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Research article

The Blurring of the Boundaries between Humans and Robots is a Good Thing and a New Species would be Born: An Interview with Hiroshi Ishiguro

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Abstract

The documentary *Philosophy in the Age of Desire* records a short encounter between Hiroshi Ishiguro and Markus Gabriel in 2018. Their exchange on the role of technology in human life, on the conception of human being, and other topics revealed noticeable differences between the German philosopher and the Japanese engineer. Four years later two separate interviews follow up on their conversation. In this interview, Hiroshi Ishiguro makes several points: First, there is no clear definition of what a human being, intelligence, emotion, etc. is, so people can understand the meta-level of human beings by making robots, at least getting inspiration for understanding the complex human functions through the reaction of robots. Second, robots have crossed the “uncanny valley” in some situations. Third, the blurring of the boundaries between humans and robots is a good thing, then a new species would be born and people will accept them as human beings. Fourth, after the COVID-19 pandemic, robots that can be operated remotely will be utilized widely. In addition, regarding the roots of Japan’s robot culture, Hiroshi Ishiguro proposes the “Island Hypothesis.”

Keywords: Hiroshi Ishiguro; Humanoid; Robot; Uncanny Valley; Island Hypothesis

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Научная статья

Приветствуем стирание границ между людьми и роботами, рождение нового вида: Интервью с Хироси Исигуро

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Аннотация

В документальном фильме “Философия в эпоху желания” рассказывается о короткой встрече Хироси Исигуро и Маркуса Габриэля в 2018 году. Их обмен мнениями о роли технологий в жизни человека, о концепции человека и других темах выявил заметные различия между немецким философом и японским инженером. Четыре года спустя их разговор продолжается в двух отдельных интервью. В этом интервью Хироси Исигуро делает несколько выводов: во-первых, нет четкого определения того, что такое человек, интеллект, эмоции и т. д., поэтому люди могут понять метауровень человека, создавая роботов, по крайней мере, получая стимул для понимания сложных человеческих функций через реакцию роботов. Во-вторых, в некоторых ситуациях роботы пересекли «зловещую долину». В-третьих, стирание границ между людьми и роботами – это хорошо, тогда может родиться новый вид, и люди примут его за человека. В-четвертых, после пандемии COVID-19 широкое распространение получают роботы, которыми можно управлять удаленно. Кроме того, что касается корней японской культуры роботов, Хироши Исигуро предлагает “Гипотезу острова”.

Ключевые слова: Хироси Исигуро; Гуманоид; Робот; Зловещая долина; Гипотеза острова

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Hiroshi Ishiguro is a Japanese engineer of robots, professor at a Intelligent Robotics Laboratory in Osaka. Humanoid robots such as the Geminoid HI series, which have a similar appearance as the original person Hiroshi Ishiguro, have attracted great attention worldwide. His thoughts on the relationship between robots and human beings are distinctive, as shown in his lectures and his conversations with the German philosopher Markus Gabriel (Gabriel et al., 2018; Li & Gabriel, 2022). We have conducted this interview with Hiroshi Ishiguro in writing between October and December 2021, asking him to offer his views on humanoid robots and human-robot relationships, the social acceptance of humanoid robots, and the robot culture in Japan. In this interview, he also shares his views on the “Uncanny Valley,” on robots during COVID-19, and other issues.

Hui Jiang and Lin Cheng: You have stated several times in previous interviews that you are developing humanoid robots to better understand humans themselves: can you explain this viewpoint in more detail?

Ishiguro Hiroshi: Human functions, especially cognitive functions on the meta-level, in which we may include intelligence, consciousness and emotion, as well as sociality and social relationships, are advanced human functions that are difficult to understand through the bottom-up research approach of the cognitive or brain sciences.

But on the other hand, if we try to make a robot by using the knowledge we have acquired so far, we may be able to simulate emotion, intelligence, and consciousness in it. In this sense, we are attempting to understand the meta-level of human beings, that is, their advanced cognitive functions, through the development of robots. Even if we cannot really understand these functions, they can be simulated by robots to some extent. If we can do this with robots, we may be able to get some hidden hints for understanding these complex human functions. That’s the way we combine robot development and human understanding in our research.

Jiang and Cheng: Masahiro Mori put forward the “Uncanny Valley” theory in the 1970s. In our interview with him last year, he continued to argue that robots need not be highly humanoid in their appearance (Mori & Jiang, 2020). You have been working on developing robots with ever more humanoid appearances. Do you think robots will one day be able to transcend the “Uncanny Valley”? What are the main difficulties in improving the appearance of robots?

Ishiguro: The important thing is that robots’ appearance can meet the preferences of people. Some people prefer robots with a human-like appearance, while others prefer robots with a cute appearance, so it’s important to have different kinds of robots to meet the preferences of different people.

To be more precise, the “uncanny valley” phenomenon refers to the fact that when we recognize a person, we perceive whether this is a human being or not through multiple modalities, such as appearance, way of speaking, and body movement. However, as soon as one of these modalities deviates from humanity in any way, for example by simply employing some clumsy movements, we immediately feel uncomfortable. Thus, it actually depends on the situation and the purpose of the application of robots. If it is in a specific situation or purpose of use, e.g., only for talking, then it is already possible to create androids that are not uncanny at all, just like our android ERICA. So we can say



that we have crossed the “uncanny valley.” But there are certain restrictions related to the situation and purpose of using androids.



Figure 1. Hiroshi Ishiguro (left) and ERICA (right, ERATO Intelligent Conversational Android) ©ERATO ISHIGURO Symbiotic Human-Robot Interaction Project

Jiang and Cheng: Your Geminoid HI series robots are already extremely human-like in appearance. Do you think it is possible for future robots to have autonomous or partially autonomous intelligence or even emotions? If so, to what extent can we identify such robots as “people” and give them the corresponding rights? What positives or negatives do you think the blurring of human-robot boundaries may bring about for people and for human society?

