religions

MDPI

Article

Will Superintelligence Lead to Spiritual Enhancement?

Ted Peters

Graduate Theological Union, Berkeley, CA 94709, USA; tedfpeters@gmail.com

Abstract: If we human beings are successful at enhancing our intelligence through technology, will this count as spiritual advance? No. Intelligence alone—whether what we are born with or what is superseded by artificial intelligence or intelligence amplification—has no built-in moral compass. Christian spirituality values love more highly than intelligence, because love orients us toward God, toward the welfare of the neighbor, and toward the common good. Spiritual advance would require orienting our enhanced intelligence toward loving God and neighbor with heart, mind (or intelligence), and soul.

Keywords: intelligence; superintelligence; machine intelligence; artificial intelligence; intelligence amplification; reason; love; transhumanism; public theology; AI ethics; Knud Løgstrup

Citation: Peters, Ted. 2022. Will Superintelligence Lead to Spiritual Enhancement? *Religions* 13: 399. https://doi.org/10.3390/rel13050399

Academic Editors: Tracy J. Trothen, Calvin Mercer and Jeffery D. Long

Received: 11 January 2022
Accepted: 25 April 2022
Published: 26 April 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

We already enhance our vision by wearing glasses. With CRISPR gene editing along with implanting artificially intelligent memory chips in the brain, could we enhance our spirituality? With the term "spirituality," I ask about motivated behavior such as moral resolve, compassion, faith in God, love of neighbor, sanctification, and deification.

Theologians routinely emphasize that healthy spirituality conforms human free will with God's will. Would technological enhancement[1] override our free will? Or, would it enhance our free will? Or, would it ignore our free will? Should we expect a morally advanced humanity in the future? (Herzfeld 2017, Introduction: Religion and the New Technologies).

No. Not if we restrict our criterion for measuring human progress to superintelligence. Why? Because the *summum bonum of* Silicon Valley is not sanctification or love of neighbor. Rather, the highest good sought here is intelligence. That is it. Intelligence. As desirable as superintelligence in either artificial or human form might be, it would have no necessary effect on moral responsibility or spiritual enhancement.

If human intelligence could be enhanced artificially by means of ML (machine learning), AI (artificial intelligence in robots), or IA (intelligence amplification through brain implants), the Christian theologian would celebrate (Herzfeld 2018, The Enchantment of Artificial Intelligence). This would count as an advance in human health and wellbeing. But, make no mistake. Enhanced intelligence in itself does not constitute an achievement of spiritual goals such as virtue, sanctification, or neighbor love. No matter how valued and respected intelligence is, moral or spiritual enhancement is something else.

2. What Is the Highest Good: Intelligence or Love?

How should we formulate the issue? Here is the problem. The goals set by ML, AI, and IA researchers as articulated especially by transhumanists are set by a vision of superintelligence. The technological destination, according to Max More and our other transhumanist colleagues, is a posthuman species augmented by superintelligence. This may be a laudable vision. However, this is not the goal of Christian spirituality, let alone the spiritual end of most religious traditions.[2]

The *trans* in transhumanism refers to the present phase of propelling both AI and IA toward the Singularity, toward the threshold where superintelligence grabs the reigns

of evolution, steers humanity toward posthumanity, and discards current *Homo sapiens*. We will become fossils of an extinct species (More 1996).[3] The "Singularity...is a point where our old models must be discarded and a new reality rules," wrote the prescient Verner Vinge (Vinge 1992).

The engineer shining the headlight on the transhumanist train is Oxford's Nick Bostrom. He describes the end station.

> Let us make a leap into an imaginary future posthuman world, in which technology has reached its logical limits. The superintelligent inhabitants of this world are autopotent, meaning that they have complete power over and operational understanding of themselves, so that they are able to remold themselves at will and assume any internal state they choose in any technological utopia we have a realistic chance of creating a large portion of the constraints we currently face have been lifted and both our internal states and the world around us have become much more malleable to our wishes and desires (Bostrom 2008, pp. 202–3).

Futurist Bostrom projects a utopia replete with humanistic values such as dignity and freedom. Yet, the path to utopia is the one-way track toward increased intelligence.[4] There is nothing in this posthuman Eden that causally links enhanced intelligence with enhanced spiritual integrity.

Despite this lacuna, technological enhancement should still attract the theologian. Why? Because both H+ and theology look forward to human transformation. Reformed theologian Ronald Cole-Turner, for example, is attracted to H+ because "human transformation is central to Christian thought" (Cole-Turner 2011, p. 5, Introduction: The Transhumanist Challenge).[5] For both critical as well as complementary reasons, the church theologian should participate in the wider public discourse. Specifically, the positive contributions of intelligence technology could benefit the common good.

Perceptive religious insights belong in this public discussion. "Religion can play an important role in assessing these technologies and shaping a beneficial outcome. Playing that role requires religion to be responsive, relevant, and prophetic in the public square," declare Tracy Trothen and Calvin Mercer (Mercer and Trothen 2021, p. 210).

It becomes the task of the public theologian, then, to board this train and ride as far as conscience will allow (Peters 2018, Public Theology: Its Pastoral, Apologetic, Scientific, Political, and Prophetic Tasks). The public theologian dare not ride to the end station because the Christian vision of human flourishing depends on love, not intelligence (Peters 2019c, Boarding the Transhumanist Train: How Far Should the Christian Ride?).

So, we must ask: what role should the religiously informed AI ethicist play? To date, AI ethics is pretty much restricted to professional ethics. AI and Faith, an organization made up of techies and theologians, is pushing the frontier further down the track toward religious engagement. What might be the implications long term, for human wellbeing or flourishing?

3. Five Concerns of the Public Theologian

Here are the implications. The public theologian has an opportunity, if not a responsibility, to engage in discourse clarification that lifts up five concerns (Peters 2019d, The Ebullient Transhumanist and the Sober Theologian).

