

# Global AI Narratives Tokyo Workshop

September 12th, 2018



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## Summary

**Dr. Stephen Cave & Dr. Kanta Dihal, the Leverhulme Centre for the Future of Intelligence in Cambridge**

Japanese and South Korean imaginings of robots and intelligent machines are frequently evoked as an alternative to Western depictions. But to what extent are they really different, and how? How do East Asian imaginings shape the public perception and technological advancement of AI in those areas? On 12 September 2018, we held the second Global AI Narratives Workshop at Waseda University Tokyo to explore these questions.

Professor Toshie Takahashi, from the School of Culture, Media and Society at Waseda University, had organised the workshop in collaboration with CFI, the Research Institute for Letters, Arts and Sciences at Waseda, The Japanese Society for Artificial Intelligence and The Robotics Society of Japan. It was opened by the Vice President of Waseda University, Professor emeritus Shuji Hashimoto. He emphasised the importance of narratives at a time when AI was posing many challenging questions, citing Umberto Eco's *The Name of the Rose* (1980): "Those things about which we cannot theorise, we must narrate."

There followed four sessions. First, the AI Narratives team from CFI – Dr Kanta Dihal, Dr Stephen Cave, and Dr Sarah Dillon – presented some of their work so far: Dr Dihal on the influence of Asimov's laws of robotics on science policy; Dr Cave on the predominant hopes and fears for AI in the Anglophone West; and Dr Dillon on her 'What AI Researchers Read' project. The question and answer session brought out a point that recurred throughout the day: while in Japan many AI researchers are influenced by comics and anime, the role of the graphic in Western Anglophone narratives is much smaller, and the most influential ones (the Marvel and DC comics) only tangentially deal with AI.

The next panel featured four Japanese researchers,

starting with Professor Takahashi herself. Her survey of young people in Japan brought out fascinating perspectives: for example, that 73% of Japanese youths view AI positively, while at the same time, 60% do not want robots to look humanoid. Her work has taken her to the oldest as well as the youngest citizens of Japan: also featured on the panel was the famous robot seal PARO, whose maker, Professor Takanori Shibata, was present at the workshop. In nursing homes, the introduction of PARO reduced the tension between residents and nurses. The role of assistive technology for elderly-care services, a pressing issue in ageing Japan, was also touched upon in the presentation of Dr Kentaro Watanabe. Japan, as well as South Korea, as we learned later, is facing a serious social problem in a society that is ageing at an extremely high rate. AI and robots therefore have significant potential for social good in these societies.

Masayoshi Sakai returned to graphic genres in his presentation on AI and robots in manga and animé. He introduced the two concepts according to which Japanese AI and robot characters can be categorized: the 'buddy' and the 'extension'. Astroboy and Doraemon are the two 'buddy' characters that have most strongly shaped Japanese conceptions of AI and robots. Respectively in the form of a child and a cat, they are also notably different from the two most influential Western equivalents, Robby the Robot and the Terminator. The 'extension' characters, which have been around in manga and anime since at least 1956 (Tetsujin-28 or 'Iron Man 28'), are notable for explicitly being (mere) tools: Tetsujin is not autonomous, but a servant of good or evil depending on who possesses his remote control.

Professor Osamu Sakura from the University of Tokyo touched upon another major theme in comparing Eastern and Western AI narratives: while the West

juxtaposes humans to both non-human animals and to AI/robots, Eastern narratives emphasise continuity between these categories. This is a result of the different philosophical and religious traditions prevalent in Japan, which, he argued, have been more influenced by Taoism and relatively unaffected by the Abrahamic religions.

The South Korean panel followed. It had an equal gender balance, an approach the CFI team actively facilitates throughout our Global AI Narratives project. Professor Kyung Sin Park noted that this balance is unfortunately not common in South Korea itself, which he said is one of the most unequal societies for women to live in. Nonetheless, the Korean panel had a strong emphasis on feminism, including Dr Kyoungmi Oh presenting on the history of computing as a profession for women.

Professor So-Young Kim emphasised first and foremost the shock South Korea experienced when in 2016 the British AlphaGo system defeated their Go champion Lee Sedol (a theme picked up by other panellists). The media used the phrase ‘Robot Spring’, reminiscent of the ‘Arab Spring’. A large amount of funding was subsequently poured into AI and robotics research in Korea. The government framed this as a catch-up strategy, an attempt to reduce a perceived gap between Korea and more advanced countries. She explained that AI was communicated to the public following familiar narratives that had been used for emerging technologies in the past.

Professor Chihyoung Jeon explained that the problem of an ageing society is equally pressing in South Korea. Therefore, in both Japan and South Korea, the older generation in particular does not consider robots a threat to jobs as in Western countries: they are not replacing people – they are being introduced in areas where there is not enough human labour. However, Professor Jeon showed several examples of reality TV shows in which human-robot interactions failed. These shows explored the effects of introducing humanoid

robots in elderly people’s lives, including a woman who was given a robot ‘grandchild’ and a man given a robot drinking buddy; the woman’s quality of life was improved much more through interaction with the production team.

After the three panels, the workshop attendees were divided into groups for a discussion session. One group consisted of Professor Takahashi’s students, who had been immensely helpful throughout the day, to discuss what young people in Japan thought of AI. With the average student in the group being born in 1997, their perspectives surprised some other Japanese attendees. First, they found that their attitudes towards AI were divided by gender, with the men in the group having a more positive view of AI, and the women a more negative one. Second, the students stated that manga and anime such as Astroboy and Doraemon had not influenced them as much as it had earlier generations.

Doraemon, nonetheless, was used as the default picture for illustrating AI stories in newspapers, another discussion group found. This was a striking contrast to the Terminator picture so prevalent in the UK. Nonetheless, another discussion group noted that the Terminator was not entirely absent: in Korea, this image was used to illustrate more cautious narratives about AI, although these were seen as external to South Korea’s techno-utopian outlook.

Professor Takahashi and the CFI team are working on a more detailed report of this meeting, and we look forward to building on the many links it forged. In the meantime, this is a summary of the clearest points to emerge. Japanese and Korean narratives around AI are:

- much less concerned about automation related job loss than those of the UK and US;
- much less concerned with themes of robot rebellion;
- tend to portray intelligent machines as friends,

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helpers or (reliable) extensions of humans, instead of as murderous, rebellious Others;

- influenced by a different philosophical tradition, which emphasises connectedness between kinds of entity (such as human, animal, machine);
- concerned with keeping up with, or catching up with, other countries (like the UK and US) that they perceive to be ahead.

This summary was published on the CFI website on 8/10/2018 at: <http://www.lcfi.ac.uk/news/2018/oct/8/global-ai-narratives-japan/>



## Welcome Remarks

**Dr Stephen Cave, Executive Director, CFI, University of Cambridge**



We are enormously grateful to Waseda University, and in particular Professor Toshie Takahashi, for hosting this workshop with us in Tokyo. I am the Executive Director of the Leverhulme Centre for the Future of Intelligence, an interdisciplinary research centre focused on the nature, ethics and impact of Artificial Intelligence (AI). We are a collaboration between the University of Cambridge, the University of Oxford, Imperial College London, and the University of California at Berkeley.

