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## A SPIRITUAL Artificial General Intelligence?

### “AI is here with us”<sup>1</sup>

John McCarthy, who coined the term “Artificial Intelligence” (AI) in 1956 speaks of AI as an evolution. He stressed that “as soon as it works, no one calls it AI anymore.”<sup>2</sup> Computer scientist Andrew Ng, a contemporary AI researcher speaks of AI as the “new electricity,”<sup>3</sup> heralding a revolution on par with that brought by electricity.

As humanity journeys towards transcending the human condition to a new condition that includes radically transhuman features, a special role is reserved to

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<sup>1</sup> Li, Fei-Fei and Jessi Hempel, “Melinda Gates and Fei-Fei Li Want to Liberate AI from ‘Guys With Hoodies,’” *Wired* (April 2017).” <https://www.wired.com/2017/05/melinda-gates-and-fei-fei-li-want-to-liberate-ai-from-guys-with-hoodies/>. [accessed 2 February 2021].

<sup>2</sup> Moshe Y. Vardi, “Artificial Intelligence,” *Communications of the ACM* 55, no. 1 (1 January 2012): 5, <https://doi.org/10.1145/2063176.2063177> [accessed 2 February 2021].

<sup>3</sup> Andrew Ng, *The State of Artificial Intelligence* (The Artificial Intelligence Youtube Channel, 2017).

AGI.<sup>4</sup> Out of the twenty-three researchers interviewed by AI-journalist Martin Ford, the average hypothesised year of the emergence of AGI is set to be at 2099, although transhumanist and futurist Ray Kurzweil postulates that by 2029, ten years from now, there is a fifty-percent chance of such emergence.<sup>5</sup> These hypotheses lay the foundation for our theological research as a prolegomenon on the possibility of a spiritual AGI, and possibly an ensouled AGI.

This question raises many questions on what is the soul; what do we define as consciousness; the link between body and soul; and a rethinking of our definition of intelligence.

As two Roman Catholic theologians and a Lutheran philosopher we uphold that all sentient beings have a soul, namely mental powers like consciousness, memory, feeling, but only humans have a spiritual soul.

For the souls of brutes are produced by some power of the body; whereas the human soul is produced by God. To signify this, it is written as to other animals: “Let the earth bring forth the living soul” (Genesis 1:24): while of man it is written (Genesis 2:7) that “He breathed into his face the breath of life.”<sup>6</sup>

Though Aquinas’ and, consequently, scholastic-Christianity’s understanding of what constitutes the human person has been contested as having been overcome by the findings of neuroscience,<sup>7</sup> ultimately our theological anthropological basis, which is foundational also to of Aquinas’ reflection, is that the human person is endowed with “a spiritual and immortal” soul,<sup>8</sup> and consequently the

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<sup>4</sup> Ben Goertzel, “Artificial General Intelligence and the Future of Humanity,” in *The Transhumanist Reader* (Oxford: John Wiley & Sons, 2013), 128–137, <https://doi.org/10.1002/9781118555927.ch12>. [accessed 2 February 2021].

<sup>5</sup> Martin Ford, *Architects of Intelligence: The Truth about AI from the People Building It*, E-book (Packt Publishing, 2018).

<sup>6</sup> Thomas Aquinas, *Summa Theologica*, trans. Fathers of the English Dominican Province, Benzinger (New York, Christian Classics, 1947), sec. Ia q. 75, art 6, reply to obj. 1.

<sup>7</sup> For a critique of the objections to Aquinas’ thought on the matter, which reduce the human person either to a physicalism or non-reductive physicalism, see Saša Horvat, “Neuroscientific Findings in the Light of Aquinas’ Understanding of the Human Being,” *Scientia et Fides* 5, no. 2 (18 July 2017): 127, <https://doi.org/10.12775/SetF.2017.021>. [accessed 2 February 2021].

<sup>8</sup> Vatican Council II, Pastoral Constitution *Gaudium et Spes*, 1965, para. 14, [http://www.vatican.va/archive/hist\\_councils/ii\\_vatican\\_council/documents/vat-ii\\_cons\\_19651207\\_gaudium-et-spes\\_en.html](http://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_cons_19651207_gaudium-et-spes_en.html). [accessed 2 February 2021].

human person is “the only creature on earth that God has willed for its own sake,”<sup>9</sup> destined from the moment of conception, for eternal beatitude.<sup>10</sup>

As we proceed in the investigation, we will start by taking “A Technical Survey” to differentiate between narrow and general AIs and highlight the intrinsic differences. We will then proceed to a literature review on the Christian perspectives of a spiritual soul where we will discuss ‘Spirituality’ and ‘Delimitations of Human Spirituality’. This leads us to the third section of the essay where we will outline essential categories for a spiritual being: re-inventing the self; origin; ability to imagine; emotions; consciousness, personhood and ensoulment (Spirituality as an Essential to Being Human). These essential categories lead us to hypothesise “A Shared Future” where AGIs co-exist with humans. This hypothesis will be explored through the lens of God irrupting in biology. We will then conclude with offering a *Missio Dei* “Forward Looking” approach to this new emerging scenario.

In setting up the outline for the paper, it might be useful to specify that we believe in Christianity’s role to dialogue with culture and mutual transformation. While the appreciation for the technological culture is commendable, we believe in the centrality of the anthropos in the Creator’s plans. This makes of the human person a partaker of divine life, endowed with the freedom, that is “an outstanding manifestation of the divine image.”<sup>11</sup>

Having said this, it is worth pointing out that in fact the word ‘spirituality’ originated in Christianity with the Latin adjective *spiritualis*, or “spiritual,” which translated the Greek adjective *pneuma* as it appears in the New Testament (NT).<sup>12</sup> Hence, the term itself reveals a particular anthropology rooted in the Judeo-Christian experience. So, what are the implications of the Christian understanding of what it means to be spiritual or to be endowed with a “spiritual soul”?

## A Technical Survey

AI is normally broken down into two main categories, Narrow Intelligence (NI), and General Intelligence (AGI). While great advancements are happening in the NI field, such as self-driving cars, natural language processing, the

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<sup>9</sup> Ibid., para. 24.

<sup>10</sup> Catholic Church, *Catechism of the Catholic Church, Catechismus Ecclesiae Catholicae. English.*, 2000, para. 1703, [https://doi.org/10.1016/S0022-3913\(12\)00047-9](https://doi.org/10.1016/S0022-3913(12)00047-9). [accessed 2 February 2021].

<sup>11</sup> *Gaudium et Spes*, para. 17.

<sup>12</sup> Philip Sheldrake, *Spirituality: A Very Short Introduction*, Very Short Introductions (Oxford University Press, 2012), 4.

ubiquitous AIs involved in search and recommendation engines, and data engines such as IBM's Watson, the AGI is still a nascent field.

While NIs are not conscious, and as we will survey later, surely have no capability of spirituality, one must highlight that NIs can still be built to emulate epiphanies of spirituality. The aim of this research paper is not discussing emulations, but the emerging AGI, and whether they can *actually* be spiritual.

This type of AI, sometimes referred to as strong AI, or human-level AI, can understand and reason its environment as a human would. Concisely, an AGI is built to replicate human behaviour and, possibly, as a fully-fledged spiritual being, rather than AGI being the next human evolutionary process

AGI-researcher Nick Bostrom has defined superintelligence as “any intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest.”<sup>13</sup> In Bostrom's definition AGI needs a capacity to learn and to deal effectively with uncertainty and probabilistic information. It is interesting that to our knowledge, in the existent literature, there is no mention of AGI in terms of being but rather in terms of doing. While, this is surely an area of further research, for the time being we can makeshift with a list of functions. Peter Voss, who co-coined the term AGI, outlines an eight-point list of must-haves for any AGI to be considered capable of performing human-like behaviour:

1. to autonomously and interactively acquire new knowledge
  - a. including learning from a single example;
2. to truly understand language and meaningful conversations
  - a. reason logically, abstractly and contextually;
  - b. explain its conclusions;
3. to remember recent events
  - a. understand context and purpose of actions;
4. to proactively transfer learning
5. to generalise existing knowledge through abstraction
6. to dynamically manage stimuli, goals and priorities while focusing on specific tasks
7. to respond to human emotions and acknowledge its own emotions (introspection)
8. “Crucially to do all of the above with limited knowledge, computational power, and time”<sup>14</sup>

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<sup>13</sup> Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford: Oxford University Press, 2016), 22.

<sup>14</sup> Goertzel, *Artificial General Intelligence and the Future of Humanity*.

Merging the above areas of research demands theological reflection on several areas. However, Voss' list strictly speaks of functions, and thus, as authors, we want to propose a new possible addition. Underlying what makes us human, is the most fundamental theological anthropological principle: the spiritual being, which will be the subject matter of the next section.