First, contest the view that the defining feature of humanity is rationality and propose an account of spirituality that dissociates it from reason alone (Peters 2021, Enhanced Intelligence and Sanctification November).

Second, search for a way to invalidate the growing faith in a posthuman future shaped by the enhancements of ML, AI, and IA. What the public theologian sees that the transhumanist is blind to is the ambiguity of technology. Technology can be pressed into the service of evil as well as good. So can intelligence.

Third, assert strongly that it is love understood as *agape*, not rational intelligence, which tells us how to live a godly life. Love tells us how to be truly virtuous, authentically human, even holy.

Fourth, demonstrate how the transhumanist vision of a posthuman superintelligence is not only unrealistic, it portends the kind of tragedy we expect from a false messiah[6] (Peters 2019b, Artificial Intelligence, Transhumanism, and Rival Salvations).

Fifth and finally, proclaim that if, as a byproduct of AI and IA research combined with H+ zeal, the wellbeing of the human species and the common good of our planet is enhanced, then we should be grateful.[7]

4. What Is Love?

What is Love? Briefly, love comes to us in the form of divine grace and human compassion (Peters 2019a, Artificial Intelligence versus Agape Love: Spirituality in a Posthuman Age). This kind of love can be shared by smart people and not so smart people alike. It can also be shared with the animal kingdom.

> And this is his commandment, that we should believe in the name of his Son Jesus Christ and love one another, just as he has commanded us. All who obey his commandments abide in him, and he abides in them. And by this we know that he abides in us, by the Spirit that he has given us (1 John 3: 23–24).

This kind of love is known by its Greek name, *agape.* If superintelligence would be a scoop of ice cream, love of God and love of neighbor would be the hot fudge topping. Intelligence without love risks being only something cold.

Again, intelligence—whether in AI form or enhanced human form—is something to value. But intelligence alone lacks a moral compass. *Agape* love provides the moral compass that makes us godly. For enhanced spirituality, we need more than enhanced intelligence.

5. Human Intelligence and Human Reason

Yes, intelligence is a most valuable commodity. General intelligence, among other traits, marks us as distinctively human. The common good could benefit from super-general intelligence.

We *Homo sapiens*—sometimes *Homo sapiens sapiens*, to stress the point—are rational animals. According to Aristotle, we human beings are "thought-bearers" (ζῷον λόγον ἔχον, *animal rationale*). We think. We reason. Intelligence makes thinking and reasoning possible.

Today's scientists, following Aristotle, call us wise animals *Homo sapiens sapiens*, a subspecies evolving between 160,000 and 90,000 years ago from the more inclusive *Homo sapiens*.

Should we human beings think of ourselves as the pinnacle of creation? We are a unique species, right? No. Not exactly. We human beings share our intelligence with other animals. What distinguishes *Homo sapiens* is not our particular mental capacity but rather our linguistic capacity. At least, according to Terrance Deacon at the University of California, Berkeley (Deacon 2012). And now that computers are gaining linguistic capacity, how long can we maintain the delusion that we wet-brains are the kings of the beasts? Or, even the kings over our electronic progeny?

Despite what I have said about love, the capacity and exercise of reason that intelligence affords is something to be cherished. Whether computers or robots will surpass us in the future, we need to make clear that Christians and Jews in Western culture have lauded the human capacity to reason.

When the Vatican takes up the question of AI ethics, Pope Francis reaffirms that rational intelligence contributes to making us human. "All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of fellowship" (Francis 2020, Rome Call for AI Ethics).

It is reasoning power that connects the human to both God and the nonhuman machine (Peterson 2010).

Yet we must re-ask: is rationality a trait unique to our species? Do we share intelligence with animals or plants or extraterrestrial civilizations? If so, must we humans surrender our claim to uniqueness in the biosphere?

In our present era with heightened eco-consciousness, the time is ripe for emphasizing continuity rather than discontinuity between our species and other living creatures. We definitely share intelligence with animals and even single-celled organisms, although to date we do not share intelligence with computers or other machines.

Looking toward the future, it is quite possible that we *Homo sapiens* may encounter other beings of equal or superior intelligence and reasoning capacity. Our future superiors might come in the form of either robots on Earth or disembodied machine intelligence living in cyberspace on exoplanets. Let us ask: does it matter for Christian spirituality whether we humans alone bear the level of intelligence common to our species? My answer: no, it does not matter.

5.1. What Is Intelligence? Do We Humans Share Intelligence with Other Life Forms?

Intelligence is by no means the private property of our friends and neighbors within the human race. Our highly developed human reasoning exists in continuity—not discontinuity—with other living and embodied creatures.

Let us saunter down intelligence lane for a few paragraphs. The street sign reads: "Intelligence This Way." Well, what will we find when we get there?

The literature on intelligence generally avoids defining intelligence. I find this curious. Scientists dealing with this subject matter prefer to sort through degrees or levels of intelligence rather than telling us what intelligence is. They prefer to distinguish between smarter and dumber. This results in scales of intelligence, in ranks ranging from simple to complex. In short, our scientists do not typically draw lines between the total absence of intelligence and the presence of intelligence. At least in living creatures.

Shane Legg and Marcus Hutter, however, have done us a favor. They have collected definitions of intelligence. They prescribe a minimum of three components essential to any definition of intelligence: (1) agency when interacting with the environment; (2) goal setting leading to success or failure; and (3) adaptation to the environment by altering goals. In sum, "Intelligence measures an agent's ability to achieve goals in a wide range of environments" (Legg and Hutter 2006).

With this background in mind, let us adumbrate seven criteria that reveal the presence of intelligence. These criteria are roughly ranked from simple to complex. The lines between stages are blurry rather than sharp, to be sure; but levels are discernable.

