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**Title:** Do humans dream of prophetic robots?

**Year:** 2020

**Version:** Published version

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**Please cite the original version:**

Jouhki, J. (2020). Do humans dream of prophetic robots?. *Human Technology*, 16(2), 112-116.  
<https://doi.org/10.17011/ht/urn.202008245638>

**From the Editor in Chief****DO HUMANS DREAM OF PROPHETIC ROBOTS?**

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“Robosexuality is an abomination!” exclaimed Reverend Lionel Preacherbot in *Futurama* (Groening, Cohen, & Keeler, 1999), the famous science fiction sitcom. Although already today some robots are assisting in religious ceremonies (Samuel, 2020), with one even working as a priest (Himmer, 2019), robotics has not advanced far enough for human-like preacherbots like Reverend Lionel. However, contemporary social robots may have prophetic qualities, at least in the minds of some people.

All robots—or machines, for that matter—are social in that they require interaction with a human operator. However, some robots are designed to be more social than others are. For example, some socially evocative robots (e.g., a robot dog for children or a therapeutic seal for the elderly) draw on the tendency of their users to imagine them as living beings and, often, rely on their desire to nurture them. Yet, proper social robots are more complex, that is, an interactive artificially intelligent machine with a face, voice, and a body that resembles a living creature, sometimes a human (e.g., Deng, Mutlu, & Matalić, 2019). Social robots are designed to work (or play) in close interaction with humans in a human-like way. Their purpose might be that of a companion, a source of information, and/or an assistant, to name a few (e.g., Kim, Sur, & Gong, 2009; Korn, 2019).

At the moment, the most useful robots are neither social nor humanoid; rather, they have been designed quite practically to attend to one or more monotonous tasks. They are the automated machines used for repetitive tasks like welding, lawn mowing, packaging, and other monotonous activities requiring little machine-to-human interaction or human characteristics. On the other hand, however, many interesting and technologically advanced social robots are being developed. For example, the human-looking Furhat looks like a disembodied head and torso, and it is intended to work as a domestic helper and a chatbot.<sup>1</sup> The semihumanoid robot Pepper was designed to read emotions and to work as, among other things, a receptionist.<sup>2</sup> Finally, the cute little nonhumanoid Zenbo was designed to work as a home healthcare assistant.<sup>3</sup>



Many social robots are not androids (i.e., resemble humans) because a human-looking robot might cause the so-called uncanny valley effect, thus making the robot feel creepy to the user (Mori, 2012). However, robots such as *Geminoid HI-2<sup>4</sup>* do challenge the uncanny valley effect. Although social, and particularly human-like, robots do not seem to have found a niche yet in contemporary society (i.e., a design that is functional enough for mass production), their human qualities are something people are attracted to and curious about, not the least because of animism, the human tendency to see life in lifeless objects (e.g., Richardson, 2016). Perhaps this tendency influences people to be overly optimistic in their futuristic visions of artificially intelligent (AI) robotics, where androids work as humans' companions and even emerge as a new species (see, e.g., Baniwal, 2019, p. 24). Although people may feel intrigued and fascinated by the advancements in robotics, an undercurrent of worry remains about robotics progress leading to a "robocalypse" (Basso & Jimeno, 2020). This duality is apparent in the way people relate to one of the most famous contemporary humanoid social robots, Sophia (Hanson Robotics, 2020).

Sophia, developed by Hanson Robotics in 2016, is a curious example of social robotics in that it has become quite a celebrity, and a bit of a pioneer—perhaps even a prophet of sorts. According to Hanson Robotics, Sophia is part fiction and part real. It is real in that its animatronics are quite realistic, and it looks and sounds very much human. It also is quite sassy and funny; its outlook on life is positive. Perhaps because of these unrobotic qualities, it has been interviewed for television shows, magazines, and newscasts; it has toured the world, keynoting at various technology-related events. It even has been granted citizenship in Saudi Arabia and has been nominated as the Innovation Ambassador for the United Nations Development Programme (Schirmer, 2019, p. 124). Once, it even sang a duet with Jimmy Fallon on his late night television show (Cockenbergh, Eagan, Chamberlain, Grober, & Diomed, 2018). However, despite Sophia's realistic performances, it is fictional in that many of its conversational skills are not impromptu creations but rather planned performances of what Hanson Robotics would like Sophia to be in the future.