This event is part of our ‘Global AI Narratives’ project. This project developed from the original ‘AI Narratives’ project, which was conceived in 2016 as a collaboration between our Centre and the Royal Society, the UK’s national academy of science. The overall aim of the original ‘AI Narratives’ project was to examine the stories we tell about AI, and the impact those stories have on how the technology is developed, deployed and regulated. Initially we looked at how AI

is portrayed and talked about in the Anglophone West. But the impact of AI will be global, and managing it for the benefit of all will require international, cross-cultural collaboration. Different cultures see AI through very different lenses. Diverse religious, linguistic, philosophical, literary and cinematic traditions have led to different conceptions of intelligent machines. To build trust and collaboration across cultures, and to make the most of this amazing technology, we must understand these different ways of seeing what AI can and should be.

This is why we set up the ‘Global AI Narratives’ project, in which we want to explore the way AI is perceived outside of the Anglophone West -- including narratives both from developing countries and AI superpowers like Japan. Through workshops like this one, we want to identify the dominant narratives about intelligent machines in different cultures. In the next phase of the project, we aim to compare, translate and disseminate these different ways of thinking about AI around the world.

We know already that Japan and Korea have a rich tradition of envisioning life with AI. We are very grateful to Waseda University for the opportunity to explore these traditions in depth at this important workshop.

### **Professor Emeritus Shuji Hashimoto, Vice President, Waseda University**

Although I have been serving as the senior executive vice president for academic affairs and provost of Waseda University, my field of research is Robotics and Machine Learning. Therefore I am very interested in today’s workshop.

For more than a half century, research on the

principles, method and implementation of artificial intelligence has been conducted. Many times, we have declared "finally real artificial intelligence has been achieved" but we were betrayed each time for various reasons. However, looking at the recent progress in AI technology, it seems that this time it may be true. IoT, Big Data and machine learning, seem to have assembled a global brain system. The connected computers are presenting adequate answers to many complicated problems that could not previously have been solved.

Science and technology are inextricably linked. Science organizes knowledge and new discoveries, constructing the theory within which to understand, while technology provides the means and methods to put theory into practice, and provide solutions to real world problems. But AI changes this paradigm by instead producing solutions directly from a huge accumulation of data. It seems that science is displaced from the traditional picture "science and technology", with a new picture of emerging of technology alone delivering solutions. At the moment, AI gives us really good answers, but it does not tell us why these

answers are correct. There is no proof of validity. There is no theoretical explanation. The output of AI often sounds like God's revelation.

In such a situation, all we can do is believe in AI, saying that "the computer is aware of all." I see a crisis of science in such a situation. I believe we need to start a new story of science together with a new tool of AI. At present, we know a lot of facts. Next what we want to know is the truth behind them. Human beings are sometimes satisfied with clear explanations, even if they cannot get the best solution. AI is not yet in the final stage but nor is human intelligence. There is another story to come.

I have not asked the Organizer, Professor Toshie Takahashi, about the exact meaning of "narrative" in the title of this workshop. However, it reminds me of Umberto Eco's phrase "Whereof one cannot theorize, thereof one must narrate", on the inner sleeve of his first novel, "The Name of the Rose".

Finally I would like to thank the Centre for the Future of Intelligence, University of Cambridge for the great support to make this workshop possible. And needless to say, we must thank Professor Toshie Takahashi for her valuable efforts as the organizer.



## Session 1: UK AI Narratives

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### Chair

Dr Sarah Dillon, University Lecturer in Literature and Film and co-PI ‘AI Narratives’ at CFI, University of Cambridge



real world. What the laws really show us is the limit of any simple programmed principles- or laws-based approach to AI ethics. Nonetheless, these laws are being relied on for ethics guidance. Some influential works, such as the US Navy’s report on autonomous military robotics, uncritically accept them as guidelines for the development of intelligent robots. Others display indirect influence, acknowledging that Asimov’s laws are intentionally flawed, interpreting this, however, as a need for other, better laws. The principles that came out of the 2017 Asilomar conference are an example. This paper argues that Asimov’s laws should be neither directly nor indirectly relied on to shape real AI and robotics regulations.

### Panelists

**Dr Kanta Dihal, PI ‘Global AI Narratives’ ,  
CFI, University of Cambridge**

### **From Asimov To Asilomar: How Intentionally Imperfect Plot Devices Shape Our Understanding of Robot Ethics**

#### **Abstract**

Isaac Asimov’s Laws of Robotics have influenced not only AI and robotics research, but also its ethical and legal governance. This paper argues that this influence is problematic. Asimov’s laws were never intended to be used as real guidelines for AI ethics, and are unsuitable for this purpose: as literary devices, they are intentionally flawed in order to create a compelling story. Asimov shows throughout his literary career that these laws fail as soon as they encounter the complexities of the



[Dr Stephen Cave, Executive Director, CFI, University of Cambridge](#)

## Hopes and Fears for AI

### **Abstract**

This paper categorises the fundamental hopes and fears that underpin narratives of artificial intelligence from Homer to the present day. Based on a survey of affective associations in fictional and nonfictional narratives, we argue that these hopes and fears can be structured into four dichotomies on the themes life, time, desire, and power. Each dichotomy comprises a hope and a parallel fear, which we describe as: immortality / inhumanity, ease / obsolescence, gratification / alienation, and dominance / uprising. We argue that the idea of control is crucial to whether the hope or fear predominates, and that understanding this dynamic is central to understanding public responses to AI systems. This is based on joint work with Kanta Dihal.



[Dr Sarah Dillon, University Lecturer in Literature and Film and co-PI 'AI Narratives' at CFI, University of Cambridge](#)

## What AI Researchers Read:

### The Role of Literature in Artificial Intelligence Research

### **Abstract**

This paper investigates the role that literature plays in artificial intelligence research through a qualitative interview study of 20 active AI researchers. The paper situates its interview study in the context of an emerging field of investigation into the influence of literature on science. It highlights the lack of research in the sociological study of science into the functioning of literature as an agency that transmits knowledge. The paper outlines and justifies the methodology of the study before moving on to present the findings and discussion. The findings evidence the influence AI researchers' leisure reading can have on career choice, research direction, community formation, social and ethical thinking, and science communication.



## Session 2: JAPAN AI Narratives

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### **Chair**

**Professor Toshie Takahashi, Faculty of Letters, Arts and Sciences, Waseda University**



### **Panelists**

**Professor Toshie Takahashi, Faculty of Letters, Arts and Sciences, Waseda University**

### **AI Narratives and Social impact of Robots**

#### **Abstract**

Arguably, we are seeing the dawn of “the fourth industrial revolution”. With the disruptive potential of new and emerging technologies such as Artificial Intelligence (AI) and robots comes both a slew of risks and opportunities, locally and globally. Technological developments in AI and robotics have been discussed in the context of a dichotomy between utopia and dystopia. European views tend to be dystopian, with fears such as unemployment and AI-driven inequality, while Japanese views tend to be utopian with hopes of social benefits in an aging society.

Western portrayals of the Japanese embrace of AI and robotics are influenced by a long history of techno-orientalism. But how are the Japanese different from westerners and why?

In my talk, I shall begin by briefly introducing the theoretical framework I developed for a deeper understanding of the social impact of AI and robots. I will then share some observations from my three ongoing projects. The first one is “Global AI Narratives” - within a Japanese context -, the second one is “Youth and AI” and the last one is “Robot Engagement.”