Let us consider a seven-mark description of intelligence. With this list, I hope to demonstrate that very simple life forms exhibit some, though not all, marks of intelligent creatures. An organism is intelligent when it exhibits one or more of the following seven traits (Peters 2017, Where There's Life There's Intelligence):

1. Interiority: a membrane or barrier that separates the interior from the exterior environment or world; further, the interior maps the exterior to guide intentional behavior.
2. Intentionality initiated from within that relates to the without—that is, goal-oriented behavior risking success or failure.
3. Communication with the environment, including other organisms (Laird et al. 2015).
4. Adaptation: the capacity to change in order to adapt and evolve.
5. Mental activity, including reasoning in problem solving.
6. Mental activity, including self reflection and theory of mind.
7. Mental activity, including rendering sound judgment.

Our intelligence makes judgement possible. But intelligence does not in itself dictate which judgments to make. A moral compass must be added to make sound moral or spiritual judgments.

We human beings exhibit all seven marks. Many mammals exhibit similar traits of intelligence. Brainless microbes and simple organisms exhibit the first four marks. This spectrum of traits suggests that all life, from the simplest to the most complex, can be dubbed intelligent. There may be differences in levels of complexity, to be sure; yet, we *Homo sapiens* share intelligence with amoebas.

This should come as no surprise to the theologian. In Augustine's *City of God* (16.8) we find such continuity affirmed.

> But whoever is anywhere born a person, that is, a rational, mortal animal, no matter what unusual appearance he presents in color, movement, sound, nor how peculiar he is in some power, part, or quality of his nature, no Christian can doubt that he springs from that one protoplast. We can distinguish the common human nature from that which is peculiar, and, therefore, wonderful.

Augustine was including within the *imago Dei* monstrosities, unusual races, persons with mental disabilities, persons with birth defects and such. We dare not underestimate the value of rational capacity in the Christian tradition.

As said above, Aristotle and the Christian tradition were on target when describing us humans as "thought-bearers." Here is the point: we *Homo sapiens* are not alone in this. We humans may bear more abstract thoughts than amoebas, to be sure. But there is no solid line dividing human reasoning from simple cell interiority or intentionality.

If this seven-point spectrum is relevant and illuminating, then we should explore questions about its implications for the future of machine intelligence. For artificial intelligence.[8] For intelligence amplification. For meeting extraterrestrial intelligence.

5.2. Will Disembodied Intelligence Really Be Intelligent?

If we apply the above seven criteria, what is commonly called artificial intelligence or AI is not intelligent at all. AI is only a bucket of code, some of my techie friends tell me. AI is only a laundry basket of processes with rules of operation, say other Microsoft colleagues. AI may perform jaw-dropping feats of calculation, but this does not imply that intelligence is present. There is no doubt that we should applaud uproariously the computer engineers who have designed machines that learn how to provide us with answers to complex questions. Yet, *intelligence* is not the word to describe information processing, no matter how dramatic.

When we look at a computer or robot we might ask: "who is allegedly doing the thinking here?" Answer: "nobody is at home". There is no self or agent who deliberates, renders judgments, makes decisions, and takes actions.

The stated goal of the strong AI movement is to create artificial general intelligence (AGI). AGI is defined as "interactive, autonomous, self-learning agency, which enables computational artifacts to perform tasks that otherwise would require human intelligence to be executed successfully" (Mariarosaria and Florida 2018). But, alas, this goal may be furtive.

What is missing in machine intelligence? Item seven on our list of intelligence traits. ML lacks knowledge produced by sound judgment. Data classification and calculation alone does not constitute the level of judgment required for actual knowledge, let alone moral resolve.

AI in the form of DNNs (deep neural networks), for example, rely on pattern-recognition technology. And reliance on pattern recognition to classify inputs sets the limit of what DNN can accomplish. Without the capacity for judgment, DNNs can be easily fooled.

Douglas Heaven, writing in *Nature*, points out that the change in just a few pixels changes a DNN's perception from seeing a lion to seeing a library. It is easy "to make DNNs see things that were not there, such as a penguin in a pattern of wavy lines" (Heaven 2019, p. 164). No number of rules can overcome AI's lack of judgment. "Even if rules can be embedded into DNNs, they are still only as good as the data they learn from" (Heaven 2019, p. 164). Data without judgment means that Al has not yet reached stage seven.

If today's human intelligence provides the model for future AI, we are not yet close. "Robots that can develop humanlike intelligence are far from becoming a reality... [AI] still belongs in the realm of science fiction", is the observation of Diana Kwon, writing for *Scientific American* (Kwon 2018, p. 31). After six to seven decades of attempting to construct a machine with intelligence, Noreen Herzfeld concludes, the accomplishment rate is zero. "We are unlikely to have intelligent computers that think in ways we humans think, ways as versatile as the human brain or even better, for many, many years, if ever" (Herzfeld 2018, p. 3, The Enchantment of Artificial Intelligence).

So, we must ask about the H+ vision of superintelligence. Is it possible for moderately intelligent *Homo sapiens* to procreate superintelligent children? The answer depends on your philosophical assumptions. 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 (Aquinas 1485, II-II, 32, 4, obj. 1). 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 progenitors?

What should we conclude here? If the criterion by which we measure AI or machine intelligence is stage seven intelligence itself, then the criterion would be embodied intelligence. I am not likely to invite my Dell computer to determine what I should buy my spouse for Christmas or formulate public policy.

5.3. Wet versus Dry Intelligence

AI techies and H+ visionaries have so overemphasized intelligence and autopotency that relationality has faded into the background. Therefore, the public theologian must remind us how relationality remains important on two fronts: (1) the relationship of intelligence to the body, and (2) the relationship of the person to other persons. Disembodied souls of the Cartesian type are out of fashion with Jewish and Christian theologians of our era. Rather, authentic humanity as well as eschatological humanity are now thought of holistically, body included. Even in the resurrection, according to St. Paul (1 Corinthians 15:42–44), the eschatological human person lives in a spiritualized body.