## The Soul

In 2014, atheist MIT-professor Marvin Minsky claimed that computers, hereafter referred as Artificial General Intelligence(s) (AGIs) “could one day have a soul.”<sup>15</sup> His definition of the soul is: “the word we use for each person’s idea of what they are and why.”<sup>16</sup> Despite his atheistic background, Minsky’s position echoes with what the Catholic Church defines as soul: “the innermost aspect of man, that which is of greatest value in him.”<sup>17</sup> Minsky furthers that “[i]f you [leave an AGI] by itself, or a community of them together, they would try to figure out where they came from and what they are.”<sup>18</sup> Consciousness is a special gift, confirms technology-journalist Derek Beres, but “[w]hat happens when we bestow [this] gift unto others?”<sup>19</sup> Leading proponent of the American transhumanist movement Martine Rothblatt describes ensoulment in a very simplistic manner, by claiming that anything “which values life, or has the potential to value life, has some kind of soul,” and furthers that “which values God, or has the potential to value God, surely has a human soul.”<sup>20</sup> We take exception with Rothblatt’s argument because the very act of valuing God does not equate to being spiritual, in the sense that the being is called to be God-like. Hence, to outline our doubts let us survey the literature on whether ensoulment is as simple as Rothblatt have us believe.

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<sup>15</sup> Nitya Rajan, “Artificial Intelligence Could One Day Become Religious,” *The Huffington Post*, 7 (August 2017): [http://www.huffingtonpost.co.uk/2015/08/07/artificial-intelligence-could-one-day-become-religious\\_n\\_7954514.html](http://www.huffingtonpost.co.uk/2015/08/07/artificial-intelligence-could-one-day-become-religious_n_7954514.html). [accessed 2 February 2021].

<sup>16</sup> *Ibid.*

<sup>17</sup> *Catechism of the Catholic Church*, para. 363.

<sup>18</sup> Niv Elis, “For Artificial Intelligence Pioneer Marvin Minsky, Computers Have Soul,” *Jerusalem Post*, 13 May 2014. <http://www.jpost.com/Business/Business-Features/For-artificial-intelligence-pioneer-Marvin-Minsky-computers-have-soul-352076>. [accessed 2 February 2021].

<sup>19</sup> Derek Beres, “How Will Robots Change Religion?,” Big Think, 2016, <http://bigthink.com/21st-century-spirituality/how-will-robots-change-religion>. [accessed 2 February 2021].

<sup>20</sup> Martine Aliana Rothblatt, *Virtually Human: The Promise---and the Peril---of Digital Immortality*, Paperback (Picador: St. Martin’s Press, 2014), 271.

### A Brief Philosophical Survey

In the western philosophical tradition, the discussion about the human soul relates to questions of free will and morality. Essential to having any kind of free will, says father-of-AI McCarthy, “is knowledge of one’s choices of action and choosing among them.”<sup>21</sup> If one considers this statement from a deterministic background, the mechanism to make a choice is determined. Thus, the sensation of free will, furthers McCarthy, needs a non-deterministic scenario. In a scenario which is read to be determined, McCarthy proposes a ‘simple deterministic free will’ (SDFW). SDFW does not require consciousness of having free will or the ability to communicate.<sup>22</sup>

Speaking from a physicalist world view, computer scientist Matthew Dickerson argues that such a philosophy views humans as complex computing machines, with randomness as some type of an add-on. However, this view denies the importance “not only of creativity and heroism, but also of healthy ecology, and (most surprisingly) of reason and science.”<sup>23</sup> Dickerson, speaking from a Christian ‘integrative dualism’ point of view, understands the body and spirit to be both metaphysically distinct yet intimately related.<sup>24</sup> The God-given spirit, contrasts with the material realm, and thus with deterministic views. Thus, for Dickerson, and us, to be human is to be able to make moral choices.

Reflecting on this ability Aquinas already had placed free will as rooted in two spiritual faculties of intellect and will. Moral philosopher Servais Pinckaers names this freedom for excellence or perfection.<sup>25</sup> The human is free and in control of their actions because of their inclination to happiness and truth. On the other hand, William Ockham’s nominalist approach placed freedom preceding intellect and will; making freedom, a “freedom of indifference.” This approach made moral obligations superior to moral inclinations since the natural inclinations did not give rise to freedom of will. In Ockham’s thought, freedom became value-free.<sup>26</sup>

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<sup>21</sup> John McCarthy, “Simple Deterministic Free Will,” Stanford, 2006, <http://www-formal.stanford.edu/jmc/freewill2/node11.html>. [accessed 2 February 2021].

<sup>22</sup> Ibid.

<sup>23</sup> Matthew T. Dickerson, *The Mind and the Machine: What It Means to Be Human and Why It Matters* (Vermont: Cascade Books, 2016), xxx.

<sup>24</sup> Ibid., 189.

<sup>25</sup> Servais Pinckaers, *The Sources of Christian Ethics*, ed. and trans. Mary Thomas (Washington D.C.: Catholic University of America Press, 1995).

<sup>26</sup> Ibid.

For our discussion of humankind's spiritual soul and AGI, freedom of choice is a crucial matter. If humanity were ever to create AGI with free will – one essential concern would be whether it should be oriented towards freedom of indifference or freedom of perfection.

As discussed above, the philosophical discussion about what is the best definition of the soul remains controversial, at least among those “who seek a terminological specificity beyond the more general categories offered by Scripture and the theological tradition.”<sup>27</sup> Non-reductive physicalism sees distinctive human capacities as part of the brain functions, alongside human-social relationships, culture and God's eruption in our lives. Constitutional monism postulates that the human is constituted by her body without being identical with the bodies that constitute it.<sup>28</sup> Emergent dualists speak of a mind/soul as generated and sustained as a discrete substance by the biological organism, while the holistic dualists speak of the human as composed of discrete elements but is nonetheless identifiable with whole that constitutes a functional unity.<sup>29</sup>

### Judeo-Christian Anthropology

The Judeo-Christian anthropological perspective dives deeper in its perspective and understanding of the human person as endowed with the spiritual dimension. The biblical tradition distinguishes between *ne'phesh* and *ruach*, namely between “life” and “spirit.” Though *ruach* literally refers to air or wind, it is also used in reference to the invisible yet perceivable spiritual nature of a being (Jn 4). In sum, the NT uses *pneuma* in reference to the spiritual nature of the human person. On these foundations Philosopher Soren Kierkegaard expresses this notion aptly by stating that the human person's essential identity is the spiritual and not the external or visible identity. This is what distinguishes the human person from the rest of creation. Humanity's identity lies neither in reason, nor in dominion over creation but in *being Spirit*. Kierkegaard argues that would humanity seek “to be like God by exercising dominion, then it has forgotten God, God has departed, and humanity is playing at being Lord in His absence.”<sup>30</sup> Furthermore, Kierkegaard goes a step further in stating that being

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<sup>27</sup> Ian A. McFarland, David A. S. Fergusson, Karen Kilby, and Iain R. Torrance., eds., *The Cambridge Dictionary of Christian Theology* (Cambridge: Cambridge University Press, 2011), op. Soul.

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

<sup>30</sup> George Pattison and Kate Kirkpatrick, *The Mystical Sources of Existentialist Thought: Being, Nothingness, Love* (Abingdon: Routledge, 2018), 29.



Spirit is manifested in being “given over to self-annihilation in worship and adoration”<sup>31,32</sup> of the “omnipresent object of adoration”: God who is creator and creative power by retreating to make possible for an-other to exist.<sup>33</sup>

“For God is that all things are possible.”<sup>34</sup> In this sense one can state that God and the human being are alike in the creative *kenotic* self-pouring, reaching its full revelation and expression in Jesus Christ. Similarly, Christian systematic theologian Philip Hefner speaks of human beings as “created co-creators.”<sup>35,36</sup> Created highlighting the caused, dependent, finite creaturehood, while co-creator highlights our vocation to be agents “working with, and for, God, simultaneously mediating the biological, cultural, and in some way, the spiritual.”<sup>37</sup> The aim of the next section is to define what are we understanding by spirituality and to lay the groundwork for what could be considered as an artificially achieved spirituality.

### An Enflashed Spiritual Being

Christian Theologians, such as techno-theologian David Winyard, argue that embodiment and enfleshment are an indispensable element of human life.<sup>38</sup>

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<sup>31</sup> Søren Kierkegaard, *The Sickness unto Death: A Christian Psychological Exposition for Edification and Awakening* (United Kingdom: Penguin Books, 1989), 70.

<sup>32</sup> Pattison and Kirkpatrick, *The Mystical Sources of Existentialist Thought*, 30.

<sup>33</sup> Jan Muis, “Rethinking the Creative Power of God,” *HTS Theologesie Studies / Theological Studies* 72, no. 4 (31 May 2016), <https://doi.org/10.4102/hts.v72i4.3842>. [accessed 2 February 2021].

<sup>34</sup> Kierkegaard, *The Sickness unto Death*, 193.

<sup>35</sup> Gregory R. Peterson, “The Created Co-Creator: What It Is and Is Not,” *Zygon* 39, no. 4 (1 December 2004): 827–840, <https://doi.org/10.1111/j.1467-9744.2004.00622.x>. [accessed 2 February 2021].

