster? Might the pursuit of utopia through technology inadvertently lead to oblivion? Might it be prudent at this point to recall the myth of Prometheus in its modern scientized form of Frankenstein?

Certain scientists prompt whisperings with alarming words such as *hubris*, or *playing god*, or *Frankenstein*. When you hear these words, you know that the myth of Prometheus is being retrieved. When 'the masters of science sought immortality and power', warned Mary Shelly in 1818, an uncontrollably violent monster was threatening.[61] Today's Prometheus wears a white lab coat and plans for the future

57. Neil Levy, 'The Earthling's Secret Weapon: Cumulative Culture and the Singularity', in *Science, Religion and Culture* 3:1 (2016): 19–30, at 27. Levy's italics; file:///C:/Users/Ted/Downloads/1468597863SRC_3_1_19-30%20(3).pdf.
58. Levy, 'The Earthling's Secret Weapon: Cumulative Culture and the Singularity'.
59. Barbour, 'Neuroscience, Artificial Intelligence, and Human Nature', 380.
60. See: Ted Peters, 'Playing God with Frankenstein', in *Theology and Science* 16:2 (2018): 145–150; DOI: 10.1080/14746700.2018.1455264; https://www.tandfonline.com/doi/full/10.1080/14746700.2018.1455264.
61. Mary Shelly, *Frankenstein: The Modern Prometheus* (New York: Pocket Books, 1818, 2004), 43.

(*pro-mathein* means to think ahead). Today's threatening monsters come in the form of environmental degradation, climate change, engineering tomatoes with fish genes, genetically engineering the highly lethal H5N1 influenza, cloning Dolly the Sheep, transplanting pig organs into humans, and global nuclear war. These worries are affectionately known as *Frankenfears*.

It was Prometheus who is responsible for today's Frankenfears. Returning briefly to ancient Greek writers such as Hesiod and Aeschylus, the Titan Prometheus did two things worth recalling. First, Prometheus created the human race, forming our ancestors out of clay. Second, he stole fire from the sun and gave fire to us creatures living on an otherwise dark and damp Earth. Prometheus' gift of fire led to human advance in writing, mathematics, agriculture, medicine, and science. But, this theft violated the sanctity of the heavens overseen by the Olympian god, Zeus. In anger, Zeus retaliated by chaining Prometheus to a rock. The imprisoned Prometheus helplessly endured the indignity and pain of having an eagle, the symbol of Zeus, daily eat his liver. For trespassing against the sanctity of the divine realm, Prometheus was punished by the gods.

This myth cannot be consigned to the dead past. It lives today. Prometheus winds his way through the centuries of historical transmission (*Wirkungsgeschichte, Überlieferungsgeschichte*). We today still associate Prometheus with *hubris*, pride, overstepping our limits, crossing into forbidden territory, and violating the sacred. The antidote to Promethean recklessness is humility, caution, and sound judgment. Sometimes when we fear Promethean overreach, we put up an ethical stop sign that reads, 'Thou shalt not play god'.

Mary Shelly intended for us to see Prometheus again in Frankenstein. Victor Frankenstein's sin was to play god, to attempt to create life out of non-life. 'Life and death appeared to me ideal bounds, which I should first break through, and pour a torrent of light into our dark world. A new species would bless me as its creator and source; many happy and excellent natures would owe their being to me.'[62] The scientist in this story tried to apotheosize himself by creating, like Prometheus did, his own living creature who would laud him as divine. But, says author Shelly, this action violated what was

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62. Shelly, *Frankenstein: The Modern Prometheus*, 51.

sacred and the sacred, like Zeus, retaliated by letting loose a monster on the world.

Recall how the monster and Victor Frankenstein argued over the *imago Dei*, the image of God twice removed. The lonely creature confronted his maker. 'Cursed creator! Why did you form a monster so hideous that even you turned from me in disgust? God in pity made man beautiful and alluring, after his own image; but my form is a filthy type of yours, more horrid from its very resemblance. Satan had his companions, fellow-devils to admire and encourage him; but I am solitary and detested.' [63] The creature would not have suffered loneliness nor the neighbors suffered havoc had Victor Frankenstein not played god.

Today, when we accuse our scientists of 'playing god', we accuse them of violating the sacred. But, what is sacred? No modern person believes in Zeus any more. So, Mount Olympus cannot establish the sacred. What about the biblical God? The Promethean myth is not biblical. Nothing in the Bible forbids scientific advance into the sacred. So, what counts as the violated sacred? Here is the answer: nature. In the modern world nature has replaced Zeus as the sacred. To violate nature is to risk nature's retaliation, to risk letting a monster loose on the world.[64]

With all the warnings we've inherited from the Tower of Babel, Prometheus, and Frankenstein, we would expect that today's religious sensibilities would prompt us to wince and flinch at transhumanism. Certainly no religious person could place a stamp of approval on this bald attempt to storm heaven on a technological ladder. Right? Wrong. Religious transhumanists are sprouting up like dandelions after a spring rain.

AI and Religion! Really?