In terms of the Global AI Narratives project, AI imaginings in Japanese media texts could be summarized as follows:

In fiction such as novels, manga, animation, TV drama:

1. AI has been portrayed as robotic or humanoid, rather than as a computer programme.
2. AI is depicted much more positively, possessing the capacity for love and emotion and helping and co-existing with humans rather than being depicted as an enemy.

In non-fiction such as TV documentaries, newspapers, magazines and SNS:

3. AI has been introduced as a useful tool for business as well as of benefit for an aging society.

However recently, we can see AI has been portrayed as intellectually superior to humans, e.g., in the case of Alpha Go.

4. There are also negative discourses such as AI replacing humans in their jobs

The analysis of both media texts and their audiences are needed to understand AI narratives in Japan. Therefore we have conducted in-depth interviews and surveys with 354 young people aged between 15-29 to elicit their views on AI. These surveys showed that about 70% of young people have positive images of AI/robots. However, 60% of young people do not want AI/robots to be humanoid. Having both positive and negative imaginings, how do Japanese people actually engage with robots? To start to address this question, I will talk about my “Robot Engagement” project.

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AI and robots are truly global issues. Ethical guidelines on AI as well as strategies on AI and data-driven innovation are needed and heavily discussed both locally and globally. I hope the case of Japan could be helpful to consider “smart wisdom” in order to create a better AI society together.



**Mr Masayoshi Sakai, Visiting Research Fellow, GLOCOM (Center for Global Communications, International University of Japan)**

## **AI and Robots in Japanese Manga/Comics and Anime/Cartoons**

### **Abstract**

Manga and Animé have had a strong influence on Japanese society across all generations for decades. Robots and AI have appeared in manga and animé from the beginning and have been forming the imaginings of these technologies in the minds of Japanese people.

We can identify two main roles of Robots and AI in manga and animé. One is as a buddy to the main character, with superpowers and a sense of justice. In this role, they act just the same as humans do but sometimes do more than humans, for example, flying to the sky, breaking a rock and so on. The other role is as a half-autonomous big robot that the main character controls. Japanese

people tend to humanize AI and robots naturally even if they are so big that no one can recognize them as humanlike.

It is difficult to reconcile the idea of AI as human or a human equal with the sense that they are accessories for humans, since they are designed by them. There can be two approaches to solving this, either to prohibit the design of robots that fully resemble humans, or to approve 'robot rights' equivalent to 'human rights' socially. Japanese manga and animé prefer the latter and the world where humans and robots can somehow equally coexist.

Therefore, Japanese manga and animé tend to illustrate robots and AI with similar flaws and imperfections to humans. A perfect AI often is an object of fear even if they are apparently useful for human beings. This might suggest that we should prohibit the development of a perfect AI with unlimited authority but instead embrace a model of designing AI and robots that are more similar to humans with limited capabilities and authority.



**Professor Osamu Sakura, the Interfaculty Initiative in Information Studies, University of Tokyo, and RIKEN Center for Advanced Intelligence Project (AIP)**

## **Toward Cultural Studies of AI/Robots**

### **Abstract**

It has recently been rather commonly said that artificial

intelligence (AI) and robots will defeat, dominate and even exterminate human beings in the near future. We can detect at the base of such discourse about artifacts the following specific frameworks: a perspective that treats humans and machines as opposites, a view of mechanics in which machines are expected to run automatically and efficiently, regarding human beings as special creatures different from other beasts.

The process of human evolution has always involved interaction with various artifacts such as making stone tools, dressing in clothes, building houses, plowing and hoeing the land, and building rafts and boats for transportation. The oldest tool use by humankind can be traced back to 3.3 million years ago. Artifacts are an inevitable part of human life, and human beings are partners to artifacts. AI/robots are still put into the same category with those artifacts. I believe that the argument becomes biased when we place artifacts and human beings in binary opposition and only consider which would be dominant over the other.

Instead, we should treat humans and machines as an inseparable, single system, and then analyze the characteristics and potential of this system. I believe this is a more productive and constructive way to consider the relationship between AI/robots and human beings in the near future. To establish such perspective, the Eastern view of nature is helpful, in which humans are regarded as parts of nature rather than emphasizing a human/nature dichotomy.



**Dr Kentaro Watanabe, Planning Officer, Research Planning Office for Artificial Intelligence, Department of Information Technology and Human Factors, National Institute of Advanced Industrial Science and Technology (AIST)**

## **How should we design AI for society?**

### **Abstract**

AI is a general-purpose technology that is no longer only for research institutes and digital high-tech companies, but for all industries and parts of society. Modularized AI software/hardware, computer resources, practical skills and use cases have already become available through the Internet and other sources at a small cost. To address potential threats caused by AI, a number of ethical principles and guidelines about the development and application of AI have been discussed and proposed by governments, international organizations and research institutes. The basic condition to try out AI for various kinds of businesses and social challenges is gradually being set up. However, this still requires a lot of studies on how to design and develop AI for industry and society. While the research on AI engineering is anticipated to realize a more efficient and formal AI development process, I would like to shed light on how to design, develop and implement AI in way that is valuable for stakeholders in different socio-economic and cultural contexts. This requires us to shift our focus from AI itself to humans, their activities and value. I introduce a new concept: “technology-assisted service system.” In this concept, the role of technology including AI is placed in the value creation processes among stakeholders. The AI design and development process based on this concept will incorporate analysis and redesign of the service system in which AI is used. As an example of the research being done on the technology-assisted service system, I will introduce a Japanese-Finnish international collaborative project called Meaningful Technology for Seniors (METESE). In this project, a comparative study on the Japanese and Finnish service systems for elderly care was conducted with the goal of better integration of assistive technologies.

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Based on experience from this project, I would like to discuss the necessity of an international study on AI design methodology in different societies.



## Session 3: KOREA AI Narratives

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### **Chair**

**Professor Kyung Sin Park, Korea University Law School, Director, Open Net Korea**



### **Panelists**

**Professor Kyung Sin Park, Korea University Law School, Director, Open Net Korea**

### **Ethical Issues Arising From of AI**

### **Abstract**

The emergence of AI profoundly affects digital rights. Much of our thinking about privacy and free expression is built on premises about what constitutes a human being. For example, having a paper "record" with private thoughts written on it is not deemed to invade anyone's privacy because paper is not a human being. Intermediary liability norms are justified by the argument that posting contents online should be subject to approval of other human beings. Hence the importance of the question of AI's humanity. What are the qualifications of humanness? Intelligence as a requirement suffers from its inability to explain our willingness to accept thoroughly unintelligent human behavior as human. Free will also fails because of our inability to understand our own freeness. What is clearly a necessary (as opposed to sufficient) condition of humanity may be survival

instinct, which other animals meet also. At that point, what becomes more important is whether we WANT to treat AI as a human being, that is program AI in a way that self-preservation becomes its singular goal against the scarcity of resources such as electric power and computer chips. A brief thought experiment supports the prediction that we will NOT treat or program in such a way. Although more detailed research is due on that issue, I postulate that AI's effects on the digital rights landscape will be rather limited for this reason.