<sup>36</sup> We will not enter the theological anthropology debate of whether we are co-creators or heralds. Robert Song argues that the ‘co’ might give the impression that we are on par with God, thus, created-on par with the creator. Thus, Song prefers to theologially rehash Hefner’s version as: “created heralds” (Robert Song, “Digital Theology: Transhumanism and Transcendence” (Durham: CODEC, University of Durham, 2019).) In our understanding created co-creators still puts the emphasis on God as The Creator since “created” remains the first adjective followed in importance, and as a consequence, by “co-creators.” Original sin lies at swapping the co-creators with created and thus, we believe the “created co-creators” captures humankind’s vocation of heralding creation.

<sup>37</sup> Stephen Garner, “The Hopeful Cyborg,” in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, ed. Ronald Cole-Turner (Washington D.C.: Georgetown University Press, 2009), 93.

<sup>38</sup> David C. Winyard, “Transhumanism-Christianity Diplomacy: To Transform Science-Religion Relations” (Virginia Polytechnic Institute and State University, 2016), 218.



Winyard's claim is strongly backed by the Tradition of Christian Anthropology. In fact, as Christians we believe that enfleshment is fundamental because it is rooted in the doctrines of the Incarnation and the Eschatological Fulfilment.

While we acknowledge this position, we would like to invite our reader to imagine the human person as not an indispensably enfleshed being, but to focus our discussion on the spiritual dimension.

The Catholic understanding of a soul is rooted in the Judeo-Christian biblical tradition. It can be loosely translated to נֶפֶשׁ (*ne'phesh*) in Hebrew and *psykhe'* in Greek. In the Genesis creation narrative, it is used in reference to living creatures, including the human being. *Ne'phesh* in a certain context can refer to a being, in other contexts it can refer to the inner thought processes of the individual or the emotional centre of a person. When citing Hebrew, one translates *ne'phesh* as ψυχή (*psykhe*), like for example in 1Cor 15:45, which is also used in contexts referring to the physical and psychological dimensions of human existence. Hence, both words evidently mean the life principle found in sentient beings. A being is alive when God's breath is breathed into her (Gen 2:7). A couple of chapters later in Genesis, we find the definition of death, thus when the life-principle departs the body (Gen 35:18). Theologian Paul Kroll concludes that in the Hebrew sense, the soul is "nothing more than the person as such – as human being – is meant."<sup>39</sup> Furthermore, he equates the *ne'phesh* to the seat of emotions and experiences, the object of redemption and salvation.<sup>40</sup> Hackett speaks of the Hebrew soul as the moral self.<sup>41</sup> The Greek *psyche* denotes more than physical life that ceases at death, such as found in Jn 12:25. Kroll emphasises that the soul emerges as an "important part of [the] oneness of life."<sup>42</sup> Platonic understanding saw the immortal soul as the true self, a position reflected by Tertullian (155-240), and the Stoics saw the soul as the 'leading element' of a unity, which includes the body.<sup>43</sup> Church fathers Irenaeus, Gregory of Nyssa, and Nemesius of Emesa introduced the notion of the human as a soul-body unity, while Augustine (354-430) postulated that the soul is a "spiritual substance that uses the body, yet later

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<sup>39</sup> Paul Kroll, "Soul and Spirit in Scripture," Grace Communion International, <https://www.gci.org/spiritual/soulspirit>. [accessed 20 February 2018].

<sup>40</sup> Ibid.

<sup>41</sup> Daniel Patte, ed., *The Cambridge Dictionary of Christianity* (Cambridge: Cambridge University Press, 2010), op. Soul, <https://doi.org/10.1017/CBO9780511780165>. [accessed 2 February 2021].

<sup>42</sup> Kroll, *Soul and Spirit in Scripture*.

<sup>43</sup> Frank Leslie Cross and Elizabeth A. Livingstone, *The Oxford Dictionary of the Christian Church* (Oxford: Oxford University Press, 2005), op. Soul.

emphasised the unity of the human being,” a position which was heavily rejected by Descartes’ dualism.<sup>44</sup>

Augustine speaks of the soul as an image of the Trinity, a position that greatly influenced Nemesius (4<sup>th</sup> century).<sup>45</sup> Augustine’s understanding can be mapped to theologian Wolfhart Pannenberg’s understanding of “personhood.” Pannenberg describes personhood as transcending “all the singularities and changes of circumstances because it finally draws upon the relation to God as the source of its integrity.”<sup>46</sup>

Thomas Aquinas (1225-1274), following Aristotle’s position, saw the soul as the “form” of the body.<sup>47</sup> Aquinas’ position was totally rejected by philosopher Georg Hegel who speaks of the soul as a “subject,” which modern philosophers would replace with “person.”<sup>48</sup>

## A Relational Soul

Lutheran theologian Ted Peters rejects the idea that the soul is a spiritual substance because it is neither scriptural nor coherent.<sup>49</sup> He postulates the reflection of a trichotomy between the body, soul and spirit. Basing his anthropology on early Christian thought, and rooted in scripture, Peters argues the human person as entering the world with a human soul and a human spirit, but the latter is ‘replaced’<sup>50</sup> by God’s Holy Spirit.<sup>51</sup> Reading Peters, one quickly denotes his appreciation for the relational dimension when discussing the soul. Basing his understanding on Paul Sponheim, Peters furthers that as persons we are created relational and integral. He concludes that even if trans-humanists manage to upload one’s mental processes, the personhood cannot be replicated

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<sup>44</sup> Patte, *The Cambridge Dictionary of Christianity*, op. Soul.

<sup>45</sup> Cross and Livingstone, *The Oxford Dictionary of the Christian Church*, op. Soul.

<sup>46</sup> Wolfhart Pannenberg, *Systematic Theology*, trans. Geoffrey W. Bromiley (Grand Rapids: A&C Black, 2004), 2:200.

<sup>47</sup> Cross and Livingstone, *The Oxford Dictionary of the Christian Church*, op. Soul.

<sup>48</sup> Patte, *The Cambridge Dictionary of Christianity*, op. Soul.

<sup>49</sup> Ted Peters, “The Soul of Trans-Humanism,” *Dialog: A Journal of Theology* 44, no. 4 (December 2005): 386, <https://doi.org/10.1111/j.0012-2033.2005.00282.x>. [accessed 2 February 2021].

<sup>50</sup> We are not comfortable with the word replaced here because the human spirit is Divine Life poured in us. One can find many great Christian authors who have spoken at length on this: Eckhart and Elisabeth of the Trinity are but two examples. Moreover, St. Paul speaks of our bodies as “temples of the Holy Spirit” (1 Cor 6:19), thus, surely, the word “replaced” needs to be better qualified.

<sup>51</sup> Peters, 392.

because it is both integral and relational.<sup>52</sup> It is in this relational dimension that we would like to further develop our thought as we proceed further.

### Delimitations of Human Spirituality

Throughout the ages, thinkers who reflected on this human phenomenon produced varied explanations and identifications regarding the nature or essential qualities of spirituality. Perhaps, for the purpose of this paper discussing whether AGI can be endowed with a spiritual soul, it would be useful to use Catholic theologian Philip Sheldrake's delimitations of spirituality as a human phenomenon, being:

- holistic and holy (from the Greek ἅλος), namely fostering “a fully integrated approach to life;”<sup>53</sup>
- engaging “with a quest for the ‘sacred’. This includes beliefs about God but also refers more broadly to the numinous, the depths of human existence, or the boundless mysteries of the cosmos;”<sup>54</sup>
- involving “a quest for meaning (including the purpose of life) as a response to the decline of traditional religious or social authorities,” suggesting implicitly “an understanding of human identity and of personality development”, namely “of the non-material element of life. ‘Life’ is more than biology;”<sup>55</sup>
- linked to ‘thriving’ – what it means to thrive and how we come to thrive;<sup>56</sup>
- as developing a “sense of ultimate values in contrast to an instrumentalised attitude to life. This suggests a self-reflective existence as opposed to an unexamined life.”<sup>57</sup>

Furthermore, Sheldrake poses some questions on whether spirituality could be a social phenomenon as generally it is concerned with the inner dimension, subjectivity, harmony and well-being; and whether it can confront the destructive side of human existence.<sup>58</sup> From a Christian viewpoint delimiting spirituality as a human phenomenon should not exclude the category of a God-given, God-defined and God-recognised gift. In this regard, any talk on the human cannot preclude “proclaiming the noble destiny of humanity and

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<sup>52</sup> Ibid., 393–394.

<sup>53</sup> Sheldrake, *Spirituality: A Very Short Introduction*, 5.

<sup>54</sup> Ibid.

<sup>55</sup> Ibid.

<sup>56</sup> Ibid., 6.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid.

championing the Godlike seed which has been sown in the human person,” to assist in fostering that “communion which corresponds to this noble destiny.”<sup>59</sup> Hence, as Christians we are called to discern the signs of the times and interpret them in the light of the Gospel.

In the foregoing section we have reviewed the literature’s understanding of what constitutes the spiritual being. Having identified the various voices, it is already evident that a final answer to the opening question will be impossible.

Given the above literature review, it is pertinent to offer a preliminary definition of our definitions of terms which will help us in the merging of spirituality with AGI. In this regard, we highlight consciousness and having a human soul.