Ishiguro: There is no clear definition of what autonomous intelligence is, or what autonomy is, and I think it would be quite difficult to give a proper definition of autonomy. The same is true for emotions. In the first place, we don’t even know what autonomy is or what emotions are. So in order to understand them, it is important to



develop and make robots that may have different emotions and can move around autonomously.

I believe that in the future it would be possible to create robots that are more emotionally expressive and more autonomous than the robots we have today. When that happens, I can imagine that people will accept these robots as human beings. At the same time, when we accept them as human beings, it is easy to imagine that we will give them the rights we consider proportionate, or at least such rights as we must treat them with care and not destroy them.

I think the blurring of the boundaries between humans and robots is a good thing. In fact, we don't even have a definition of what a human being is, but at the very least we can say that humans have evolved through technology. Without technology, for example, we would not be able to make vaccines for corona viruses, and humans wouldn't be as prosperous as we are today: there would be no artificial limbs, cars... We are always using various technologies to expand the capabilities of human beings. Therefore, robots and humans are not separate: rather, humans are expanding their capabilities through robots, which are a symbol of technology, so the boundaries between the two are blurred to begin with. The boundaries between humans and technology are blurred, or rather, humans are distinguished from animals because of their convergence with technology. I think this boundary will become more blurred in the future.

Jiang and Cheng: As we understand it, you're talking here about the difference between an autonomous robot and a human being: in short, is it going to be a problem when a robot is very human-like in appearance, and its internal function, emotion and intelligence are also close to human beings?

Ishiguro: No, I don't think it will become a problem. Instead, I think a new species would be born, and we would live in harmony with them, coexisting with them and looking for help from them in our daily lives.

Of course, if they were detrimental to us, we wouldn't use them, and we would be even less likely to live in peace with them. I think that it is natural for people to find a new species to enrich their lives.

Jiang and Cheng: Most of the definitions of robots in traditional European novels and movies are “uncanny.” Nowadays, rapid developments in artificial intelligence and robot design is attracting attention in philosophical circles as well. For example, in a conversation with you in 2018, German philosopher Markus Gabriel stated that humanoid robots are “a threat to the definition of human,” and “this kind of research could destroy humanity in a very problematic way [sic]”. But you believe that “we don't know the definition of human yet,” “the boundaries between human and robots will disappear some day,” and “we need to accept a new definition of humans” (Gabriel et al., 2018). What do you think is the root of the difference between your and Gabriel's perceptions of human-like robots? In your opinion, does Western philosophical thinking about “what is human” and its tendency towards anthropocentrism affect the development of robotics and AI technology?

Ishiguro: If you say that there is a definition of a human being, I hope you can show it to me. If you can define it accurately and scientifically, I might accept that definition, as



long as it is scientific. But unfortunately, I have not yet seen a scientific or universal definition of human beings. So I don't think it is a European thing, rather, it is a difference between what philosophers assume about human beings (well, maybe it's called European philosophy) and science.

Western scientific thinking, philosophical thinking, and anthropocentrism may have an impact on our judgments [of robots JH], perhaps to a slight degree or possibly negatively; but in any case, we are thinking about what it means to be human. I believe that whatever method is used, the starting point may be different, but eventually if you think deeply, you will come to the same conclusion. Therefore, whether we think from the perspective of Western philosophy, from the perspective of anthropocentrism, or from the perspective of the Japanese, it is good to think deeply and properly. Without preconceptions or unnecessary stereotypes, I think we will eventually come to a single answer through discussion.

Jiang and Cheng: It is commonly believed that there is a visionary culture of human-robot interaction in Japan. Some scholars argue that a combination of Japan's animistic faith tradition, harmonious human ethics, the positive role of technology in the rapid process of modernization, and the significance of science fiction in popular culture have created this kind of culture. Do you share this view, or do you think there are other reasons?

Ishiguro: I basically agree with this. But I think the most fundamental reason or background behind the creation of this kind of thing is what I call the "Island Hypothesis." Since Japan is an island country with a history of nearly 2000 years and has long been isolated from other cultures, we have developed as a result a culture that is completely different from that of European countries and other countries. As a result, an animistic way of thinking and a culture that does not distinguish between humans and other things has been created. If people live together for a long time, if a nation exists on an island country for a long time, then the people will form a relationship like a family. This is a type of harmonious ethics. I think this may be the main and fundamental reason. I call it the "Island Hypothesis."

Jiang and Cheng: You approve of the robotization of some areas of daily life (Lill, 2014). Bill Gates (2007) has also predicted a "robot in every home" scenario in the future. When do you think a "human-robot co-existence" society will emerge in Japan? What roles or jobs do you want your robots to fill in the world of the near future?

Ishiguro: That's right. Robots have already entered our daily lives in large numbers as toys, haven't they? So I think the next thing we can look forward to is avatars. This does not mean robots that can work autonomously, but robots that can work through remote control.

After the COVID-19 pandemic, robots that can be operated remotely, such as CG agents and CG avatars, will be utilized for people to be able to work freely. In this way, robots and CG avatars will be endowed with autonomous functions and artificial intelligence, and will be able to perform work even without remote control. I think the development of this type of robots will continue to progress.



Therefore, robots will be used in many places to provide services. For example, robots can be used for studying English: in fact, they have been used in high school as simple training partners for English and other foreign languages. I think they would be used in many other places, such as receiving customers in restaurants, or for navigating routes, etc.

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