An AI Church? That's what Anthony Levandowski, former executive at Google and Uber, is planning. He plans to name the church *The Way of the Future*, and his holy scripture will take the form of *The Manuel*. When the superintelligent robots we humans create become

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63. Shelly, *Frankenstein: The Modern Prometheus*, 154.
64. See: Ted Peters, *Playing God? Genetic Determinism and Human Freedom* (London: Routledge, 2nd ed., 2003).

smarter than we are, then we'll need to treat them as gods. So, we may as well get into the habit of appeasing our new gods now.[65]

> Levandowski believes that humans dominate the world because we evolved to be more intelligent than other animals; in the same way, AI will eventually supersede the power of its creators. It will be so much more intelligent than us that it will, effectively, become a god. With the Internet as its nervous system, the world's connected cellphones and sensors as its sense organs, and data centers as its brain, this new deity will be as omniscient and omnipotent as any previous vision of God. In the face of such power, Levandowski believes, humans will merely submit and pray to be spared.[66]

Elsewhere we're watching the rise of new syncretisms between otherwise atheistic transhumanism and religious visionaries.[67] As of this writing we can list Buddhist transhumanism,[68] Unitarian Universalist transhumanism,[69] Mormon transhumanism, and even versions of

65. Kif Leswing, 'Ex-Google executive Anthony Levandowski is founding a church where people worship an artificial intelligence god', in *Business Insider* (November 16, 2018) https://www.businessinsider.com.au/anthony-levandowski-way-of-the-future-church-where-people-worship-ai-god-2017-11.

66. Galen Beebe and Zachery Davis, 'When Silicon Valley Gets Religion--and Vice Versa', in *Boston Globe* (November 7, 2018) https://www.bostonglobe.com/ideas/2018/11/07/when-silicon-valley-gets-religion-and-vice-versa/L5xOYtgwd4VImwcj52YxtK/story.html.

67. See: Ted Peters, 'Boarding the Transhumanist Train: How Far Should the Christian Ride?', in *Transhumanism Handbook*, 795-804. DOI 978-3-030-16920-6_62.

68. Michael LaTorra, "What is Buddhist Transhumanism?" *Theology and Science* 13:2 (2015) 219-229. A syncretism of H+ with Islam is unlikely. 'While the modern movement towards transhumanism aims to improve sensory perception by way of scientific intervention, Islamic transhumanism calls on believers to improve and purify their perceptions by way of God-consciousness, brought about increasing in remembrance of God. It might be argued that a Muslim's transhumanist goals are directly tied to their devotion to God, rather than mastery of secular science. This difference embodies the fundamental difference between an Islamic transhumanism and secular transhumanism.' Tamim Mobayed, 'Immortality on Earth? Transhumanism Through Islamic Lenses', in *Yaqeen* (December 11, 2017); https://yaqeeninstitute.org/en/tamim-mobayed/immortality-on-earth-transhumanism-through-islamic-lenses/.

69. James Hughes, 'Transhumanism and Unitarian Universalism: Beginning the Dialogue', (2005), http://changesurfer.com/Bud/UUTrans.html.

Christian transhumanism.[70] Lincoln Cannon, erudite spokesperson for Mormon transhumanism, lifts up an inspiring vision.

> As transhumanists, we have discarded the old assumption that human nature is or ever was static—not only because science has demonstrated biological evolution, but especially because history itself is cultural and technological evolution . . . humanity will continue to evolve. Our common ambition is to inject ourselves into the evolutionary process, changing our bodies and minds, our relationships, and even our world for the better--perhaps to learn, love, and create together indefinitely . . . Mormon transhumanism stands for the idea that humanity should learn how to be God; and not just any kind of god, not a god that would raise itself in hubris above others, but rather the God that would raise each other together as compassionate creators. Humanity should learn how to be Christ."[71]

The evolution of superintelligence converges, for such religious visionaries, with divinely promised transformation. Science and technology become the means for sanctification if not deification and more. There seems to be no essentialist Ludditism or Frankenfear at work in Lincoln Cannon.

However, an Eastern Orthodox theologian, Ian Curran, waves the flag of Frankenfear caution. First, deification does not mean each human being becomes a god; rather, it means flowing fully into the life of the one and only God. Second, deification could not be the product of human technological progress.

> While the Christian tradition does share with techno-humanism a vision of deification as integral to the human story, its understanding of the source, means, and ultimate end of this radical transformation of human beings is

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70. Christian Transhumanist Association, http://changesurfer.com/Bud/UUTrans. html (accessed 10/20/2018). Sympathetic Christian critics are also at work. Ronald Cole-Turner, 'Going Beyond the Human: Christians and Other Transhumanists', in *Theology and Science* 13:2 (2015): 150–161; Brian Patrick Green, 'Transhumanism and Roman Catholicism: Imagined and Real Tensions', in *Theology and Science* 13:2 (2015): 187–201.

71. Lincoln Cannon, 'What is Mormon Transhumanism?', in *Theology and Science* 13:2 (May 2015): 202–218 (202–203).

> substantially different. For Christians, deification is the work
> of the Christian deity . . . Deification is only possible because
> Christ deifies human nature in the incarnation and the Spirit
> sanctifies human persons in the common life of the church
> and in our engagements with the wider world.[72]

Ultimate deification requires divine grace. Technological advance belongs strictly in the penultimate domain. H+ contributes nothing to sanctification or deification.