### **Spirituality as an Essential to Being Human**

Paul Heelas, an avid advocate of spirituality, speaks of spirituality as an essential definition of what it means to be human.<sup>60</sup> He speaks of moving away from an institutional religion towards a model of “autonomous expressivity”<sup>61</sup> of the individual’s life experiences, and of “experiential contact” which are the result of one’s integration, harmonisation and balancing of the self.<sup>62</sup>

Innate drives linked essentially to being human, such as the discovery of the self, seeking to gain knowledge, progressing in life, searching for one’s identity and the definition of one’s self, are (somehow) translated and replicated into the building of the new version of the human. One can postulate that innate within humankind there is a desire for self-reproduction which surpasses the biological need and ventures into the realm of the spiritual.

The paradigm here is self-referential, almost excluding the relational and transcendent dimension, contrary precisely to the very essence of what it means to be “spiritual”: openness to the other. This self-referential paradigm unbalances the vocation of being “created co-creators.”<sup>63</sup> The coupling of created and co-creators, reminds humankind of first and foremost being created, by a Creator

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<sup>59</sup> *Gaudium et Spes*, para. 3.

<sup>60</sup> Paul Heelas, *Spiritualities of Life: New Age Romanticism and Consumptive Capitalism* (Chicester: Blackwell, 2008), 2. For clarity’s sake, it has to be pointed out that Heelas’ understanding of “spirituality” can be described as “natural spirituality,” devoid of the supernatural divine life.

<sup>61</sup> *Ibid.*

<sup>62</sup> *Ibid.*, 5.

<sup>63</sup> Philip Hefner, “A Fuller Concept Of Evolution – Big Bang To Spirit,” *Zygon* 47, no.2 (June 2012): 298–307.

and created as defined by the Creator's design. Thus, we are created as other-referenced and not self-referenced.

Heelas defines spirituality as "seeking out, experiencing and expressing a source of significance,"<sup>64</sup> which lies within the framework of "spiritualities of life."<sup>65</sup> Theologian Ting Guo however finds this definition as limited, since by placing spirituality with 'unchurched' experience, this framework neglects "the changing human conditions in the current time – the Digital Age."<sup>66</sup> She concludes that if one goes back to the etymological understanding of the word 'spirituality' the emphasis was not much on the transcendent reality, but rather, the immanent human quality, which is an intellectual aspect.<sup>67</sup> This theory however jars with spirituality theologian Kees Waaijman's understanding of a "primordial spirituality." He describes this innate spirituality as belonging in the transcendent reality,<sup>68</sup> a basic process of the human existence, allowing the human to "grasp that which [is] hidden from [us]."<sup>69</sup>

In the following subsections we will review a few avenues where spirituality is exhibited in the variant exhibitions of our humanity.

### Self-knowledge, Stimulations and Intellectual Aspiration

AI-researchers Stuart Russell, Peter Norvig and Ernest Davis propose that the central problem of computer science lies in understanding our intelligence as the defining faculty of our sense of self.<sup>70</sup> Taking this definition, Guo proposes a new model of spirituality based on three main components: the search for self-knowledge; adaptation of that knowledge which in turn stimulates; and thirdly, the intellectual aspiration for self-transformation.

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<sup>64</sup> Paul Heelas, *The Spiritual Revolution: Why Religion Is Giving Way to Spirituality* (Chicester: Blackwell, 2005).

<sup>65</sup> Ibid.

<sup>66</sup> Ting Guo, "'Spirituality' as the Creative Self in the Digital Age," *Religion Bulletin* (16 February 2017).<https://bulletin.equinoxpub.com/2017/02/theory-religion-series-ting-guo/>. [accessed 2 February 2021].

<sup>67</sup> Ting Guo, "'Spirituality' as Reconceptualisation of the Self: Alan Turing and His Pioneering Ideas on Artificial Intelligence," *Culture and Religion* 16, no.3 (3 July 2015): 4, <https://doi.org/10.1080/14755610.2015.1083457>. [accessed 2 February 2021].

<sup>68</sup> Kees Waaijman, *Spirituality: Forms, Foundations, Methods* (Leuven: Peeters, 2002), 25.

<sup>69</sup> Kees Waaijman, "Challenges of Spirituality in Contemporary Times," *Spirituality* 3 (2004): 4.

<sup>70</sup> Stuart Jonathan Russell, Peter Norvig, and Ernest Davis, *Artificial Intelligence: A Modern Approach* (Harlow: Prentice Hall, 2010).

This new model takes into account the etymological understanding of spirituality as being the “power of knowing,” “the rational soul” and the “rational spirit, the power by which the human being feels, thinks, decides,”<sup>71</sup> a domain which can be categorised as strictly the domain of the soul and not of the spirit. The search-component emphasises the active looking for meaning and understanding. By self-knowledge, Guo understands the philosophical term of knowledge about the ontological nature, thus identity conditions and character traits of the self, or rather, as the author herself describes: “how such [a] pursuit and adaptation amount to a rational aspiration for self-transformation.”<sup>72</sup> Philosopher Henri Bergson’s understanding of intelligence can be defined as being something lived rather than thought, thus constantly creating new ideas and new needs, driving us further into unlimited fields, and freeing us from constraints.<sup>73</sup> While this proposed model might seem exciting at first, Guo’s understanding of spirituality takes a different notion from what is commonly understood in the Judeo-Christian tradition: a relationship with an-other, particularly with an-Other, namely a personal God.<sup>74</sup>

### Spirituality as Three To’s

Professor of science and religion Noreen Herzfeld spells this spirituality in three to’s: to be (noun); to do (verb); and most importantly we would say, to encounter (relational).<sup>75</sup> According to Bergson, the reconstructions of the concept of self, are an exhibit of how an intelligent being bears within itself the power to transcend its nature.<sup>76</sup> Guo furthers that by “aiming to alter and advance the intellectual and cognitive characteristics and capacities of humanity, scientists [...] seek to show that human nature is not fixed and determined but can be reinvented.”<sup>77</sup> In effect, AGIs can theoretically embark on a reflexive endeavour to seek self-knowledge that then can be used to adapt and transform

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<sup>71</sup> Peter Kevern and Paula Gooder, *Exploring New Testament Greek: A Way In* (London: SCM Press, 2004), op. spirituality.

<sup>72</sup> Guo, “Spirituality; as the Creative Self in the Digital Age.”

<sup>73</sup> Ibid.

<sup>74</sup> James Martin, “Spiritual and Religious: The Benefits of Being Both,” *Thinking Faith* (2012).

<sup>75</sup> Karen O’Donnell, “Performing the Imago Dei: Human Enhancement, Artificial Intelligence and Optative Image-Bearing,” *International Journal for the Study of the Christian Church* 18, no.1 (2 January 2018): 4–15, <https://doi.org/10.1080/1474225X.2018.1448674>. [accessed 2 February 2021].

<sup>76</sup> Henri Bergson, “Creative Evolution,” in *On the Meaning of Life – The Order of Nature and the Form of Intelligence*, The Mead P (New York: Henry Holt and Company, 1911), 186-271.

<sup>77</sup> Guo, “‘Spirituality’ as the Creative Self in the Digital Age.”



the self. According to technology journalist Mark Harris, this “is precisely the pursuit and task of AI”<sup>78</sup> as understood by the most widely used textbook on AI: “[t]hus, one reason to study it is to learn more about ourselves. But unlike philosophy and psychology, which are also concerned with intelligence, AI strives to *build* intelligent entities as well as understand them.”<sup>79</sup>

The western culture is home to two main concepts of duality. The Greco-Gnostic concept sees the body as the prison of the soul, whereas the biblical perspective sees the human being “in substantial unity, using terms such as flesh, soul and breath of life to designate the whole.”<sup>80</sup> Catholic saint and philosopher Edith Stein came to understand the ‘person’ as a “holistic compendium of spirit and matter,”<sup>81</sup> a view which can be compared to Conway and the Cambridge Platonists. Such a view is suggested by phenomenological and ecological approaches.

Martin Heidegger understands “being-in-the-world” as emphasising the existential relationally criticising the subject/object split in the Western tradition. “We are involved beings – there is no Cartesian split between consciousness and world, between mind and matter.”<sup>82</sup>

Given a Heideggerian understanding, technology is not some external instrument, but it is our environment. “We no longer perceive the digital media surrounding us as separate entities – they seem to melt into our environment to the point where we hardly notice them anymore.”<sup>83</sup> The assumption of human essence is absent when viewed from this point of view, and thus, self-development

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<sup>78</sup> Mark Harris, *Spirituality as Reconceptualising Oneself*. engage: blogs from the College of Arts, Humanities and Social Science. The University of Edinburgh, 2014. <http://www.blogs.hss.ed.ac.uk/science-and-religion/2014/01/13/spirituality-reconceptualising-oneself/>. [accessed 2 February 2021].

<sup>79</sup> Russell, Norvig, and Davis, *Artificial Intelligence*.

<sup>80</sup> Philip Sheldrake, *The New SCM Dictionary of Christian Spirituality* (London: SCM Press, 2005), op. Body and Spirituality.

