

Human vs Machine Intelligence

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Presentation of key points from:

Pope Francis, et al. 2025. ANTIQUA ET NOVA:
Note on the Relationship Between Artificial Intelligence and Human
Intelligence.

[https://www.vatican.va/roman curia/congregations/cfaith/documents/rc ddf doc 20250128 antiqua-et-nova en.html](https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_dcf doc 20250128 antiqua-et-nova_en.html).

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Intelligence Focused on Accomplishing Tasks

- Pope Francis states:
 - that there "[...] is the implicit assumption that the term 'intelligence' can be used in the same way to refer to both human intelligence and AI.
 - Yet, this does not capture the full scope of the concept.
 - In the case of humans, intelligence is a faculty that pertains to the person in his or her entirety [...]."

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Intelligence Focused on Accomplishing Tasks

- Pope Franciscus questions the way in which modern AI systems are evaluated, expressing concern about the focus on specific tasks.
- He states:
 - "[The] functional perspective is exemplified by the 'Turing Test,' which considers a machine 'intelligent' if a person cannot distinguish its behavior from that of a human.
 - However, in this context, the term 'behavior' refers only to the performance of specific intellectual tasks; it does not account for the full breadth of human experience, which includes abstraction, emotions, creativity, and the aesthetic, moral, and religious sensibilities.
 - Nor does it encompass the full range of expressions characteristic of the human mind.
 - Instead, in the case of AI, the 'intelligence' of a system is evaluated methodologically, but also reductively, based on its ability to produce appropriate responses."

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Relationships with others

- Pope Franciscus points to relationships with others as a key aspect of being human.
- He writes:
 - "Human beings are ordered by their very nature to interpersonal communion, possessing the capacity to know one another, to give themselves in love, and to enter into communion with others.
 - Accordingly, human intelligence is not an isolated faculty but is exercised in relationships, finding its fullest expression in dialogue, collaboration, and solidarity.
 - We learn with others, and we learn through others."
- He continues to write:
 - "The Second Vatican Council observed that 'by his innermost nature man is a social being; and if he does not enter into relations with others, he can neither live nor develop his gifts.'
 - This conviction underscores that living in society is intrinsic to the nature and vocation of the human person."
- Socializing is a significant part of what it means to be a human.

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Relationships with others

- Pope Francis expresses the following:
 - "Such a quest, along with other aspects of human communication, presupposes encounters and mutual exchange between individuals shaped by their unique histories, thoughts, convictions, and relationships."
- as well as:
 - "Authentic human relationships require the richness of being with others in their pain, their pleas, and their joy."
- When discussing the capabilities of LLMs and systems built with them, we should not forget that there is so much more to being a human than to know things that are written down.

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What Makes Life Meaningful?

- A recent Pew study surveyed people from 17 advanced economies.
- One of the questions was: "What Makes Life Meaningful?"
- The top answers were:
 - family,
 - material well-being/occupation, and
 - friends.

What Makes Life Meaningful? Views From 17 Advanced Economies. Laura Silver, Patrick van Kessel, Christine Huang, Laura Clancy and Sneha Gubbala. https://www.pewresearch.org/wp-content/uploads/sites/20/2021/11/PG_11.18.21_meaning-in-life_fullreport.pdf

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Seeking Truth

- The desire for truth, inquisitiveness, curiosity are qualities that we cherish and we cannot imagine a vibrant life without it.
- Aristotle observed that "all people by nature desire to know."
- Pope Francis writes:
 - "the desire for truth is part of human nature itself.
 - It is an innate property of human reason to ask why things are as they are.
 - Moving beyond the limits of empirical data, human intelligence can with genuine certitude attain to reality itself as knowable.
 - While reality remains only partially known, the desire for truth spurs reason always to go further; indeed, it is as if reason were overwhelmed to see that it can always go beyond what it has already achieved.
 - Although truth in itself transcends the boundaries of human intelligence, it irresistibly attracts it.
 - Drawn by this attraction, the human person is led to seek truths of a higher order."

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Seeking Truth

- This desire is not part of LLMs, which are engineered to ingest corpora of data.
- It also does not seem to be a property of them.
- There is no indication of a drive for seeking truths.
- As a matter of fact, when told that a response is incorrect, even though it is in fact correct, LLMs will many times, in our experience, agree that a response is incorrect rather than hold their ground.

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Seeking Truth

- Pope Francis goes on by writing:
 - "The search for truth finds its highest expression in openness to realities that transcend the physical and created world. In God, all truths attain their ultimate and original meaning.
 - Entrusting oneself to God is a fundamental decision that engages the whole person."
- This is a defining attribute of a Christian and presumably of people who engage with other religions, whether they have deities or not.
- To go further, Pope Francis states:
 - "Although deeply rooted in bodily existence, the human person transcends the material world through the soul, which is almost on the horizon of eternity and time."