Could we split the middle between Lincoln Cannon's extravagant hybridization of secular H+ with Mormon H+, on the one end of the spectrum, and Ian Curran's complete rejection of H+ on the other? Might there be a moderate theological position based upon a moderate variant of transhumanism? Here is what a moderate H+ looks like, according to a Roman Catholic theologian at Ruhr-Universität Bochum, Germany, Benedikt Paul Göcke.

> According to the moderate transhumanist agenda, it is
> morally valuable to enhance the human nature of individual
> subjects, externally and internally, and where it is possible
> permanently, through the use of applied science, in order to
> increase their range of human physical and mental capacities
> with respect to an objective scale of measurement of physical
> and mental abilities that are judged to be good for human
> subjects to have.[73]

With this in mind, Göcke argues that Christians can in principle fully endorse the transhumanist agenda because there is nothing in Christian faith that is in contradiction to it. In fact, given certain plausible moral assumptions, Christians should endorse a moderate enhancement of human nature."[74]

If H+ were a seducer and religion the damsel, the Mormon would accept a marriage proposal; the Orthodox would refuse all romantic dinner invitations; and the Roman Catholic would enjoy the flirting.

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72. Ian Curran, 'Becoming godlike? The Incarnation and the Challenge of Transhumanism', in *Christian Century* 134:24 (November 22, 2017): 22–25, at 25.
73. Benedikt Paul Göcke, 'Christian Cyborgs: A Plea for a Moderate Transhumanism', in *Faith and Philosophy* 34:3 (2017): 347–364, at 352.
74. 'Christian Cyborgs: A Plea for a Moderate Transhumanism', 347.

Conclusion

It should be tacitly clear that the transhumanist movement represents the prow of the modern Western ship as it sails toward the colonization of the mind just as in previous centuries it colonized human bodies. If H+ dreams come true, a new elite will emerge in cities the world over, an elite made up of those with access to superintelligence. H+ is not an egalitarian ideology, by any means. Nor is there a likelihood that H+ will invite previously marginalized peoples into its techtopia.

In addition to the justice question, theologians will ask about anxiety. Weak AI elicits no anxiety when intelligence is confined to mentally challenged robots busy vacuuming the living room rug. Nor are artists upset when computers paint portraits. Even factory workers, tempted to worry at the prospect of losing their jobs to robots, expectantly search for more high-tech employment.

When it comes to Strong AI or AGI, however, anxiety begins to rise. Strong AI compels us to ask existential questions such as: what does it mean to be human? Will our human species go extinct so that a more fit post-human species can survive? So, what is our intelligence anyway?

History teaches us that the future will not be neat, clean, orderly. It will be disruptive. Things can and will go wrong.[75] Will the Sorcerer's Apprentice go wild? Will our superintelligent children treat outdated *Homo sapiens* dismissively or even cruelly? Is there good reason for Frankenfear?

Despite transhumanist claims of a utopian transformation wrought by scientific and technological progress, a healthy Frankenfear or at least a caution is warranted. We know from the truths about

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75. Christians should keep the doctrine of sin handy when trying to accomodate Transhumanism. "The Christian cosmology of the redemptive Gospel cannot be reconciled with a metaphysical and philosophical system reliant upon endless evolutionary complexification. The Christian must ask (and be prepared to explain) what it means to the transhumanist to be human and we must also be prepared to expose the sin-side of their plans. For while there may be much good in longer life, sin remains and sin is prone to ruin good things and the good life so many pursue. We have to face the fact that people—even highly evolved people—have done, are doing and will continue to do horrible things.' Carmen Fowler LaBerge, 'Christian? Transhumanist? A Christian Primer for Engaging Transhumanism', in *Transhumanism Handbook*, 771–776, at 775.

human nature revealed to us in the stories of the Tower of Babel (Gen 11:1–9), Prometheus, and Frankenstein that utopian aspirations risk creating monsters that get out of control. In the case of transhumanism, that monster could lead to oblivion for the human species. Even without an uncontrollable monster, human oblivion is part of the H+ plan.

I forecast that byproducts of neuroscientific research and attempts to build ever smarter computers will benefit the human race. These sciences and resulting technologies will likely improve medical care and may even increase human longevity. Nevertheless, a healthy caution if not full Frankenfear of utopian promises is warranted by the doctrine of sin reinforced by historical knowledge about how the human race behaves. A sinful humanity is incapable of creating a sinless superintelligence. Utopia is not possible by human effort alone.

The ultimate transformation Christians look forward to is eschatological. It will be a gift of divine grace. John Polkinghorne reminds us of this. 'An ultimate hope will have to rest in an ultimate reality, that is to say, in the eternal God himself, and not in his creation.'[76] It would behoove the present generation to view AI advance as penultimate, not ultimate. A healthy dose of Frankencaution is warranted.

76. John Polkinghorne, *The Faith of a Physicist* (Princeton NJ: Princeton University Press, 1994), 163.