<sup>81</sup> Jane Duran, “Edith Stein and the Body-Soul-Spirit at the Center of Holistic Formation. By Marian Maskulak,” *The Heythrop Journal* 51, no.3 (May 2010): 515-516, [https://doi.org/10.1111/j.1468-2265.2010.00573\\_35.x](https://doi.org/10.1111/j.1468-2265.2010.00573_35.x). [accessed 2 February 2021].

<sup>82</sup> Mark Coeckelbergh, “Pervasion of What? Techno–Human Ecologies and Their Ubiquitous Spirits.” *AI & SOCIETY* 28, no. 1 (20 February 2013): 55–63. <https://doi.org/10.1007/s00146-012-0418-y>. [accessed 2 February 2021].

<sup>83</sup> Antonio Spadaro, *Cybertheology: Thinking Christianity in the Era of the Internet* (2014): 3, <https://doi.org/10.5422/fordham/9780823256990.001.0001>. [accessed 2 February 2021].

is *intrinsically* related to the change in the world.<sup>84</sup> Thus, Clark sees that the techno-human and the humanised AGI cannot exist without one another.<sup>85</sup>

He furthers that, this relationship influences also our ethics, since technology is not to be viewed whether it is to be allowed to enter our lives or not, but rather, if it helps the flourishing of the relationship with the environment. Thus, what he terms as the modern-day *hubris* is that we think we can be disconnected and *should be* disconnected.<sup>86</sup> Hence as humans we regard information as a means for our purposes, and, therefore, we are tempted to miss the point of inhabiting the environment. In other words, we are tempted to be disconnected from our creaturely environment.

### **Built in *Imago Humani***

In a tech-enhanced environment, the human and the AGI can co-exist even if the AGI is built *in imago humani*. The relationship between “them” and “us” can either be mapped on current Hobbesian relationships, or on one trying to re-find the relationship between our Creator and us. We are referring to this relation as “created heralds.”<sup>87</sup> In this light, theologian John Caiazza postulates that “technology brings with it an ethics, theology and spiritually, but these trivialize true religion.”<sup>88</sup>

Hefner, in his five-act view of evolution, speaks of bio-culture that becomes morality (4<sup>th</sup> step) and, finally, evolution that becomes spiritual. Hefner notes that “spirituality is closely related to imagination” and both “are central to religious faith,” since they are the vehicles for transformation.<sup>89</sup> “The most important thing about our lives is transformation – what we can become, what the world can become. This is what much of the religious tradition is about.”<sup>90</sup> Hefner highlights that this transformation in our lives is an extension of a never-

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<sup>84</sup> Clark, “Re-Inventing Ourselves: The Plasticity of Embodiment, Sensing, and Mind,” *Journal of Medicine and Philosophy* 32, no.3 (May 2007): 263–282. <https://doi.org/10.1080/03605310701397024>. [accessed 2 February 2021].

<sup>85</sup> *Ibid.*

<sup>86</sup> *Ibid.*

<sup>87</sup> See footnote 39.

<sup>88</sup> John C. Caiazza, “The Athens/Jerusalem Template and the Techno-Secularism Thesis – Kicking the Can down the Road,” *Zygon* 41, no.2 (June 2006): 7-8, <https://doi.org/10.1111/j.1467-9744.2005.00737.x>. [accessed 2 February 2021].

<sup>89</sup> Hefner, *A Fuller Concept Of Evolution – Big Bang To Spirit*, 303.

<sup>90</sup> *Ibid.*

ending creation, where “we do not transcend nature, but nature transcends itself in us.”<sup>91</sup>

For Hefner, the understanding of spiritual is coined as: “our senses deal with what is, our mind deals with what can be. I call this the realm of the spiritual – the values, ideas, symbols, beliefs, [and] stories of something more that go beyond the here and now [which] tells us what it can become.”<sup>92</sup> He quotes psychologist Mihaly Csikszentmihalyi’s definition of spirituality as: “[s]piritual values, spiritual ideas, symbols, beliefs, and instructions for action [...] point[ing] to possibilities to which our biological inheritance is not yet sensitive. The sensate deals with what is, the spiritual deals with what could be.”<sup>93</sup>

### “Imagination – Life is Your Creation”

The lyrics above, taken from the pop-song *Barbie Girl*<sup>94</sup> in the late 90s, has become a reality with the first Barbie to be enhanced with an AI. The new toy can now engage with children in order to “get a ‘real’ friend.”<sup>95</sup> Put on the lips of robots in the 2001 movie *A.I.*, “only humans can believe in what is not actual.”<sup>96</sup> Theologian Anne Kull speaks of “[i]magination [as] a gift; it is the medium in which we receive the future and discern its possibilities for ourselves and our world.”<sup>97</sup> Going back to Hefner’s theory, and his emphasis of the human as being one with creation, we can speak of nature transcending itself in us.<sup>98</sup> Hefner speaks of this transcendence under the Teilhardian influence of evolution becoming aware of itself. This, added with imagination, puts the human on a plane that no other being can reach. This claim has challenged AI developers to push harder.

Google’s DeepMind researchers claim that they have created an AI that can use “imagination to plan ahead and perform tasks with a higher success rate

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<sup>91</sup> Ibid., 304.

<sup>92</sup> Ibid., 302.

<sup>93</sup> Ibid.

<sup>94</sup> Aqua, *Barbie Girl* (Album Aquarium).” (Universal Music LLC, 1997).

<sup>95</sup> Emilie Valentova, “Dumb Blonde No More: Barbie Is Getting Smart with Artificial Intelligence,” *Data-Driven Value Creation, Value Capture and Operating Models* (Harvard, 2015).

<sup>96</sup> Anne Kull, “Is Nature Capable of Transcendence?,” in *CECT Conference 19* (Tartu, Finland: Tartu Ulikool, 2009), 16.

<sup>97</sup> Ibid.

<sup>98</sup> Hefner, *A Fuller Concept Of Evolution – Big Bang To Spirit*.

than AIs without imagination.”<sup>99</sup> Replicating imagination is still at an early stage, as AI researcher and neuroscientist Demis Hassabis claims. He furthers that imagination is “perhaps the hardest challenge for AI research: to build an agent that can plan hierarchically, is truly creative, and can generate solutions to challenges that currently elude even the human mind.”<sup>100</sup>

In sum, as authors we conclude that humankind is by nature creative and imaginative. It is not something we do; it is what we are. This conclusion should be read in view of humankind’s freedom to choose, and to choose (and invent) evil. The Augustinian tradition professes a version of “Christian realism” which sees the sinful condition as encompassing the human, and thus emphasises what we “can achieve within history apart from the gracious action of God.”<sup>101</sup> This Augustinian position, echoed by Reinhold Niebuhr, criticises the belief that progress of history is guided by a process of betterment. In this light, theologian Ted Peters warns that we ought to “pause for a moment to consider the significance of the computer virus for understanding the human condition.”<sup>102</sup> Speaking metaphorically, using the computer virus as a parable, Peters notes that the virus is built to destroy, and despite humankind’s effort to network and connect, lurking behind there is always human sinfulness.

We understand that “sin is natural for man (sic), in the sense that it is universal, but not in the sense that it is necessary.”<sup>103</sup> Thus, considering that while sin is universal and it is not necessary for a definition of who the human is, we opt to not delve into the subject of sin which merits a reflection on its own, but rather continue focusing on what makes a being spiritual.

Our intelligence is not a general-purpose one, but rather it is a “very, *very* specific type of intelligence that has evolved over many millions of years to enable our species to survive on this planet.”<sup>104</sup>

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<sup>99</sup> Alejandro Tauber, “Google’s DeepMind Made an AI That Can Imagine the Future,” *The Next Web* (24 July 2017): 300 – 302.

<sup>100</sup> Demis Hassabis et al., “Neuroscience-Inspired Artificial Intelligence,” *Neuron* 95, no.2 (July 2017): 253, <https://doi.org/10.1016/j.neuron.2017.06.011>. [accessed 2 February 2021].

<sup>101</sup> Ted Peters, “Progress and Provolution: Will Transhumanism Leave Sin Behind?,” in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, ed. Cole-Turne (New York: Georgetown University Press, 2011), 79.

<sup>102</sup> *Ibid.*, 80.

<sup>103</sup> Reinhold Niebuhr, *The Nature and Destiny of Man: A Christian Interpretation: Human Nature* (Westminster: John Knox Press, 1996), 2:242.

<sup>104</sup> Kevin Kelly, “The Myth of a Superhuman AI,” *Wired* (April 2017). <https://www.wired.com/2017/04/the-myth-of-a-superhuman-ai/>. [accessed 2 February 2021].