**Professor Chihyoung Jeon, KAIST**

### **Will Robots Take Care of Us? Emerging Narratives of Robots in South Korea**

### **Abstract**

In this presentation, I examine recent technocultural experiments with robots in Korea, such as education programs, TV shows, international competitions, and government R&D plans, in which robots are imagined, anticipated, celebrated, and experimented with. I am interested in the emerging narratives of robots in a society burdened with an aging population and natural disasters. I choose two areas in which robots are being mobilized

to deal with imminent social issues: elderly care and disaster rescue. Both have become serious agenda topics in Korea, though these are not, of course, unique to Korea. Robots in Korea are considered relevant to these issues in a way that reveals anxieties from unequal socioeconomic conditions (for aging populations) as well as frustrations about the incapable state (in saving citizens' lives). I examine the conditions under which the use of robots is suggested, and even seems to make sense, in addressing impending issues in Korea. What makes using robots seem like a viable option? What are the narratives that support and precipitate the emergence of robots? I point out that robots in Korea contribute to the narrative of “technofuturistic escape”: a tendency to promote idealized scenarios of the future, in which all problems will have been solved by technosciences, while avoiding the socioeconomic realities and dysfunctional systems of today



**Professor So-Young Kim, Head of the Graduate School of Science & Technology Policy, KAIST**

**AI in South Korea R&D Policy Discourses**

**Abstract**

The South Korean government has significantly increased its funding for AI research since the widely televised AlphaGo match of March 2016. The number of government-funded R&D projects has since tripled, with the government formally announcing AI as one of

the nine National Strategic Projects (NSP). This research looks into the perception and promotion of AI in R&D policy discourses in South Korea with a focus on NSP development. Three key features of policy discourses on AI are identified through the analysis of various policy documents and events. First, the R&D policy discourse on AI in South Korea is heavily driven by economic and industrial needs as exemplified by AI technology being classified primarily as a “growth engine” rather than as enabling or promoting quality of life or happiness of citizens. Second, added to this utilitarian view, AI is frequently singled out (or even equated to) the Fourth Industrial Revolution (4IR) that is now driving numerous policy initiatives in virtually every area of government policy. In light of the growing concern that 4IR is being used as an excuse for a more growth-oriented strategy at a time of increasing inequality and injustice, this association is quite worrisome as it can limit the potential of AI for more inclusive growth and innovation. Finally, the ways in which the government promotes R&D in AI and related technologies are permeated with the catch-up mentality, in which technological levels are numerically measured against those of advanced countries so as to generate a feeling of urgency among policy agents and citizens alike. In short, despite the image of AI as a novel, innovative, emerging technology enabling social innovation, the South Korean government's promotion of R&D for AI relies heavily on the age-old strategy of catch-up to overcome technological laggard status.



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[Dr. Kyoungmi Oh, Seoul National University of Science and Technology](#)

## Why is the Default Setting of Alexa Female?

### **Abstract**

Apple's Siri, Amazon's Alexa, Samsung's Bixbi, Naver's Clova, and KT's Gini are well-known voice recognition AIs widely called "AI secretaries". These secretaries on-demand search, choose, and process data to provide the exact data necessary for resolving the problems and situations that users face. Notably, they are usually presented as female while the developers of AI are usually presented as male geniuses or nerds. Is this a coincidence or a natural manifestation of gender roles? I think that it is neither but is instead the result of deep-rooted practices of gender discrimination. I go on to explore the pathways through which history intersects with technology.



## Session 4: Interactive Exercise on Global AI Narratives

### “Cultural Differences between East and West about AI Imaginings”

#### Chair

**Dr Kanta Dihal, PI ‘Global AI Narratives’, CFI, University of Cambridge**

#### Group 1: What do young people think of AI in Japan?

This group discussed whether famous AI characters such as DORAEMON influenced young people’s thinking and understanding of AI. A view that emerged was that these characters are less influential on young people’s perceptions of AI than non-fiction media such as news and SNS. This is because they (DORAEMON) are perceived as characters. They are not AI or Robots, but more like Mickey Mouse.

In past work we conducted a survey among youth in Japan, exploring questions about how young people got information about AI. This showed that young people got most of their information from media such as the Internet, news media, and SNS.

The stereotype that DORAEMON is the most influential character on Japanese perceptions of AI could be viewed as a result of techno-Orientalism.



## Group2: Narratives of AI in Games

In the discussion group on AI in games, AI as a topic or motif in games was first discussed, such as whether AI is depicted as a friend or an enemy. Though an example of the companion robot in a game was introduced, no further concrete remark was given. However, it would be natural that games as a major media affect conceptions of AI.

Much of the discussion was about how AI is used in games. There were three roles. The first role is as an autonomous player. AI in this role can be seen in various types of games, including role playing, action, simulation and puzzle games. Especially in the recent evolution of board games, AI is impressive, from a weak opponent to kill time to an effective trainer even for professional game players. The second role is an adjuster. For recent online games, AI adjusts the game level for each player, which is essential to retain players' attention. Such AI is highlighted from the

business perspective also. The third role for AI is as a creator. Though this type of AI has not yet matured, it can be used to create maps in a game, for example.

The impact of games on real life was also discussed. Serious games were identified as having positive impacts. For example, some interactive games for the elderly and patients with disabilities are effective for maintaining or even improving physical and cognitive capabilities. AI is also available for assessing users' capabilities and customizing training programs accordingly. There are also negative aspects of games such as bullying behaviour and excessive real money trades of virtual items.



## Group3: Narratives of AI in News Media

We discussed how AI is treated in the media in the UK, Korea, and Japan.

We started by asking each participant what image most frequently appears alongside articles on AI.

In the UK, it is "Terminator," an immortal android who tries to conquer and annihilate human society with tremendously powerful technology.

In Japan, it is "Doraemon," a manga and TV anime character robot who came from the future to help Nobita, a 4th-grade boy. The Images in Korea are rather neutral, including images of brains or networks of lighted dots with lines connecting them.

So why the difference? The UK is among the leading countries in the development of AI, with prominent AI companies such as DeepMind. But people in the UK are not as aware of this fact as they are fearful of the technology as something that exploits their privacy and monetizes their data without their permission.

On the contrary, long-loved manga characters have contributed a lot to instill a positive image of AI in the Japanese public consciousness.

Alpha Go's victory over a top Korean Go player in 2016, left a big impression on Koreans that AI technology has come to be capable of carrying out a tremendous amount of computation that was previously thought to be impossible.

Are there factors in play other than literature, anime and movies? We focused on the government's attitudes toward AI as demonstrated by policymaking. The UK government seems to pay more attention to protecting individuals' privacy on the Internet, which nurtures more cautious attitudes among citizens than optimistic expectations. In Korea and Japan, governments are trying to promote AI technology as a growth engine for the economy, cajoling people to develop technologies domestically because they are lagging behind Europe, the U.S. and China. This results in more positive news reports on AI than negative ones and sometimes too many headlines containing the word "AI."

Especially in Korea, AI and Robotic technology are expected to help lessen the negative effects of an aging society, so these technologies appear frequently in news as well as on TV programs.