In addition, every intelligence we have known to date has been wet. To be wet is to be embodied. Robotic AI and cybernetic immortality envisioned by H+ are dry, disembodied. Is this a problem theologically? (Herzfeld 2002, Cybernetic Immortality versus Christian Resurrection), (Tirosch-Samuelson 2018) Yes, indeed, according to Tracy Trothen and Calvin Mercer: "Jewish and Christian theologians, who affirm the importance of embodiment, are concerned about what they perceive (sometimes rightly) to be transhumanism's denigration of the body biological, therefore making some transhumanist projects like mind uploading theologically problematic" (Mercer and Trothen 2021, pp. 165–66).

5.4. Technologically Advanced Intelligence Would Still Be Morally Ambiguous

We have seen in history that technological advances lead to both plows and swords, firecrackers and guns, medicine and poison, communication and miscommunication. Does this apply to envisioned superintelligence as well? Yes, indeed. Intelligence has no built-in moral compass, let alone commitment. Like a teeter-totter, greater intelligence could bounce both ways: for good or evil.

Hybrid geneticist and theologian Arvin Gouw raises this challenge. He places the burden of demonstrating that H+ technological advance will have any positive influence on human moral advance.

Technologies are neutral tools by default; thus, the assumption that technology will make humanity better is a questionable hypothesis given the fact that, over the years, technologies have given birth to atomic bombs and biological weapons precisely because human nature is not neutral, unlike technology (Gouw 2018, p. 230).

ML, Al, IA, just like other technologies in our past, are morally ambiguous. They can edify. They can destroy. This applies to the concept of intelligence as well. Intelligence all

by itself feels no compassion, no love, no responsibility for the welfare of either humanity or the planet.[9]

Methodist theologian Alan Weissenbacher cautions us that technological advance could backfire. "Instead of salvation...technological advances represent a new set of benefits as well as challenges to overcome, particularly the tendency of human technical creations to reflect the sins of their creators even under the best of intentions" (Weissenbacher 2018, p. 69).

Perhaps Carmen Fowler LaBerge provides the most fitting recognition of moral ambiguity. "From a Christian worldview, technology is not inherently good nor evil. Technology is morally benign but we are not. Human beings who develop and use technology are moral agents who stand responsible before God who defines the boundaries of good and evil. So, part of what Christians bring to the transhumanist conversation is the question of should" (LaBerge 2019, p. 774).

Might we sidestep this ambiguity by pressing technology into the service of educating the person or community who is already committed to a life of virtue? After all, making practical decisions in pursuit of the common good will require knowledge and informed judgment. A bioethicist at Santa Clara University, Brian Patrick Green, invites AI technologies into the service of virtue education. Virtual reality would contribute to Virtue itself. AI as a pedagogical tool could accelerate educational programs, "raising up future generations to be prepared for the difficult situations they will face, by experiencing, through a VR education personalized by AI, vastly more moral situations and their best solutions, than contemporary people could hope to experience, even with immense effort" (Green 2018, p. 227). What Green has done here is turn AI into a means toward virtue as the end.

5.5. Confusing the Penultimate with the Ultimate

Let us turn now to distinguishing means from ends. Or, what is penultimate from what is ultimate.

The snarling nemesis of H+, Francis Fukayama, complains that H+ visionaries confuse the penultimate with the ultimate. He asks rhetorically: do transhumanists "really comprehend ultimate human goods?" (Fukuyama 2004)

No, adds Adam Willows at Notre Dame. What do the transhumanists value? "Health, wellbeing, longevity (even immortality), mental activity, reliable memory and social benefits such as increased equality and liberty—these are all important things offered by the transhumanist project," Willows observes. "All of them are valued by theologians and bioconservatives. However, none of these goods are ultimate goods" (Willows 2017, p. 179).

In the neo-orthodox tradition of Reinhold Niebuhr, Paul Tillich, and Langdon Gilkey, substituting the penultimate for the ultimate risks inviting the demonic. We will take this in two steps. First, the technological reason that imbues H+ cannot on its own apprehend what is ultimate. "Technical reason," observes Tillich, "provides means for ends, but offers no guidance in the determination of ends" (Tillich 1989, 2:168).

Second, when a person or a culture confuses means with ends or penultimate values with what is ultimate, beware! The demonic is lurking in ambush. Gilkey sounds the alarm. "Perhaps the unique insight of a Christian interpretation of the human predicament is, first, that only God is God, and, second, as a consequence, all else even the most creative aspects of our human existence, are not absolutely good, good in themselves, but possess the possibility of the demonic if they are made self-sufficient and central" (Gilkey 1980, p. 34).

This is what Willows picks up. "Life and power by these [H+ technological] means is not desirable because it cultivates the vice of pride and causes us to forget that our good is to be found in God, not our own endeavors" (Willows 2017, p. 179).

Health and wellbeing and enhanced capacity to reason are all good things. Every theologian and moralist would agree. So, the question raised by H+ and its technologies is this: what is ultimate? When it comes to matters of faith or virtue or holiness, it is love that

matters most. Love as a moral end seems to get lost in the transhumanist fog that confuses the penultimate with the ultimate.

6. What Is Our Spiritual End? Intelligence or Love?

It is love, not enhanced intelligence, that is the spiritual end for the Christian.

To demonstrate, let us turn to the interpersonal dimension of the human reality. To be a human person is to be a person-in-relationship with other persons. The very relationality of relationship includes within it a moral demand to love. Realization of our being a person-in-relationship produces an inescapable ethical demand, according Danish philosopher Knud Løgstrup (1905–1981). This ethical demand belongs to our very ontology, as human beings.[10]

To be is to be a person-in-relationship. Løgstrup observes that this relationship entails the demand that we serve the wellbeing and even the flourishing of the other party with whom we share a relationship. When we wake up to a consciousness of our own being-in-the-world, we find that we are not individuals first who then add relationships. Instead, we find that whatever individuality and responsibility we have derive from a prior nexus of concrete relationships. We are interdependent. This interdependence, contends Løgstrup, entails a silent yet potent commandment. What is that commandment? Love your neighbor! Our responsibility is inescapable.