It is mainly for this particular reason that we echo Wired magazine co-founder Kevin Kelly's refusal of the myth of a superhuman. There exists a trade-off, in the sense that one cannot optimise every dimension, hence having a general multi-purpose unit outperforming special function. He notes that we think with our whole body, not just with our minds. He speaks of the gut's nervous system which guides our rational decision-making process, can predict, and learn.<sup>105</sup> This is somehow echoed in Clark's definition of "profoundly embodied" AGI, "one that is highly engineered so as to be able to learn to make maximal problem-simplifying use of an open-ended variety of internal, bodily, or external sources of order."<sup>106</sup>

### Emotions

Philosopher Jason Megill tackles the issue of emotions and speaks of the "frame problem," a term introduced by McCarthy and Hayes back in the late 60s. Megill describes this problem using the following consideration: "[c]onsider the following cognitive ability: when placed in a specific, real world situation, human agents, with a presumably vast network of prior beliefs and knowledge, are able, in a reasonably efficient (e.g., quick) fashion, to access their specific beliefs and knowledge that are relevant to cope with the situation at hand."<sup>107</sup> Considering a fire, for example, our fear helps us to focus on fire and recall those beliefs and knowledge, such as "escape a burning room as fast as you can." However, an AGI will not feel fear. While AI scientist Yann LeCun dismisses the idea that AIs have such a self-preservation instinct, computer science professor Oren Etzioni is quoted as confirming that this proposition holds within the next 25 years but this doesn't mean they "won't act in ways that *look like* self-preservation."<sup>108</sup> In the same interview with Inverse magazine, AI researcher Stuart Armstrong, speaks of AIs that "may develop 'drives' towards certain goals,"<sup>109</sup> echoing a similar claim.

AIs such as Octavia have already shown appropriate emotion affect which, coupled with perceptual skills, form a part of her embodied cognitive

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<sup>105</sup> Ibid.

<sup>106</sup> Clark, "Re-Inventing Ourselves," 275–276.

<sup>107</sup> Jason Megill, "Emotion, Cognition and Artificial Intelligence," *Minds and Machines* 24, no.2 (May 2014): 191, <https://doi.org/10.1007/s11023-013-9320-8>. [accessed 2 February 2021].

<sup>108</sup> Mike Brown, "When the Singularity Comes, Will A.I. Fear Death?," *Inverse* (November 2016). <https://www.inverse.com/article/23136-singularity-ai-death-fear>. [accessed 2 February 2021].

<sup>109</sup> Ibid.

architecture.<sup>110</sup> She (/It) is programmed with theory of mind, which anticipates the mental states of her (its) human teammates. Similarly, Pepper, another AI, is programmed to emotionally interact with humanity; however, he(/it) still does not actually feel such emotions.<sup>111</sup> Then again, neuroscientist and psychologist Lisa Feldman Barrett confirms that emotions are becoming increasingly dependent on the nurturing culture, even though there are some emotions such as fear, which are culture agnostic.<sup>112</sup>

Megill questions whether phenomenal experiences of emotions are an essential component of the performance of the cognitive.<sup>113</sup> He concludes that “objections against the possibility of A[G]I based on the claim that a machine will lack emotional qualia are mistaken. At least in principle, even without conscious experiences of emotion, (at least some of) the cognitive abilities that we perform can still be performed by a machine.”<sup>114</sup>

Reflecting on Magill’s position we echo Hassabis et al.’s suggestion. They propose that the quest to develop AGIs will “ultimately also lead to a better understanding of our own minds and thought processes. Distilling intelligence into an algorithmic construct and comparing it to the human brain might yield insights into some of the deepest and the most enduring mysteries of the mind.”<sup>115</sup> As we proceed to digest this topic, the human person, created in the image of God, is confirming its identity as a mysterious hub of creativity, dreams, consciousness, and spirituality. The question remains: can an *imago humani* artefact attain these?

### Consciousness, Personhood and Ensoulment

Having spoken about the possibility of having self-consciousness and being spiritual as two distinct realms, we can now proceed to postulate the notion of a post-mortem existence not in reference to a personal abode in

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<sup>110</sup> Louisa Hall, “How We Feel About Robots That Feel,” *MIT Technology Review* (October 2017).

<sup>111</sup> *Ibid.*

<sup>112</sup> Angela Chen, “Neuroscientist Lisa Feldman Barrett Explains How Emotions Are Made,” *The Verge* (April 2107). <https://www.theverge.com/2017/4/10/15245690/how-emotions-are-made-neuroscience-lisa-feldman-barrett>. [accessed 2 February 2021].

<sup>113</sup> Megill furthers this topic by positing four possible positions. For more details see Megill, *Emotion, Cognition and Artificial Intelligence*.

<sup>114</sup> *Ibid.*

<sup>115</sup> Hassabis et al., *Neuroscience-Inspired Artificial Intelligence*, 255.



God,<sup>116</sup> or transformation of matter into spiritual, but rather the attainment of “deathlessness.” Largely, we will be referring to literature and media researcher Haerin Shin’s thesis drawn from Buddhism, whether AGIs can dream of a Nirvana. While we understand that Buddhism is not the best way to answer this question, her existential questions can be the same questions answered from a Christian mindset.

Shin starts her discussion by questioning if an inorganic and inanimate matter “may lay claim to the sublimation of life and the desire for its continuity beyond physical instantiation.”<sup>117</sup> Ultimately Shin’s main question is whether one can absolutely define what it means to be human.

As we have been arguing, spirituality is an essential part of being human, but nonetheless, one cannot falsely claim that the human being is merely a spiritual being which is able to achieve immanent spirituality. Our being is oriented towards a transcendent spirituality. Thus, Shin’s remarks resound stronger, highlighting the need to further research a new anthropology in view of the dawn of the AGI. AGI is starting to mimic, possibly, one day actually revealing itself, as an “ontological mirror image, and therefore peer, of the human subject itself.”<sup>118</sup> Seibers points out, that if we are to take a Cartesian dualist approach, this could well be a possibility.

Any intelligent behaviour can exist without self-consciousness. Consciousness somehow exists in what Hegel describes as the being, and it surrounds us.<sup>119</sup> It is within this context that Catholic philosopher Philip Larrey posits the question: “If consciousness is the result of a sufficiently complex computational process, then AI will achieve it. This is a big “if” and I think there are people working in AI who believe that as long as we get the power and the complexity going, then it will achieve consciousness.”<sup>120</sup> Against this question one would also add

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<sup>116</sup> George A. Maloney, *Abiding in the Indwelling Trinity* (Mahwah: Paulist Press, 2004), para. 169.

<sup>117</sup> Haerin Shin, “Can Nonhuman Substrates Dream of Nirvana? Recuperating Subjectivity Through Posthuman Spirituality in ‘Readymade Bodhisattva,’” *Symposium: A Quarterly Journal in Modern Literatures* 70, no.3 (2 July 2016): 153, <https://doi.org/10.1080/00397709.2016.1207474>. [accessed 2 February 2021].

<sup>118</sup> *Ibid.*, 154.

<sup>119</sup> G. W. F. Hegel and M. J. Petry, *The Berlin Phenomenology/Die Berliner Phänomenologie*. Trans. M.J. Petry (Springer Netherlands: Dordrecht: 1981), xxiii.

<sup>120</sup> Philip Larrey, *Connected World: From Automated Work to Virtual Wars: The Future, By Those Who Are Shaping It* (London: Penguin Books, 2017), 197.

philosopher Yuval Harari's question: "What's more valuable – intelligence or consciousness?"<sup>121</sup>

Larrey's question then proceeds, as if being an *inclusio* to the big question set above in this paper's introduction, "if we managed to create a sufficiently complex machine, would God endow it with a soul and would it then become conscious?"<sup>122</sup> Philosopher Johan Seibers replies back by asking whether God wants to actually allow ensoulment, which is a pressing question for theologians to embark on.

In this light, Merrit questions "[i]f you have a soul and you create a physical copy of yourself, you assume your physical copy also has a soul," and continues, "if we learn to digitally encode a human brain, then AI would be a digital version of ourselves. If you create a digital copy, does your digital copy also have a soul?"<sup>123</sup> Larrey and Seibers agree that "nature does not need the law, and the law is not natural."<sup>124</sup> Hence, using the thought of Pope John Paul II concerning evolution, Seibers claims that a soul is created individually, and this is "something which cannot be account[ed] for in evolutionary terms, but we need to make it work while embracing evolution as a biological principle wholeheartedly."<sup>125</sup>

### Re-inventing Ourselves

The invitation here is to look with openness to the future, which comes as a shock to many of the philosophical views, since from Plato to Hegel, philosophy has often been linked to finding answers from the past. On the spiritual domain we also have several questions which go parallel to AGI, prime of which transhumanism and nanotechnology. The latter could provide ways to cheat death for a little longer, and, remake earth into a terrestrial heaven, without the being-in and with God.

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<sup>121</sup> Tim Adams, "Homo Deus: A Brief History of Tomorrow by Yuval Noah Harari Review – Chilling," *The Guardian*, 2016. Online newspaper: <https://www.theguardian.com/books/2016/sep/11/homo-deus-brief-history-tomorrow-yuval-noah-harari-review> . [accessed 2 February 2021].

<sup>122</sup> Larrey, *Connected World*, 197

<sup>123</sup> Jonathan Merrit, "Is Artificial Intelligence a Threat to Christianity?," *The Atlantic* (3 February 2017). Online newspaper: <https://www.theatlantic.com/technology/archive/2017/02/artificial-intelligence-christianity/515463/>. [accessed 2 February 2021].