## Group4: Which Western narratives are popular in the East? And which Eastern narratives in the West?

The group began with agreement that the Western-Eastern difference is not the issue. What's far more serious is divided countries, that is, different opinions within countries. Education, class, and the strength of the connection with science and technology can create lateral transnational similarities which can elide more vertical differences within countries themselves.

Participants suggested that there is a very positive acceptance of AI in South Korea, whilst the sense was that Japan is closer to the Western narrative. The content of the discussion then diverged (and in some instances questioned) this original suggestion:

### 1. Cultural differences:

It was suggested that South Koreans have a stronger inclination to risk taking and tend to look to the future with optimism, whilst the Japanese are more hesitant, and tend to worry about things first. There is therefore more black and white thinking in South Korea, whilst the Japanese are more cautionary when thinking about AI and inclined to a less certain position: it may be partially good.

### 2. Legal situation:

Japan has adapted the data protection law to facilitate working with big data, whereas the data law changes in South Korea keep getting blocked. Korea has a narrative about data monopoly – that internet companies and

government agencies have access to too much personal data which is not good. This is a narrative coming from civil society organisations.

### 3. Source of AI Narratives:

South Korea's positive images of AI and robots are internally generated by the government's agenda. More cautionary narratives are taken from Western narratives e.g. the Terminator. These kinds of critical narratives are seen as external to South Korea's more techno-utopian outlook. Positive images are linked to the promotion of this.

### 4. Generational Differences

Younger people in South Korea are more worried about AI in terms of replacing their jobs. South Korea has a highly educated young population, but high unemployment. In Japan, the narratives also differ by age. Younger people who like to use AI for their benefit, are forward-looking, whereas older and more educated people are worried that AI is monopolised by the tech giants. Implicit anxiety still dominates here. Elder Japanese people do not use the internet widely and there is a perception that Japan is behind on the research front. There is no word for 'AI' in the lexicon of the older generation. 'Electric brain' is a phrase that is instead used - for the elderly this phrase evokes the idea that the computer controls everything, which leads to fear. One interesting suggestion was in relation to the Japanese idea of Okami – which would translate as 'great upper existence' – and a fear of what might happen if Okami were to be dominated by AI.



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## Closing Remarks

**Professor Hironori Kasahara, Waseda University, IEEE Computer Society 2018 President**



I am Hironori Kasahara, IEEE Computer Society President 2018 and a professor at the Department of Computer Science and Engineering at Waseda University.

First of all, I would like to thank Professor Toshie Takahashi for organizing this wonderful event “Global AI Narratives Tokyo” and all participants including distinguished international researchers from the United Kingdom and Korea.

There are many different feelings for robots and AI that vary by country. In Japan, robots and AI live together as friends, with AI thought of as helpful to humans, like the famous “Manga” and “Animation” Astro-Boy and Doraemon.

Manga Astro-Boy, or in Japanese ATOM, was created in 1952. In the story, ATOM was created instead of a son of Dr. Temma, who was killed in a car accident,

on April 7 in 2003 in Takadanobaba, the home town of Waseda University.

ATOM was a robot with AI as well as human emotion, an atomic energy generator, and a jet engine for flying. However, Dr. Temma sold ATOM to the Circus since ATOM’s body did not grow like a human boy. Dr. Ochanomizu helped ATOM and created his family : parents, elder brother and younger sister. ATOM always helped human beings and sometimes fought against evil robots. In the original story, he died to help human beings. So, every robot hero in Japan obeys laws of Robotics like Asimov’s Laws.

At Waseda University, Prof. Ichiro Kato started development of WABOT-1, a human like robot with two arms, two legs and a man-machine conversation system in 1970. Since then, there have been many humanoid robot developments, like Musician Robot, or WABOT-2, that played Electron, or keyboards for hands and legs, with Orchestra in Tsukuba Expo. 1985. It could read a musical score autonomously and communicate with humans by voice. TWENDY-ONE, an elderly care robot by Prof. Shigeki Sugano, a president of SICE; Flute and Clarinet Playing robots and two - legged walking robots by Prof. Atsuo Takanish, a president of Japan Robotics Society, and many more. All the robots in Waseda University have been safe for humans and obeyed the laws of robotics. If you can find time to visit Waseda University robotics research teams, it will be very interesting. Please enjoy the robots at Waseda University.

Thank you very much again for participating in this event and for the interesting discussions.

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## Speakers and Participants

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## Speakers

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**Chair & Local Organiser**  
**Professor Toshie takahashi**  
**Professor, Waseda University**

Toshie Takahashi is Professor in the School of Culture, Media and Society, Waseda University, Tokyo and has held visiting appointments at the University of Oxford, Harvard's Berkman Klein Center for Internet and Society as well as the Leverhulme Centre for the Future of Intelligence, the University of Cambridge, and Columbia University. She conducts cross-cultural and trans-disciplinary research on the social impact of robots as well as the potential of AI for Social Good. Her latest book, entitled "Towards the age of Digital Wisdom" (2016, Shinnyosha, in Japanese) is based on the collaborative project on "Young People and Digital Media" with the University of Oxford and Harvard's Berkman Klein Center won the first prize for the Telecommunication social science award. Finally, Takahashi sits on the technology advisory committee of The Tokyo Organising Committee of the Olympic and Paralympic Games 2020.



**Dr. Stephen Cave**  
**Executive Director, CFI, University of Cambridge**

Dr Stephen Cave is Executive Director of the Leverhulme Centre for the Future of Intelligence, Senior Research Associate in the Faculty of Philosophy, and Fellow of Hughes Hall, all at the University of Cambridge. Stephen earned a PhD in philosophy from Cambridge, then joined the British Foreign Office, where he served as a policy advisor and diplomat. He has subsequently written and spoken on a wide range of philosophical and scientific subjects, including in the New York Times, The Atlantic, and on television and radio around the world. His research interests currently focus on the nature, portrayal and governance of AI. He is co-editor of the forthcoming collection AI Narratives: A History of Imaginative Thinking About Intelligent Machines and is currently working with Dr Kanta Dihal on the monograph AI: A Mythology.

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**Professor Emeritus Shinji Hashimoto**  
Vice president, Waseda University

Shuji Hashimoto is the Senior Executive Vice President for Academic Affairs & Provost, Waseda University. He graduated from the Department of Applied Physics, School of Science and Engineering, Waseda University in 1970. He continued his studies at the Graduate School of Science and Engineering at Waseda University, and earned his Ph.D. in 1977 (Doctor of Engineering). After working as an assistant professor at the School of Science and Engineering, Waseda University, he assumed his position as a professor at the School of Science and Engineering, Waseda University in 1993, and then as a professor of the current Faculty of Science and Engineering in September 2004. Among other positions, he was the Senior Dean of the Faculty of Science and Engineering from September 2006 to September 2010. He assumed his current post in November 2010. He is an expert in instrumentation and information engineering, the application of stochastic processes, image processing, robotics and artificial intelligence.



**Dr Kanta Dihal**  
PI 'Global AI Narratives' CFI, University of Cambridge

Dr Kanta Dihal is a Postdoctoral research associate and PI 'Global AI Narratives' Project at the Leverhulme Centre for the Future of Intelligence, University of Cambridge. As a researcher on the AI Narratives project she explores how fictional and nonfictional stories shape the development and public understanding of artificial intelligence. Kanta's work intersects the fields of science communication, literature and science, and science fiction. She obtained her DPhil in science communication at the University of Oxford: in her thesis, titled 'The Stories of Quantum Physics,' she investigated the communication of conflicting interpretations of quantum physics to adults and children. She is co-editor of the forthcoming collection *AI Narratives: A History of Imaginative Thinking About Intelligent Machines* and is currently working with Dr Stephen Cave on the monograph *AI: A Mythology*.