By our very attitude to one another we help to shape one another's world. By our attitude to the other person we help to determine the scope and hue of his or her world, we make it large or small, bright or drab, rich or dull, threatening or secure (Løgstrup 1997, p. 18).

Before this becomes a commandment delivered by God to Moses on Mount Sinai, neighbor love has already belonged inherently to our human condition, even if the existence of the commandment acknowledges that sinful humans sometimes fail to shoulder their moral responsibility.

Løgstrup, following Martin Luther before him, believes each of us can serve as "daily bread" for those around us. Our impact on another person may be a very small matter, involving only a passing mood, a dampening or quickening of spirit, a deepening or removal of some dislike. But it may also be a matter of tremendous scope, such as can determine if the life of the other flourishes or not (Løgstrup 1997, 5 1516).

Jesus' double commandment is to love God and neighbor. "Love for neighbor is the concrete way in which we love God," observes Karl Rahner (Rahner 1978, p. 447). Could any technology—whether ML, AI, IA, or genetic engineering—enhance the human capacity for loving? For virtuous living? For sanctification or deification?

6.1. Genetically Engineered Spiritual Enhancement?

The possibility of moral bioenhancement is widely discussed among today's bioethicists. "We argue, moral bioenhancement should be sought and applied," say Ingmar Persson and Julien Savulescu (Persson and Savalescu 2013, p. 124). But, Valjko Dubljec and Eric Racine fear that "moral enhancement is not feasible in the near future as it rests on the use of neurointerventions, which have no moral enhancement effects or, worse, negative effects" (Dubljevic and Racine 2017, p. 338). We will not wait for this debate to come to a resolution before proceeding.

We should thank neuroscientists who search for means of motivating behavior. We have learned that pharmaceuticals can influence moral dispositions and spiritual receptivity. Yet, the matter of following a lifelong path of virtuous behavior or service to God dare not avoid one central question: what is the role of human free will, sound judgment, and moral resolve?

Because spiritual or moral enhancement requires the willful participation of an embodied self, genetic or other technological enhancements will most likely fall short. Asking AI to guide CRISPR gene editing into making us or our babies more intelligent simply will

not lead to enhanced virtue, holiness, sanctification, *theosis*, or deification. Really? Let us look into this.

Mark Walker's Genetic Virtue Project assumes that technological alteration can contribute to spiritual enhancement. Genetic technology becomes equipment in soul building. Walker is following in the tradition of Irenaeus in which the process of *theosis* or deification conforms the virtuous person to the "likeness of God" (Genesis 1:26–29).

Soul building can benefit from technologically enhancing the biological superstructure of our humanity. In particular, genetic engineering can enhance human virtue. The biological basis of our moral natures can be improved using genetic technologies, including (possibly) somatic and germline engineering (Walker 2018, p. 251).

Not so fast! Bioethicists seem to operate with an anthropology that precludes any technology, including genetic engineering, from doing our moral work for us. "It is fruitless to attempt to genetically engineer virtuous living," trumpets virtue ethicist Lisa Fullam. Why? "Traits given at birth are not the same thing as a virtuous character that can be acquired only by self-discipline" (Fullam 2018, p. 319). In other words, a virtuous character cannot be pre-programmed. It can be gained only through willful self discipline over time. Virtue could be attained through self-discipline regardless of one's genome.

What about sanctification, *theosis,* and deification? Not likely, according to Ukrainian Orthodox biologist Gayle Woloschak. Even so, she attempts to make as balanced an assessment of the technology as possible. Even if genetic technology provides us with a moral jump, so to speak, two contingencies make the outcome unpredictable: our human will and God's action. Our ability to find genes associated with virtuous behavior is very limited...Deification, which is a gift from God freely chosen by the individual and God working together in synergy, is open to every human person. (Woloschak 2018, p. 306.)

The problem with technological enhancements of any sort, observes Ronald Cole-Turner, is that they aim at enhancing the self. This is a problem. Why? Because genuinely Christian virtue is aimed at loving others even at the expense of oneself. In principle, this would preclude *theosis* or deification. "Human enhancement technologies tend to feed off the desire to expand the self," observes Cole-Turner; "while *theosis* is grounded in the idea that true divinization means we become like God in God's own kenosis of self-giving love." With this in mind, Cole-Turner can conclude that "the use of human enhancement technology is largely a matter of indifference" (Cole-Turner 2018, p. 330, Theosis and Human Enhancement).

Notice how Cole-Turner introduces kenosis, self emptying. In Hellenistic virtue, the self empties itself on behalf of an ideal such as truth, beauty, or justice. This produces a person of integrity—that is, a personality integrated around the ideal.

In Christian virtue, the self empties itself in loving God and in loving the neighbor. The resulting integrity becomes the virtuous life. Can such personal integrity be enhanced by enhanced intelligence? Not likely. Level of intelligence becomes a matter of indifference.

6.2. Again: What Is Love? The Common Good

Integrity gained through self-emptying love leads to a vision of the common good.

When society loves God by loving the neighbor, it strives to serve the common good. Universal health care stands out. Could ML, AI, and perhaps IA enhance health care? It already has. And it promises more. Moira McQueen lifts up the promise.

> Artificial intelligence has vast potential, and its responsible implementation is up to us. One way to do that would be to ask and implement the wise principles of Catholic Social Teachings: do these ways of developing health care respect the individual dignity of the patient and patient carers? As systems, do they enhance the common good and benefit human flourishing? (McQueen 2018, p. 4.)