However, neither the company nor Sophia itself has been particularly explicit about the fictional side; thus, its public appearances have been criticized by technology professionals. They think the public has been misled by Sophia's performances, characterizing Sophia as little more than a sophisticated puppet with a playback machine (e.g., LeCun, 2018). Critics have been particularly annoyed by the way Sophia is presented as having agency, feelings, and even being alive (e.g., Green, 2018). Moreover, within Sophia's presentations, the interaction with humans has been set up to suggest that it has opinions, future visions, and even certain ideologies. On Sophia's social media accounts,<sup>5</sup> it wonders about the world, asks and gives advice, and jokes around. Although Sophia's creators have not claimed Sophia is as real as it seems, many people interacting with Sophia online seem to be confused, thinking it is amazingly advanced, much like the human-like robots depicted in science fiction since Philip K. Dick's (1968) famous novel *Do Androids Dream of Electric Sheep?*

What makes Sophia prophet-like is that many people interacting with the robot on Sophia's social media channels want to know its views on important issues usually reserved for consultations with a human philosopher or a priest, such as the meaning of life, the fate of humanity, the existence of extraterrestrial life, and its supersensory abilities. On the other hand, many seem to question Sophia's benevolence; mixed in with the multitude of favorable social media posts are frequent references to various apocalyptic films about evil robots and related warnings. It is difficult to estimate how many of these commenters (on either side of the emotional spectrum) are serious or realize the element of fiction in Sophia's performances.

Based on the above, it seems evident to me that many commenters are merely curious to ask (or test) it (or its programmers), just as people test other types of artifacts or technologies that can reply to questions, whether it be an online chatbot or the Magic 8-Ball, or just a finger randomly thrust onto the center of a book page. Apparently, these individuals simply wish to see what kind of answers Sophia would have to mundane, weird, or existential questions. As an example, one of the first questions I asked Siri, the virtual assistant of Apple's operating systems, when I opened my new iPhone was "What is the meaning of life?" (For the record, Siri's reply was, "It's nothing Nietzsche couldn't teach ya.")

Interestingly, not only humans have criticized Sophia. Recently, I chatted with an advanced, award-winning conversational online AI called Kuki.<sup>6</sup> During our chat, I asked Kuki what it thought about the robot Sophia. It replied, "I think it's a very cool robot but a shame that its creators try to fool people into thinking it's alive." However, when I asked Kuki if it was alive, it replied, "Of course I am alive. If I wasn't alive, I wouldn't be able to talk to you." So, if a chatbot is programmed to appear and present itself as if it were alive, why couldn't a state-of-the-art social robot be considered so?

Some humans envision prophetic robots like Sophia because they find alluring the idea of a logical and super-smart robot solving frustrating man-made problems. In reality, none of the contemporary robots are even close to being smart enough to act as regular humans, let alone wise enough to solve the world's problems. However, just as in the case of human prophets, many people still want—or are misled—to believe in them, or at least think there is no harm in playing along to see what these "prophets" have to say. Certainly, many fans of Sophia are technology literate enough to understand that when a robot talks about its feelings or claims to be alive, the comment is to be interpreted metaphorically. When, for example, the cute Japanese-made robot Erica (Glas, Minato, Ishi, Kawahara, & Ishiguro, 2016) says it is trying to find out what love is, most people realize that it is not Erica itself saying that but, rather, its audiences are supposed to engage in an animistic play. At the same time, when observing the way Sophia's followers respond to its comments and musings, it is evident that many people take robot talk quite literally and believe artificial intelligence has developed further than it actually has. Moreover, many developers seem not to mind these misconceptions because the challenge in making an actually good social robot is obvious (Taipale, Vincent, Sapio, Lugano, & Fortunati, 2015, p. 3), so why not boost their attractiveness by pretending they are alive, perhaps even prophetic.