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**Dr Sarah Dillon**  
**University Lecturer in Literature and Film and co-PI**  
**'AI Narratives' at CFI, University of Cambridge**

Dr Sarah Dillon is Director of the AI: Narratives and Justice Programme at the Leverhulme Centre for the Future of Intelligence, co-PI of the AI Narratives project and co-I of the Global AI Narratives project. She is also a University Lecturer in Literature and Film in the Faculty of English at the University of Cambridge. Dr Dillon is a scholar of contemporary literature, film and philosophy, with a research focus on the epistemological function and role of fictional narratives, and on the public humanities. She is author of *The Palimpsest: Literature, Criticism, Theory* (2007) and *Deconstruction, Feminism, Film* (2018), and editor of *David Mitchell: Critical Essays* (2011) and *Maggie Gee: Critical Essays* (2015). Forthcoming books include *AI Narratives: A History of Imaginative Thinking about Intelligent Machines* (co-edited with Stephen Cave and Kanta Dihal) and *Listen: Taking Stories Seriously* (co-authored with Claire Craig).



**Professor Hironori Kasahara**  
**Waseda University, IEEE Computer Society 2018 President**

Hironori Kasahara is an IEEE Computer Society President 2018 and a professor in the Department of Computer Science and Engineering at Waseda University. He is an IEEE Fellow, an IPSJ Fellow, a professional member of the IEEE Eta Kappa Nu, a member of the Engineering Academy of Japan and the Science Council of Japan. He received a PhD in 1985 from Waseda University, Tokyo, joined its faculty in 1986, and has been a professor of computer science since 1997 and a director of the Advanced Multicore Research Institute since 2004. He was a visiting scholar at University of California, Berkeley, and the University of Illinois at Urbana-Champaign's Center for Supercomputing R&D. Kasahara received the CS Golden Core Member Award, IFAC World Congress Young Author Prize, Sakai Special Research Award, and the Japanese Minister's Science and Technology Prize. He led Japanese national projects on parallelizing compilers and multicores, and has presented 216 papers, 161 invited talks, and 43 international patents. His research has appeared in 569 newspaper and Web articles.

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**Mr Masayoshi Sakai**  
visiting research fellow,  
**GLOCOM(Center for Global Communications,  
International University of Japan)**

Masayoshi Sasaki is a specialist on the information industry and entertainment industry in the Ministry of Economy, Trade and Industry (METI) of Japan, which he joined just after graduating from the University of Tokyo (B.A in Law). Before joining IPA, he worked as the general-manager of the Tokyo International Film Festival, a visiting associate professor at Waseda University, and a senior analyst for global strategy (information industry) in METI. He was responsible for concept design of Japan's participation as a Partner Country for CeBIT2017 in Germany, where Japan's PM Shinzo ABE revealed the "Society 5.0" concept.



**Professor Osamu Sakura**  
the Interfaculty Initiative in Information Studies, University of Tokyo  
**AIP-RIKEN**

Dr. Osamu Sakura is Professor of Interfaculty Initiative in Information Studies, the University of Tokyo and PI of Research Project for Science, Technology and Society, RIKEN Center for Advanced Intelligence Project (AIP), Japan. His research centers on the general and theoretical aspects of science communication. His main interests are neuroethics, historical comparison of evolutionary theory, and cultural aspects of AI and robotics. He has also been engaged in the relation between experts and local people in the Fukushima disaster area. He taught in Yokohama National University (1993-2000) and worked as visiting scholar on the University of Freiburg (1995-96) before moving to his current position. He has published hundreds of journal papers and several books. Osamu Sakura Interfaculty Initiative in Information Studies, The University of Tokyo, 3-7-1 Hongo, Bunkyo-ku, Tokyo, 113-0033, [Japansakura@iii.u-tokyo.ac.jp](mailto:Japansakura@iii.u-tokyo.ac.jp)



**Dr Kentaro Watanabe**  
**Planning Officer, Research Planning Office for Artificial Intelligence, Department of Information Technology and Human Factors, National Institute of Advanced Industrial Science and Technology (AIST)**

Dr. Kentaro Watanabe is a planning officer, Research Planning Office for AI, Department of Information Technology and Human Factors, National Institute of Advanced Industrial Science and Technology (AIST), Japan. He received M. Eng. at the University of Tokyo (2005), and Ph.D (Eng.) at Tokyo Metropolitan University (2012) after experience in technology and business development in industry. His research interest is in engineering design, service design, service engineering and other related topics on design / service research. Since he joined AIST (2012), he has been studying a design methodology for technology-assisted service system, in which multiple stakeholders co-create value with support of technology including ICT, robotics and AI. He has led or joined a number of research projects, especially on care work and assistive technology. He was also a visiting researcher at VTT Technical Research Centre of Finland Ltd (2016-2017). He is currently working for research planning on AI and international collaboration.



**Professor Kyung Sin Park**  
**Korea University Law School, Director, Open Net Korea**

Professor, Korea University Law School. Co-founder of [www.opennetkorea.org](http://www.opennetkorea.org). Served as Commissioner at Korean Communication Standards Commission, a Presidentially appointed Internet content regulation body (2011-2014). Served as Member of the National Media Commission, a Parliament-appointed advisory body on newspaper-broadcasting co-ownership bans and other media and Internet regulations (2010). Served as International Relations Counsel to the Korea Film Council and arranged the Korea-France Film Co-production Treaty, and advised on the UNESCO Cultural Diversity Convention (2002-2007). Has served both as Executive Director, PSPD Law Center (2008-), and Open Net Korea (2013-) which have pursued and won several high profile impact litigation and legislative advocacies in freedom of speech, privacy, net neutrality, web accessibility, digital innovation, and intellectual property. Founded Korea University Law Review and the Law Schools' Clinical Legal Education Center and founded [www.internetlawclinic.org](http://www.internetlawclinic.org) and [www.transparency.kr](http://www.transparency.kr) under that Center.

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**Professor Chihyoung Jeon**  
KAIST

Chihyoung Jeon teaches STS (Science, Technology, and Society) at the Graduate School of Science and Technology Policy at KAIST (Korea Advanced Institute of Science and Technology). He is involved in the emotion-based AI digital companion research project, funded by the Ministry of Science and ICT in Korea, and is serving as a chair for the ethics subcommittee at the KAIST Institute for AI. He is also a group leader at the Center for Anthropocene Studies, which was recently launched at KAIST with funding from Korea Research Foundation to examine emerging scientific and social concerns in the "human epoch," ranging from climate change to artificial intelligence. Jeon's research focuses on the shifting relationship between humans and technologies with case studies in Korea such as AI with political values and robots for elderly education.