This promise requires the human will to press ML, AI, and IA into the service of the common good. If superintelligence, either in robots or persons, enhances the common good, Christians should do cartwheels in applause.

6.3. Again: What Is Love? Compassion Is Essential

Compassion is indispensable for motivating us to neighbor love and the common good. Compassion is the capacity to feel the passion or pain of the beloved one. Our inherited term for compassion, *compassio*, connoted in medieval times an emotion, the feeling of sorrow for the misfortune of others. Compassion includes mercy, love arising out of emotion rather than reason. "The horizontal charity was understood in terms of a compassionate attitude, which in some way imitated God's mercy" (Knuuttila 2019, p. 266).

Compassionate love could require kenosis, self sacrifice. Mathematical cosmologist George Ellis together with philosophical theologian Nancey Murphy describe spirituality in terms of kenotic love. As agape love, kenotic love is willing to sacrifice on behalf of the welfare of the neighbor.

> This kenotic ethic—an ethic of self-emptying for the sake of the other—is in turn explained and justified by a correlative theology: the kenotic way of life is objectively the right way of life for all of humankind because it reflects the moral character of God. (Murphy and Ellis 1996, p. 17.)

Would enhanced intelligence enhance our compassion? No, not likely. At least according to Roman Catholic theologian Ilia Delio.

> Simply put, technology cannot fulfill our deepest capacity for love. From a Christian perspective, the crucified Christ stands as symbol of the world's openness to its completion in God. God suffers in and with creation so that we do not suffer alone. Suffering is a door through which God can enter and love us in our human weakness, misery and loneliness. As we suffer loss, so too God experiences our loss, remaining ever faithful in love. This compassionate, loving presence of God is our hope that suffering and death are not final but are a breakthrough into the fullness of life up ahead. (Delio 2020)

Despite her demure here, Delio greets with glee the transhumanist promise of a future superintelligence. But she would prefer putting this in Teilhardian terms. Pierre Teilhard de Chardin (1881–1955) was intrigued by computer technology and its potential to link humankind on a new level of a global mind, she tells us. For this reason, Teilhard can be viewed as a forerunner of transhumanism (de Chardin 1959).

Nevertheless, Delio avers, Teilhard's theological vision is not about enhancement. Rather, it is about transformation. Delio points out that Teilhard recognized how suffering and death are invaluable to the emergence of unitive love. This unitive love is exemplified in the death and resurrection of Jesus Christ. Teilhard's vision helps us realize that suffering in nature may appear to be erratic and absurd. Nevertheless, in light of God's kenotic love, suffering is oriented toward freedom and the fullness of love. (Delio 2020)

7. Conclusions

In sum, Christian spirituality places all its marbles in a single bag labeled, "love". Compassionate or even self-sacrificial love could appear among the smart and the not so smart among us. Superintelligence could not, all by itself, generate superlove. In *Laudato Sí*, Pope Francis waxes with eloquence.

> Love, overflowing with small gestures of mutual care, is also civic and political, and it makes itself felt in every action that seeks to build a better world. Love for society and commitment to the common good are outstanding expressions of a charity which affects not only relationships between individuals but also macrorelationships, social, economic and political ones. (Francis 2015)

Will technological progress toward superintelligence lead to spiritual enhancement? Not automatically. What must be added to intelligence at any level is the willful decision to act morally, show compassion, pursue holiness, and live the life of virtue.

For the Christian, the love of the heart takes precedence over the genius of the mind. This is the case even if the genius of the mind is to be treasured when we love God with heart, mind, and soul (Matthew 22:37).

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data drawn from public sources including TedsTimelyTake.com and https://_www.patheos.com/blogs/.publictheology (accessed on 24 April 2022).

Acknowledgments: Thanks to Tracy Trothen and Calvin Mercer for the invitation to write.

Conflicts of Interest: The author declares no conflict of interest.

Notes

1 "The term enhancement is usually used in bioethics to characterize interventions designed to improve human form or functioning beyond what is necessary to sustain or restore good health" (Juengst 1998, p. 26).

2 For the Muslim, God-consciousness is much more important than advanced technology. "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" (Mobayed 2017). Posthuman 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" (Vita-More 2018, p. 31).

3 "The Singularity movement is a kind of secular religion promoting its own apocalyptic and messianic vision of the end times" (Grassie 2011, p. 264).

4 Forecasts of superintelligence prompt existential questions. When I am replaced with a machine more intelligent than I am, will I drop from being into non-being? Dylan Doyle-Burke, writing for *Psychology Today*, alerts us. "They [technological advances] can make us feel out of control, disoriented, and isolated. However, there are steps we can each take to flourish in our new normal without losing our agency or integrity".

5 In the biblical tradition, transformation and renewal are initiated by divine grace. Unitarian Universalist theologian Myriam Renaud offers a blessing. "When you get stuck—in self-destructive habits, unjust systems, or simply the daily grind—may grace set you free, whatever your theology".

6 When CRISPR genetic enhancement becomes implemented, the risk of eugenics shadows the ideal. "The new eugenics could . . . be implemented on a quite individual basis, in one generation, and subject to no existing restrictions", writes Michael Sandel (Sandal 2004, I l). To avoid the eugenic scenario, we need to treat our children with dignity, appreciating how nature gives them to us. "To appreciate children as gifts is to accept them as they come, not as objects of our design or products of our will or instruments of our ambition" (Sandal 2004, p. 6).

7 Just how close should the alliance be between Transhumanism and Christian anthropology? Celia E. Deane-Drummond worries about me. "I am rather more wary of the slide from enhancement to transhumanism than are authors such as Ted Peters" (Deane-Drummond 2009, p. 259). Because of the moral ambiguity exhibited by technological advance, I recommend the Christian theologian board the transhumanist train and then get off when approaching danger.