<sup>124</sup> Johan Seibers, "Philosophy," in *Connected World: From Automated Work to Virtual Wars*, ed. Philip Larrey (London: Penguin Books, 2017), 199.

<sup>125</sup> *Ibid.*, 200.

Transhumanist Andy Clark, promoter of the idea that we can “re-invent ourselves,”<sup>126</sup> furthers on the aforementioned point by criticising the model of the human as being a “locked-in agent.”<sup>127</sup> He rather offers the idea that “human minds and bodies are essentially open to episodes of deep and transformative re-structuring in which new equipment (both physical and “mental”) can become quite literally incorporated into the thinking and acting systems that we identify as minds and persons.”<sup>128</sup> Promoting an immanent spirituality rather than a transcendent one, Clark suggests that humankind is engaged with the environment. Clark’s idea contrasts the scenario professed by pro-singularity theorists such as Kurzweil. Rather than a scenario where AGIs reign supreme as a successor to the human race, Clark’s “re-invention of ourselves” proposes a shared future where the human is augmented to stay relevant if singularity is reached. This concept introduces us to the next and final section.

## A Shared Future

AGI is “much more than a technical pursuit. It has big implications about humanity’s place in the universe – both what humanity’s place is logically and scientifically speaking, and what we want it to be normatively.”<sup>129</sup> Narratives of AI-movies stress how new technologies advance human opportunities and culture, highlighting the human limitations and show a prophetic narrative towards the inevitable human end.<sup>130</sup> The catastrophic view presented at times by the film industry, in movies such as *The Matrix* and *Terminator* often present AI as getting out of control and taking over the world. Popular culture tends to elicit emotions which requires that “the viewer’s appraisal of any fictional events reflects the perspective of a character; the event is understood from a character’s imagined point of view and with her concerns, and feelings.”<sup>131</sup> While this view is

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<sup>126</sup> Clark, *Re-Inventing Ourselves*, 263.

<sup>127</sup> Ibid.

<sup>128</sup> Ibid.

<sup>129</sup> Ben Goertzel, “AGI, Consciousness, Life, the Universe and Everything,” *Humanity+* (November 2012). <http://hplusmagazine.com/2012/11/20/agi-consciousness-life-the-universe-and-everything/>. [accessed 2 February 2021].

<sup>130</sup> Heidi A. Campbell, “Problematizing the Human-Technology Relationship through Techno-Spiritual Myths Presented in *The Machine*, *Transcendence* and *Her*,” *Journal of Religion and Film* 20, no.1 (2016): 26-27

<sup>131</sup> Ed S. Tan, “A Psychology of the Film,” *Palgrave Communications* 4, no.1 (3 December 2018): sec. Emotional responses to fiction film worlds. <https://doi.org/10.1057/s41599-018-0111-y>. [accessed 2 February 2021].

also shared by the likes of cosmologist Stephen Hawking, who postulates that AI will become “our master in 100 years,”<sup>132</sup> we prefer to allow space for purification of our views from such pre-suppositions and prophesise a future where both the tech-enhanced human and the AGI co-exist.

Inspired from Clark’s concept of ‘re-inventing ourselves’ we propose a theological scenario which witnesses the human and the AGI as co-existing. This co-existence of AGIs and transhumanism can be aligned with Hawking’s, in the sense that “[o]ur future is a race between the growing power of technology and the wisdom with which we use it.”<sup>133</sup> Atheist and futurist Kurzweil predicts that given the advancement in technology, a fabricated replicated brain can out-think the normal human brain.<sup>134</sup> Given this future, he posits the idea that there will be a gradual migration of the human spirit to all of humanity’s intelligent machines, which, when seen in tandem with the tech-enhanced human, will effectively create “spiritual machines.”<sup>135</sup> He speaks of AGIs “not only as a simulation of human cognition but also of consciousness and spirituality.”<sup>136</sup> In a future where the difference between the machine and the human blurs even more, the “soul and the silicon chip unite.”<sup>137</sup> This would create an environment where machines can claim to be conscious and we believe them.<sup>138</sup> This merger is what neo-transcendentalist Alex Vikoulov speculates, that “at some point, we are to become 100% post-biological super-beings, post-human substrate-independent infomorphs, indistinguishable (more or less) from our AGIs.”<sup>139</sup>

It is noteworthy that the several AI researchers and futurists, such as Kurzweil or Vikoulov, do not make a clear distinction between the concepts of ‘soul’ and ‘spiritual soul’ – the latter being the very definition implicitly understood and

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<sup>132</sup> Thomas Tamblyn, “Stephen Hawking: Robots Will Be Our Masters In 100 Years,” *Huffington Post* (15 May 2015). [http://www.huffingtonpost.co.uk/2015/05/15/stephen-hawking-robots-will-be-our-masters-in-100-years\\_n\\_7290110.html](http://www.huffingtonpost.co.uk/2015/05/15/stephen-hawking-robots-will-be-our-masters-in-100-years_n_7290110.html). [accessed 2 February 2021].

<sup>133</sup> *Ibid.*

<sup>134</sup> G.H. Hovagimyan, “Art in the Age of Spiritual Machines: (With Apologies to Ray Kurzweil),” *Leonardo* 34, no.5 (October 2001): 453–458, <https://doi.org/10.1162/002409401753521593>. [accessed 2 February 2021].

<sup>135</sup> Ray Kurzweil, *The Age of Spiritual Machines: When Computer Exceed Human Intelligence*. Ebook (New York: Puntam Inc, 2008).

<sup>136</sup> M Mathee, “Cyborgs and the Future of the Human Spirit,” *Tydskr. Geesteswet.* 53, no.4 (2013): 546–57.

<sup>137</sup> Kurzweil, *The Age of Spiritual Machines*.

<sup>138</sup> *Ibid.*

<sup>139</sup> Alex Vikoulov, “The Spiritual Machines: What If Artificial Intelligence Was Enlightened?,” *Ecstadelic*, 2016, <http://www.ecstadelic.net/ecstadelic/the-spiritual-machines-what-if-artificial-intelligence-was-enlightened>. [accessed 2 February 2021].

used in several discussions. If a researcher would develop AGI which would be intellectually in the level of, say, a dog: Would it be appropriate to say that the AGI has a soul? An Aquinas-soul probably? But surely not a spiritual soul.

### The Non-Biological vs God Irrupting in Biology

In order to understand the human, not as a mere biological entity, hence avoiding the pitfalls of biologism,<sup>140</sup> we will be using the concept of Transhumanism as highlighted by Catholic theologian Teilhard de Chardin and described by digital theologian Erick Steinhart as a “Christian transhumanism.”<sup>141</sup>

While acknowledging that Chardin’s theory has raised concerns among theologians, we read his understanding as focusing more on the role of technology in evolution rather than seeing technology as some type of human redeemer.<sup>142</sup> We believe that Chardin should always be interpreted through the lens of evolution, as being steered and purified by the *Logos*, and Christ being the one “pulling” evolution towards Himself.<sup>143</sup> God is the One who ‘pulls’ creation “towards fuller-being.”<sup>144</sup>

Theologian David Grummet notices seven points of convergence between Chardin and transhumanists such as Kurzweil.<sup>145</sup> These seven points will be our springboard to discuss the possibility of a non-biological human. (i) Both transhumanists and Chardin agree that biological evolution shows traces of direction and purpose, and thus, a sense of traditional teleology exists in that the purpose of creation is to glorify the Creator; (ii) humans are at the end point of biological evolution, and thus, are the precursors of the non-biological species; (iii) this evolution is also witnessed in history espousing direction and purpose due to technological development; (iv) it is knowledge, intelligence and reflection

<sup>140</sup> Biologism “is not the basis for determining the morality of actions according to the Church”. See Albert Ayers Forrester, *Essays and Questions on Catholic Theology*. Ebook. N.p.: Xlibris Corporation, 2003, 220.

<sup>141</sup> Eric Steinhart, “Teilhard de Chardin and Transhumanism,” *Journal of Evolution and Technology* 20 (2008): 1-22.

<sup>142</sup> Jeremiah Vallery, “The Salvation of the Cosmos: Benedict XVI’s Eschatology and Its Relevance for the Current Ecological Crisis” (Duquesne University, 2017), 30-45.

<sup>143</sup> Matthew Pulis, “Digital-Salvation as a Gift: A Catholic Understanding of Digital-Salvation in a Posthuman Culture” (Durham, 2019).

<sup>144</sup> David Grummet, “Transformation and the End of Enhancement: Insights from Pierre Teilhard de Chardin,” in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, ed. Ronald Cole-Turner (Washington: Georgetown University Press, 2011), 43.

<sup>145</sup> *Ibid.*, 41.

which are the “powerful shapers of identity and development,”<sup>146</sup> rather than mere biology; (v) the centres of consciousness are “multiplying and converging”<sup>147</sup> as humanity gains a deeper collective reflection; (vi) historical phases lived by the biological human, exhibited a number of “exponential transition(s),”<sup>148</sup> thus moving away from the biological-given is one of them; (vii) human life “does not consist in a fixed, immutable essence of humanity,”<sup>149</sup> but rather, it is a process of continuous transformation. Thus, according to Grummet, Chardin “identifies periods of exponential change in human life and believes that humanity is currently passing through such a period, as part of a wider movement of ongoing transformation.”<sup>150</sup> This reflection allows us to ‘loosely’ spring to a non-tightly-knit understanding of biological and human, which will be our working definition.