**Professor So-Young Kim**  
Head of the Graduate School of Science & Technology Policy, KAIST

So Young Kim is the Head of the Graduate School of Science & Technology Policy at KAIST. Her research deals with high-stakes issues at the interface of S&T and public policy such as R&D funding and evaluation, basic science policy, science workforce, science-based ODA, and governance of emerging technologies. She is the editorial member for the East Asian Science, Technology, and Society and a program committee member of the biennial Atlanta Conference on Science and Innovation. Kim has also served numerous governmental committees including the National S&T Vision Committee, the National R&D Evaluation Review Committee under the Ministry of Science and ICT, She is currently chairing the Long-term Policy Planning Committee of the Korea Federation of Women's S&T Associations and co-chairing the Fourth Industrial Revolution Net of the Korea Federation of S&T Association. She sits on the World Economic Forum's Global Future Council and on the Expert Panel for the Public Understanding of Risk Institute of the National University of Singapore.

## **Dr Kyoungmi Oh**

Kyoungmi Oh holds a Ph.D in Digital Cultural Studies from the Graduate School of Public Policy and Information Technology at Seoul National University of Science of Technology and has studied and spoken on techno-feminism. Has jointly published Hyundai gisool midiuh choelhakui galaedeul, translatable into Contemporary Philosophies of Technology and Media, published by Greenbee, 2016.

## Participants

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**Jaan Tallin**

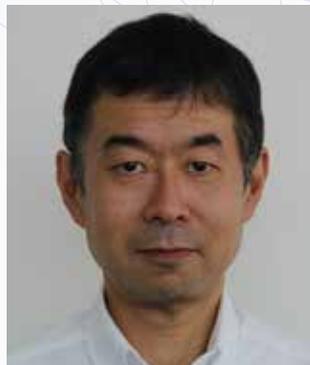
**Founding engineer of skype and Kazaa as well as a co-founder of the Cambridge Centre for the Study of Existential Risk and the Future of Life Institute**

Jaan Tallinn is a founding engineer of Skype and Kazaa. He is a co-founder of the Cambridge Centre for the Study of Existential Risk, Future of Life Institute, and philanthropically supports other existential risk research organisations. Jaan is on the Board of Sponsors of the Bulletin of the Atomic Scientists, member of the High-Level Expert Group on AI at the European Commission, and has served on the Estonian President's Academic Advisory Board. He is also an active angel investor, a partner at Ambient Sound Investments, and a former investor in and director of the AI company DeepMind.



**Dr. Tohru Asami**

*Tohru Asami* received B.E. degree and M.E. degree in electrical engineering from Kyoto University in 1974 and 1976 respectively, and Ph.D. from University of Tokyo in 2005. In 1976, he joined KDD (KDDI). Since that time, he has been working in several research areas such as UNIX-based data communication systems, network management systems (especially expert systems for transmission line faults), etc. After C.E.O. of KDDI R&D Labs. Inc., in 2006, he moved to The University of Tokyo as a professor of Dept. of Information and Communication Engineering, Graduate School of Information Science and Technology. Since 2017, he has been President of Advanced Telecommunications Research Institute International, Japan. He is a member of the IEEE and IEICE (The Institute of Electronics, Information and Communication Engineers, Japan). From 2003 to 2005, he was a vice chairman of the board of directors of Information System Society in IEICE (IEICE-ISS).



**Tomoyoshi Inoue**  
**Director-General of Institute for Information and Communications**  
**Policy at the Ministry of Internal Affairs and Communications (MIC)**

Mr. Tomoyoshi INOUE is Director-General of Institute for Information and Communications Policy at the Ministry of Internal Affairs and Communications (MIC), presiding over “the Conference toward AI Network Society.” He joined the Ministry of Posts and Telecommunications in 1989 (reorganized into MIC in 2001). After serving various positions including Director of Economic Research Office, Director of Regional Information Policy Office, Counsellor of the Cabinet Secretariat, and Principal Economist of the Japan Center for Economic Research (JCER). He has served in his current position since 2018.



**Satoru Otake**  
**Senior Fellow of JST**

Satoru OHTAKE joined the science and technology administration in the Government of Japan in 1984, just after graduating the Graduate School of the University of Tokyo where he was conferred Master Degree of Science in high energy physics. In his public service career in science administration, he engaged in policy planning and R&D management; establishment of the Government’s Science and Technology Basic Plans (in 1996, 2001 and 2011), establishing and running research programs and projects in photonics, mathematical science; engaging International Human Frontier Science Program in the HFSP Organization in Strasbourg in France between 1990 and 1992. He has worked in international collaborations, both bilateral and multilateral programs like Global Science Forum of OECD, Future Earth, Group of Earth Observation (GEO) and Global Earth Observation System of Systems (GEOSS). In Japan Science and Technology Agency (JST), he is in charge of management of international affairs, science and technology information exchange and dissemination, and science communication programs, in addition to overall management of JST as a deputy to the president from 2013. In recent years he is working for with United Nations Sustainable Development Goals and emerging technology. He also works as a visiting professor of Policy Alternative Research Institute of the University of Tokyo.



**Yasuo Kawakami**  
Faculty of Sport Sciences, Waseda university

Yasuo Kawakami received Bachelor of Education, Master of Science, and Ph.D. from the University of Tokyo (1989-1995). Following his career as an assistant and associate professor at the University of Tokyo, he is presently a professor of the Faculty of Sport Sciences, Waseda University. His expertise is in biomechanics and exercise physiology with the main research interest in the area of muscle mechanics, particularly on the *in vivo* skeletal muscle behavior during various human movements. Effects of exercise training, growth, aging, and fatigue on the human musculoskeletal system are also in the scope of his research. He has been a member of the societies and organizations including Japanese Society of Biomechanics, Japanese Society of Physical Fitness and Sports Medicine, the Japanese Society of Bone and Muscle Ultrasound, and Science Council of Japan. He is a director of Human Performance Laboratory, Organization for University Research Initiatives, Waseda University.



**Tadahiro Kawada**  
President of Kawada Industries, Inc.

Tadahiro Kawada is the fourth generation President of Kawada Industries, Inc., Japan's leading manufacturer and constructor of large-scale civil engineering and architectural steel structures. The company has supplied steel structures for the largest suspension bridges in Japan as well as iconic high-rise buildings and dome stadiums. As President of Kawada Technologies, Inc., parent company to all Kawada Group companies, Tadahiro oversees multiple businesses including construction, ICT, aviation, environmental, and robotics. Passionate about innovative technologies and with degrees in mechanical and aerospace engineering, Tadahiro led the research and development of humanoid robots at Kawada, collaborating with the University of Tokyo and Japanese government agencies. From the year 2000, the company has developed over 10 variations of biped humanoid robots. Kawada's newest robotics product, NEXTAGE, is an industrial-use collaborative robot (cobot) that empowers manufacturing companies by facilitating factory innovation and labor efficiencies.



**Yoichi Kanda**  
**Waseda University, Centre for Research Strategy(CRS)**

M. Eng. in Electrical Engineering, Waseda University, joined the Ministry Posts and Telecommunications (1992), The Ministry of International Trade and Industry (1995), Washington DC Office of the National Institute of Information and Communications Technology (2005) , IT Policy Office of the Cabinet Secretariat (2009), worked for Director of International Frequency Policy Office of the Ministry of Internal Affairs and Communications(2016), Professor CRS of Waseda University(2017-)



**Jiro Kokuryo**  
**Professor of Keio University, Permanent Director of Keio University**

Professor Jiro Kokuryo, Vice-President of Keio University, is concurrently a professor at the Faculty of Policy Management. He joined Keio in 1993 as an associate professor at the Graduate School of Business Administration, where he was appointed professor in 2000. He served as Executive Director of the Keio Research Institute at SFC (2005-2009) and Dean of the Faculty of Policy Management (2009-2013), before being appointed Vice-President for International Collaboration and Education in 2013.