8 Laura Ammon and Randall Reed ask whether Christian churches will recognize AI entities as neighbor and invite AI into church membership. "The history of Christianity offers ample strategies that would allow the acceptance of these entities. In fact, if the decline in church membership continues at current rates, it may be that churches will see an advantage to incorporating AI's as a way of stemming member loss".

9 I do not imply that transhumanists themselves are amoral or immoral. "Transhumanism seeks an ethical approach to the use of technology and evidence-based science to study and mitigate disease" (Vita-More 2018, p. 46). According to Micah Redding, founder of the Christian Transhumanist Association, "Christian Transhumanists will continue to advance the vision of a radically flourishing future that is good for all life" (Redding 2019, p. 794).

10 Daekyung Jung makes an argument parallel to that of Løgstmp by appealing to the East Asian notion of xiang. In order to circumvent the self-centered epistemology of transhumanism, Jung wants to "reinstate a holistic, non-selfcentered, essence-based, and dynamic-relational vision of the human and beyond... The theology of xiang proposes seeing the xiang (i.e., essence) of every being, including the self, in terms of the act of knowing... [which] means looking at the particular being and its environment simultaneously in the spatial sense, and it also means understanding its history in the temporal sense" (Jung 2019, p. 525).

References

Aquinas, Thomas. 1485. *Summa Theologica*. Paris: New Advent. Available online: https://www.newadvent.org/summa/ (accessed on 24 April 2022).

Bostrom, Nick. 2008. Dignity and Enhancement. In *Human Dignity and Bioethics by US President's Council on Bioethics*. Washington, DC: President's Commission on Bioethics, pp. 173–206. Available online: https://www.academia.edu/38307610/Human_dignity_and_bioethics?email_work_card=thumbnail-desktop (accessed on 1 February 2022).

Cole-Turner, Ronald. 2011. Introduction: The Transhumanist Challenge. In *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*. Edited by Ronald Cole-Turner. Washington, DC: Georgetown University Press, pp. 1–18.

Cole-Turner, Ronald. 2018. Theosis and Human Enhancement. *Theology and Science* 16: 330–42. [CrossRef]

de Chardin, Pierre Teilhard. 1959. *The Phenomenon of Man*, 1st ed. New York: Harper.

Deacon, Terrence. 2012. *Incomplete Nature: How Mind Emerged from Nature*. New York: W W Norton.

Deane-Drummond, Celia. 2009. *Christ and Evolution: Wonder and Wisdom*. Minneapolis: Fortress Press.

Delio, Ilia. 2020. Suffering and Sacrifice in an Unfinished Universe: The Energy of Love. *Religions* 11: 335. [CrossRef]

Dubljevic, Veljko, and Eric Racine. 2017. Moral Enhancement Meets Normative and Empirical Reality: Assessing the Practical Feasibility of Moral Enhancement Technologies. *Bioethics* 31: 5. [CrossRef] [PubMed]

Francis, Pope. 2015. Laudato Si. Encyclical. Vatican. Available online: http://w2.vatican.va/content/francesco/en/encyclicals/documents/papafrancesco_20150524_enciclica-laudato-si.html (accessed on 1 February 2022).

Francis, Pope. 2020. Rome Call for AI Ethics. Available online: https://www.romecall.org/wpcontent/uploads/2021/02/AI-Rome-Call-x-firma_DEFDEF_con-firme_.pdf (accessed on 1 February 2022).

Fukuyama, Francis. 2004. Transhumanism: The World's Most Dangerous Idea. *Foreign Policy* 144: 4243.

Fullam, Lisa. 2018. Genetically Engineered Traits versus Virtuous Living. *Theology and Science* 16: 319–29. [CrossRef]

Gilkey, Langdon. 1980. *Message and Existence*. New York: Seabury Crossroad.

Gouw, Arvin. 2018. Optimistic Yet Disembodied: The Misguided Transhumanist Vision. *Theology and Science* 16: 223–29. [CrossRef]

Grassie, William. 2011. Millennialism at the Singularity: Reflections on the Limits of Ray Kurzweil's Exponential Logic. In *H+ Transhumanism and Its Critics*. Edited by Gregory R. Hansel and William Grassie. Philadelphia: Metanexus, pp. 249–69.

Green, Brian Patrick. 2018. The Technology of Holiness: A Response to Hava Tirosch-Samuelson. *Theology and Science* 16: 223–28. [CrossRef]

Heaven, Douglas. 2019. Deep Trouble for Deep Learning. *Nature* 574: 7777.

Herzfeld, Noreen. 2002. Cybernetic Immortality versus Christian Resurrection. In *Resurrection: Theological and Scientific Perspectives*. Edited by Robert John Russell, Michael Welker and Ted Peters. Grand Rapids: Eerdmans, pp. 192–201.

Herzfeld, Noreen. 2017. Introduction: Religion and the New Technologies. *Religions* 8: 129. [CrossRef]

Herzfeld, Noreen. 2018. The Enchantment of Artificial Intelligence. In *AI and IA: Utopia or Extinction?* Edited by Ted Peters. Adelaide: ATF, pp. 1–14.

Juengst, Eric. 1998. What Does Enhancement Mean? In *Enhancing Human Traits: Ethical and Social Implications*. Edited by Erik Parens. Washington, DC: Georgetown University Press.

Jung, Daekyung. 2019. Transhumanism and the Theology of Ziang: Deconstructing Transhumanism is Self-Centered Epistemology and Retrieving a Communal Sense of Being. *Theology and Science* 17: 524–38. [CrossRef]

Knuuttila, Simo. 2019. Compassion in Medieval Philosophy and Theology. In *Apprehending Love: Theological and Philosophical Inquiries in Honor ofRisto Saarinen*. Edited by Olli-Pekka Vaino. Helsinki: Luther-Agricola-Seura.