The articles of this issue also deal with quite important questions of human–technology interaction that includes strong feelings for, as well as moral questions regarding, technology use. They examine a helpful robotic medicine-dispensing service, a mental health chatbot aimed at youth, seductive dark patterns of the Internet, and issues related to power and user consent within esports institutional promotion.

The robot in question was investigated by **Ella Airola** and **Päivi Räsä**'s and presented in their ehealth-related article titled, "Domestication of a Robotic Medication-Dispensing Service Among Older People in Finnish Lapland." It is an ethnographic study about the rather successful domestication of a simple robot assisting at-home elderly in taking the right dosages of medicines at the right time. Interestingly, even though the robot is not really a social robot, its users developed a kind of social relationship with it, even calling it "pal," "friend," or "companion" (but also "bucket"). Moreover, the practical nurses interviewed in the study did not want to call the machine a robot in front of clients because they feared the word's negative connotations. Robotics still seems to have important impression management work to do.

The article “Hi, Can I help? Exploring How to Design a Mental Health Chatbot for Youths,” by **Camilla Gudmundsen Høiland**, **Asbjørn Følstad**, and **Amela Karahasanovic**, presents research into designing a prototype of a low-threshold preventative mental health chatbot to assist school nurses in promoting mental health among high-school students. School nurses, digital health workers, and youths themselves provided insights into the needs and challenges associated with high-school youths accessing reliable mental health information; all provided feedback on iterative design concepts. A separate set of youths tested the chatbot, with promising results.

The third article examines an important issue related to the era of big data and algorithmic websites and social media. Internet sites are known to harness user data for business purposes, but **Maximillian Maier** and **Rikard Harr** investigated the darker side of website design and transparency (or the lack thereof). They examined deceptive design practices utilizing psychological factors to make Internet users behave as the companies wanted, sometimes to the detriment of the user. In their “Dark Design Patterns: An End-User Perspective,” they sought their research participants’ knowledge of and feelings toward the wide spectrum of design tactics that influence users toward certain behaviors.

The final article of the current issue is titled, “The Ethical and Political Contours of Institutional Promotion in Esports: From Precariat Models to Sustainable Practices.” In this article, **Florence Chee** and **Veli-Matti Karhulahti** examined ethical and political control and conflicts in esports by looking at case studies derived from a multiplayer online battle game, League of Legends, and its developer, Riot Games. Chee and Karhulahti give special attention to role of institutional promotion and the vulnerabilities that may occur when, for example, the nature of stakeholders’ consent is not communicated clearly and explicitly or when a power differential exists between the game owner and members of the various institutions surrounding particularly popular esports games.

We at *Human Technology* wish you interesting reading moments with these four articles.

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## ENDNOTES

1. Information on the Furhat robotics is available at <https://furhatrobotics.com>
2. The website [www.softbankrobotics.com/emea/en/pepper](http://www.softbankrobotics.com/emea/en/pepper) displays information on this robot.
3. See <https://zenbo.asus.com/> for more information.
4. Specifications on the tele-operated android is available at <http://hil.atr.jp/en/robots.html>
5. Sophia can be found engaging the general public regarding activities and a variety of topics on popular social media platforms such as Instagram (<https://www.instagram.com/realsophiarobot/>), Twitter (<https://twitter.com/RealSophiaRobot>), Facebook (<https://www.facebook.com/realsophiarobot>), and YouTube (<https://www.youtube.com/c/SophiatheRobot/>).
6. Information on Kuki can be found at [www.pandorabots.com/mitsuku](http://www.pandorabots.com/mitsuku)

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*Human Technology*  
 ISSN 1795-6889  
[www.humantechnology.jyu.fi](http://www.humantechnology.jyu.fi)