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Seeking Truth

- The thought of being part of something incomprehensible that spans eternity is fascinating to many people, in particular, people who engage with various religions.
- The following quote best captures the Christian view of the richness of human experiences:
 - "Human intelligence becomes more clearly understood as a faculty that forms an integral part of how the whole person engages with reality.
 - Authentic engagement requires embracing the full scope of one's being: spiritual, cognitive, embodied, and relational"
- We need to start asking the question of the diminished form of intelligence of foundational models.

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Engagement with reality

- A crucial goal of curiosity appears to be understand one's role in this world.
- Pope Franciscus writes:
 - "This engagement with reality unfolds in various ways, as each person, in his or her multifaceted individuality, seeks to understand the world, relate to others, solve problems, express creativity, and pursue integral well-being through the harmonious interplay of the various dimensions of the person's intelligence."
- While this is a Christian perspective, atheists too attempt to make sense of the world and their role in it.
- He goes on by writing:
 - "At the heart of the Christian understanding of intelligence is the integration of truth into the moral and spiritual life of the person, guiding his or her actions in light of God's goodness and truth.
 - According to God's plan, intelligence, in its fullest sense, also includes the ability to savor what is true, good, and beautiful."

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Engagement with reality

- While this again is a Christian perspective, the aspect of savoring what is "true, good, and beautiful" appears to be shared by other too.
- Pope Franciscus concludes:
 - "A proper understanding of human intelligence, therefore, cannot be reduced to the mere acquisition of facts or the ability to perform specific tasks.
 - Instead, it involves the person's openness to the ultimate questions of life and reflects an orientation toward the True and the Good."
- This trait does not appear something that LLMs exhibit.

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Differences between human and machine learning

- Pope Franciscus states:
 - "By analyzing large datasets to identify patterns, AI can 'predict' outcomes and propose new approaches, mimicking some cognitive processes typical of human problem-solving."
- This captures the view of weak AI as pertains to LLMs.
- He goes one by writing:
 - "Human intelligence is not primarily about completing functional tasks but about understanding and actively engaging with reality in all its dimensions; it is also capable of surprising insights."
- This is very much different to how LLMs and systems built with them operate.

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Differences between human and machine learning

- Pope Franciscus expresses the difference between human and machine intelligence:
 - "However, even as AI processes and simulates certain expressions of intelligence, it remains fundamentally confined to a logical-mathematical framework, which imposes inherent limitations.
 - Human intelligence, in contrast, develops organically throughout the person's physical and psychological growth, shaped by a myriad of lived experiences in the flesh.
 - Although advanced AI systems can 'learn' through processes such as machine learning, this sort of training is fundamentally different from the developmental growth of human intelligence, which is shaped by embodied experiences, including sensory input, emotional responses, social interactions, and the unique context of each moment.
 - These elements shape and form individuals within their personal history.
 - In contrast, AI, lacking a physical body, relies on computational reasoning and learning based on vast datasets that include recorded human experiences and knowledge."

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Differences between human and machine learning

- Pope Franciscus:
 - "Consequently, although AI can simulate aspects of human reasoning and perform specific tasks with incredible speed and efficiency, its computational abilities represent only a fraction of the broader capacities of the human mind.
 - For instance, AI cannot currently replicate moral discernment or the ability to establish authentic relationships.
 - Moreover, human intelligence is situated within a personally lived history of intellectual and moral formation that fundamentally shapes the individual's perspective, encompassing the physical, emotional, social, moral, and spiritual dimensions of life.
 - Since AI cannot offer this fullness of understanding, approaches that rely solely on this technology or treat it as the primary means of interpreting the world can lead to a loss of appreciation for the whole, for the relationships between things, and for the broader horizon."

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Hinton: A Different Kind of Intelligence

- Hinton distinguished between cognitive aspects of emotions and physiological aspects of emotions.
- Machines can have the former but not the latter, he claims.
- To be on the safe side, he claims that machines do not simulate the cognitive emotions; they have them.
- He explains:
 - "AI agents will not get red when they are embarrassed.
 - They will act like a person [in such a situation] but without the physiological response."
- This then is what he means by a different kind of intelligence:
 - "Machines have cognitive states, but they are not tied to or supported by physiological experiences."

Heaven, D. 2023. Interview: Geoffrey Hinton tells us why he's now scared of the tech he helped build. <https://www.technologyreview.com/2023/05/02/1072528/geoffrey-hinton-google-why-scared-ai>

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