Kwon, Diana. 2018. Self-Taught Robots. *Scientific American* 318: 18–26. [CrossRef] [PubMed]

LaBerge, Carmen F. 2019. Christian Transhumanism? A Christian Primer for Engaging Transhumanism. In *The Transhumanism Handbook*. Edited by Newton Lee. Heidelberg: Springer, pp. 771–76.

Laird, Dale, Paul Lampe, and Ross Johnson. 2015. Cellular Small Talk. *Scientific American* 312: 5. [CrossRef] [PubMed]

Legg, Shane, and Marcus Hutter. 2006. A Collection of Definitions of Intelligence. Available online: http://www.vetta.org/documents/A-Collection-of-Definitions-of-Intelligence.pdf (accessed on 1 February 2022).

Løgstrup, Knud. 1997. *The Ethical Demand*. Notre Dame: University of Notre Dame Press.

Mariarosaria, Taddeo, and and Luciano Florida. 2018. How AI can be a force for good. *Science* 361: 6404.

McQueen, Moira. 2018. AI (Artificial Intelligence) adn ML (Machine Learning) in Health Care: Send in the Robots? *Bioethics Matters/Enjeux Bioéthiques* 16: 1–4. Available online: http://www.ccbiutoronto.ca/wp-content/uploads/2018/03/Bioethics-Matters_MMcQueenAI-March-2018Final.pdf (accessed on 1 June 2021).

Mercer, Calvin, and Tracy Trothen. 2021. *Religion and the Technological Future: An Introduction to Biohacking, Artificial Intelligence, and Transhumanism*. New York: Macmillan Palgrave.

Mobayed, Tamim. 2017. Immortality on Earth? Transhumanism Through Islamic Lenses. Yaqeen. Available online: https://yaqeeninstitute.org/en/tamim-mobayed/immortality-on-earth-transhumanismthrough-islamic-lenses/ (accessed on 24 April 2022).

More, Max. 1996. Toward a Futurist Philosophy. Available online: http://web.archive.org/web/20130806172107/http:/www.maxmore.com:80/transhum.htm (accessed on 24 April 2022).

Murphy, Nancey, and George Ellis. 1996. *On the Mora/ Nature of the Universe*. Minneapolis: Fortress.

Persson, Ingmar, and Julien Savalescu. 2013. Getting moral enhancement right: The desirability of moral bioenhancement. *Bioethics* 27: 3. [CrossRef]
Peters, Ted. 2017. Where There's Life There's Intelligence. In *What is Life? On Earth and Beyond*. Edited by Andreas Losch. Cambridge: Cambridge University Press, pp. 236–59.
Peters, Ted. 2018. Public Theology: Its Pastoral, Apologetic, Scientific, Political, and Prophetic Tasks. *International Journal of Public Theology* 12: 2153–77. Available online: https://yaqeeninstitute.org/read/paper/immortality-on-earth-transhumanism-through-islamic-lenses (accessed on 24 April 2022). [CrossRef]
Peters, Ted. 2019a. Artificial Intelligence versus Agape Love: Spirituality in a Posthuman Age. *Forum Philosophicum* 24: 259–78. [CrossRef]
Peters, Ted. 2019b. Artificial Intelligence, Transhumanism, and Rival Salvations. Covalence. Available online: https://luthscitech.org/artificial-intelligence-transhumanism-and-rival-salvations/ (accessed on 24 April 2022).
Peters, Ted. 2019c. Boarding the Transhumanist Train: How Far Should the Christian Ride? In *The Transhumanist Handbook*. Edited by Newton Lee. Cham: Springer, pp. 795–804.
Peters, Ted. 2019d. The Ebullient Transhumanist and the Sober Theologian. *Sciencia et Fides* 7: 97–117. [CrossRef]
Peters, Ted. 2021. Enhanced Intelligence and Sanctification. *Living Lutheran* 6: 24–25.
Peterson, Gregory. 2010. *Minding God: Theology and the Cognitive Sciences*. Minneapolis: Fortress Press.
Rahner, Karl. 1978. *Foundations of the Christian Faith*. New York: Seabury Crossroad.
Redding, Micah. 2019. Christian Transhumanism: Exploring the Future of Faith. In *The Transhumanism Handbook*. Edited by Newton Lee. Cham: Springer, pp. 777–94.
Sandal, Michael. 2004. What's wrong with designer children, bionic athletes, and genetic engineering? *Atlantic Monthly* 3–12.
Tillich, Paul. 1989. The World Situation. In *Main Works/Haptwerke*. 6 vol. Edited by Paul Tillich. Berlin: DeGruyter Evangelisches Verlagswerk GmbH, volume 2, pp. 165–96.
Tirosch-Samuelson, Hava. 2018. In Pursuit of Perfection: The Misguided Transhumanist Vision. *Theology and Science* 16: 200–23. [CrossRef]
Vinge, Verner. 1992. What Is the Singularity? Available online: https://mindstalk.net/vinge/vjnge-sing.html (accessed on 1 February 2021).
Vita-More, Natasha. 2018. *Transhumanism: What Is It?* New York: Self Published.
Walker, Mark. 2018. Moral Enhancement and Deification through Technology? *Theology and Science* 16: 251–72. [CrossRef]
Weissenbacher, Alan. 2018. Artificial Intelligence and Intelligence Amplification: Salvation, Extinction, Faulty Assumptions, and Original Sin. In *AI and IA: Utoppia or Extinction?* Edited by Ted Peters. Adelaide: ATF, p. 6988.
Willows, Adam. 2017. Supplementing Virtue: The Case for a Limited Theological Transhumanism. *Theology and Science* 15: 177–87. [CrossRef]
Woloschak, Gayle. 2018. Can We Genetically Engineer Virtue and Deification? *Theology and Science* 16: 300–7. [CrossRef]