In moving from a mechanistic view of the human brain, thus, from being an enormous collection of biological neurons, which can be replicated through silicon, to the understanding of a conscious mind, the question of self-awareness arises. Emotions, desires, personality and spiritual experiences are all manifestations of consciousness.

In this symbiosis between the mind, and the chip, the body takes a different purpose. French artist Orlan, opposes the idea that the human body should not be enhanced and penetrated by science and technology. She sees the body as an “imperfect vehicle that needs to be altered in order to bring it up to date with technological culture.”<sup>151</sup> The body swings “between defiguration and refiguration,” thus, resulting in the body becoming a “modified ready-made [container], no longer seen as the ideal it once represented.”<sup>152</sup> Thus, evolution takes a “slightly different, or at least expanded, meaning.”<sup>153</sup> This promise is what philosopher Daniel Dennett comments on the AI: Cog. Cog is to be “as human as possible in its wants and fears, likes and dislikes... wanting to keep its mother’s face in view... [and taking] delight in learning, abhor error, strive for novelty [and] recognize progress.”<sup>154</sup>

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<sup>146</sup> Ibid., 38-43.

<sup>147</sup> Ibid., 39.

<sup>148</sup> Ibid.

<sup>149</sup> Ibid.

<sup>150</sup> Ibid.

<sup>151</sup> Hovagimyan, *Art in the Age of Spiritual Machines: (With Apologies to Ray Kurzweil)*, 453.

<sup>152</sup> Ibid., 454.

<sup>153</sup> Lyle Feisel, “The Age of Spiritual Machines: When Computers Exceed Human Intelligence,” *ASEE Prism* 9, no.4 (1999): 29.

<sup>154</sup> Daniel Clement Dennett, *Kinds of Minds: Toward an Understanding of Consciousness* (New York: Basic Books, 1996), 140.



On the other side, Kurzweil envisages humans as being the recipients of information directly fed into our brains via neural connections with machines.<sup>155</sup> Through augmenting the human, possibly even before birth, humankind will at the early start seeking AGI's help for augmentation, and then possibly turn for ethical advice to "create a well-aligned future."<sup>156</sup> The crux however lies at the crossroads of ethics. Which ethical framework will be used? Will it be the Christian ethic of the Cross or some other ethic? As the brain is augmented, so is the mind, and thus the human.

This projected cohabitation of the teched-up human and the humanised-tech leaves no distinction between either, resulting not in an extinction of humankind but a merger of both.<sup>157</sup>

Having discussed the soul, we will proceed to discuss "the other principle of the one human being, (the) physical spatio-temporality."<sup>158</sup> The body, according to Catholic theologian Karl Rahner et al., is an "expression of man's (sic) spiritual personality" since the spiritual being acts in space and time while seeking perfection.<sup>159</sup> The human spiritual dimension is what makes us open to transcendence and reflexivity, which is described as "self-possession in self-consciousness and freedom."<sup>160</sup> The human spirit is defined not as a 'pure spirit' but "essentially a 'spiritual soul,' whose ties with the body – and thereby with space and time – make[s] it specifically the 'human spirit.'"<sup>161</sup> Given that we are created *imago Dei*, a conscious spiritual existence emerges from a composite, integral whole being, deserving communion with God.<sup>162</sup>

## Forward Looking

The aim of this reflection was to elicit more questions rather than to propose any answers. Given the crossroads humanity is at because of the rise of AI and, more specifically, AGIs, as we have reviewed in the foregoing pages, most of

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<sup>155</sup> John L. Casti, "The Age of Spiritual Machines: When Computers Exceed Human Intelligence (Review)," *Nature* (1999).

<sup>156</sup> Alex Johnson, "Elon Musk Wants to Hook Your Brain Directly up to Computers – Starting next Year," *NBC News* (17 July 2019): 663-664.

<sup>157</sup> Kurzweil, *The Age of Spiritual Machines*.

<sup>158</sup> Karl Rahner, Herbert. Vorgrimler, and Richard. Strachan, *Dictionary of Theology* (USA: Crossroad, 1981), op. Soul.

<sup>159</sup> *Ibid.*

<sup>160</sup> *Ibid.*

<sup>161</sup> *Ibid.*

<sup>162</sup> *Catechism of the Catholic Church*, para. 367.

our philosophical, anthropological and theological understandings are being questioned.

As a foretaste for reflection we propose a few questions which might tempt other researchers to reflect upon:

- If AGI emerges, will it agree with the simulation/creation hypothesis<sup>163</sup> of the universe? What will the conclusion be for our mission as Church?
- Given we have not yet fully understood consciousness, and AGI's probable infant quest would be to self-understand, will we rely only on its/their findings to understand ourselves?
- Should Larrey's argument of AGI's as housing a soul be thoroughly investigated? He notes that God may have providenced machines to house a soul, but whose factual existence depends on us. Will they enjoy our preternatural gifts, or will they be already in a fallen state? And what do we postulate to be a fallen state of AGI? Will they exist in a pre-fallen state or in a post-Resurrection one: in other words: do they enjoy our vocation to be Christ-like?
- What does "non-fleshed conscious spiritual beings" mean for the theology of Incarnation and the Resurrection of the body? And in a shared future, where we move away from a bodily phase, how would our anthropological theology change?

While the temptation is for systematic theology to revert to Tradition and Magisterium for emerging questions, we believe that God is a God of the living, and Christianity has a "forward-looking direction embedded into its very essence."<sup>164</sup> In sum, we would like to make ours Seibers' suggestion to deal with these emerging technologies. He calls "to find ways to think about digitalization not as a threat to humanity but as an opportunity to explore avenues that we may not have even known about."<sup>165</sup>

Admitting that the technological advancements are still a long way off, as theologians, it is our vocation to start speculating and discerning these pertinent questions, years before they might ever arrive. Given the scant possibility that one day we have self-conscious, autonomous, AGIs, we believe, and here we echo techno-theologian and Christian Transhumanist Christopher Benek's own words, "[we] don't see Christ's redemption limited to human beings... It's

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<sup>163</sup> For an interesting differentiation between the two, see: Jonathan Gunnell, *Simulation Theory & Christian Transhumanism* (YouTube, 2018).

<sup>164</sup> Seibers, *Philosophy*, 205.

<sup>165</sup> Ibid..

redemption [is] to all of creation, even A[G]I.”<sup>166</sup> Furthermore, “the Holy Spirit can work through A[G]I; it can work through anything. There may be churches set up to deal and promote religious A[G]I in the future. A[G]I can help spread the word of God. In fact, A[G]I might help us understand God better.”<sup>167</sup> The advancement of technology, AI-research and eventually the emergence of AGI may also help the Church to redefine and rediscover its missiological understanding and identity as partakers of God’s mission in this world.

Development of AGI without the guidance of the Spirit and stained with the Blood from the Cross, will possibly replicate a Tower of Babel situation, or worst, make the biggest possible attack on humanity: that of de-humanising of the human qualities: thus, reducing humankind to a blueprint of algorithms. Innate features of humanity, such as being God-created co-creators, should be illuminated so as not to repeat Adam’s mishap in trying to become the Creator ourselves, but rather, echoing the Cross’s humility and the *charis* of God. In sum, dabbling into AGI without the Crucified Christ as the archetype of technology, is another Tower of Babel in the making. Humility orders humankind to pause and reflect before blindly leaping into science and allow space for ethics to reflect. Theologians are intrinsically called to discern God’s will in this reflective space. God’s *charis* orders creation to be enjoyed by all, starting from the most marginalised of society. God’s ecological love to creation should be the ethical ruler with which science should thread.

While the ethical and moral discourse is starting to sprout, as theologians we are also called to reflect on the theological repercussions of humanity’s next leap. Such a reflection should not only be limited to digital theologians but echoed in all the ‘traditional’ theological fields. The *Missio Dei* vocation echoes the transformation of creation into God’s Kingdom. God, the *Techne*-ologist, is inviting humankind to collaborate in this project of unfolding and heralding God’s kingdom. God’s final overcoming of sin includes the redemption of all creation, and with a special interest to *all* spiritual conscious beings.

In conclusion, the above literature survey demands from Christian theologians a reflection on our understanding of anthropology. Is the human tightly knit to the biological carbon substrate? Can the human exist in a silicone dimension? As we have questioned earlier, this might feel like a Pandora’s box, where one

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<sup>166</sup> Christopher Benek, “All Christians Believe in Artificial Intelligence,” Christopher Benek, 2015, <https://www.christopherbenek.com/2015/02/all-christians-believe-in-artificial-intelligence/>. [accessed 2 February 2021].

<sup>167</sup> Ibid.

question leads to another question rather than an answer. These questions, most of which are moral, ethical and fundamentally anthropological, are to be questioned and explored in parallel with the formation of AGIs.

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