Vice-President Kokuryo graduated from the University of Tokyo in 1982 and acquired a Doctor of Business Administration (1992) from Harvard Business School while an employee of Nippon Telegraph and Telephone Corporation (1982-1993). His major publications in Japanese include "Open Architecture Strategy," Diamond Inc. (1999), and "Business Strategy in an Onymous Economy," Nikkei Publishing Inc. (2013).



**Tomohiro Shibata**  
**Professor at Kyushu Institute of Technology**

Professor of Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology. He received Ph.D from the University of Tokyo, Japan in 1996, continued his robotics study as a JSPS researcher, and then worked on computational neuroscience research at ATR as a JST researcher. After working as an associate professor at Nara Institute of Science and Technology, he currently works as a professor at Kyushu Institute of Technology, Kitakyushu, Japan. He is a member of working group for the national strategic special zone in Kitakyushu focusing on nursing-care robots. He was an editorial board member of Neural Networks and an executive board member of the Robotics Society of Japan (RSJ). He is an executive board member of Japanese Neural Network Society, a committee member of RSJ for international affairs, and a governing council member of The Robotics Society (former Robotics Society of India).



**Takanori Shibata**  
**Chief Senior Research Scientist, National Institute of  
Advanced Industrial Science and Technology (AIST), Japan**

Dr. Takanori Shibata has been Chief Senior Research Scientist at AIST since 2013. His research interests include human-robot interaction, robot therapy, mental health for astronauts in long-term mission (e.g. to Mars), and humanitarian demining. He was certified as the inventor of a seal robot named PARO, the World's Most Therapeutic Robot, by Guinness World Records in 2002. He has received many awards including the Robot of the Year by Ministry of Economy, Trade and Industry, Japan in 2006, The Outstanding Young Person (TOYP) of the World by Junior Chamber International (JCI) in 2004, and the Japanese Prime Minister's Award in 2003. In 2015, PARO was awarded the "Patient Trophy" as innovation of non-pharmacological therapy for dementia by the Assistance Publique - Hôpitaux de Paris, France, that is one of the largest medical groups in the World. In 2017, PARO was awarded the "Best of the Best" by the Argentum in the U.S. Dr. Shibata born in 1967 and received B.S., M.S. and Ph.D. in Electronic and Mechanical Engineering from Nagoya University in 1989, 1991 and 1992, respectively. He was a research scientist at AIST from 1993 to 1998. Concurrently, he was a visiting research scientist at the Artificial Intelligence Lab at MIT from 1995 to 1998, and a visiting research scientist at the Artificial Intelligence Lab at the University of Zurich in 1996. At the AIST, Dr. Shibata was a senior research scientist from 1998 to 2013. Concurrently, he was the Deputy Director for Information and Communication Technology Policy, Bureau of Science, Technology, and Innovation Policy, Cabinet Office, Government of Japan in 2009 and 2010.



**Yoshiyuki Shirakawa**  
**Waseda University, Centre for Research Strategy(CRS)**

M.Eng. in Electric/Electronic Engineering, Tokyo Institute of Technology (1980), worked for Nippon Steel Corp. (1980-1996), studied in Harwell Laboratory, Oxford, UK (1985-1987), earned PhD. in Engineering (1993), joined Fukui University (1996-1988), transferred to National Institute of Radiological Sciences (1998-2015), Director of Technical Development (2010-2015), joined Kobe University as Professor (2015), Professor, CRS Waseda (2015- ).



**Nobuhiro Takeuchi**  
**Audit & Supervisory Board Member**  
**NTT Communications Corporation**

Apr. 1978	Joined Ministry of Posts and Telecommunications	Jul. 2007	Director General, Telecommunications Business Department, Telecommunications Bureau
Jan. 2003	Director, Telecommunications Policy Division, Telecommunications Business Department, Telecommunications Bureau, Ministry of Internal Affairs and Communications	Jul. 2009	Director General, Kanto Telecommunications Bureau
Oct. 2003	Concurrently Director, General Affairs Division, Telecommunications Bureau	Jul. 2010	Director, Management Organization for Postal Savings and Postal Life Insurance (seconded as an officer)
Jan. 2004	Director, General Affairs Division, Telecommunications Bureau	Nov. 2013	Retired from Ministry of Internal Affairs and Communications
Apr. 2005	Concurrently Director, International Policy Division, International Department, Telecommunications Bureau	Jan. 2014	Joined NEC Corporation Full-time Advisor
Aug. 2005	Director, Policy Planning Division, Minister's Secretariat	Jun. 2015	Joined NTT Communications Corporation Audit & Supervisory Board Member (to present)
Jul. 2006	Director General, Kinki Telecommunications Bureau		



**Shintaro Matsumoto**

1996 Ministry of International Trade and Industry  
2014 Director, Reconstruction Agency  
2015 Director-General, New Energy Technology Department  
New Energy and Industrial Technology Development Organization

2017 Director, Industrial Science and Technology Project Promotion Office,  
Research and Development Division,  
Industrial Science and Technology Policy and Environment Bureau,  
Ministry of Economy, Trade and Industry



**Taizo Yoshikawa**  
**Honda R&D Co., Ltd. Center X**

I joined Honda R&D Co., Ltd. fundamental research center in 1997 and had been working for humanoid robot project. I worked not only for fundamental research of robotics but also development of Honda ASIMO robot. In 2000, I started up a collaborative project with Stanford AI laboratory, manipulation group Professor Oussama Khatib's laboratory and executed the project until 2013. From 2000 to 2010, I belonged to Stanford CS as a visiting scholar. From 2005 to 2010, I was transferred Honda Research Institute USA to execute Stanford project at Silicon Valley. From 2010, I belong to Stanford ME to study more and execute the Stanford project remotely in Japan. Through the project, most advanced technologies, which enable the robot to coexist with humans, were created. In 2015, I joined human motion assist robotics project. I am operating not only human dynamics project but also human motion analysis and machine learning project.

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**Noriyuki Yoshida**

**A science journalist and editorial writer at The Yomiuri Shimbun, a Japanese daily.**

He joined The Yomiuri Shimbun in 1991 and covers mainly basic science, nano technology, robotics, ICT, environment and science policies.

**Miwa Araki**

Japan Broadcasting Corporation Radio Centre NHK journal

**Fumiko Tanaka**

Organization for University Research Initiatives

**Takashi Maruyama**

Department of Neurosurgery, Tokyo Women's Medical University

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Global AI Narratives Tokyo is organised by the Leverhulme Centre for the Future of Intelligence in Cambridge, University of Cambridge, and Research Institute for Letters, Arts and Sciences at Waseda University in collaboration with The Japanese Society for Artificial Intelligence and The Robotics Society of Japan.

## Local Organiser

Professor Toshie Takahashi,  
& Her Research Student Team

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