An Interdisciplinary Approach to Human-Technology Interactions

Abstract Edit Abstract
The development of IT brings significant changes in the interaction between technology and humans at various levels. Traditionally, such relationships were discussed between humans and tools, or humans and machines, usually with the concept of skills and tacit knowledge. But now AI changes the situation dramatically. Not only the concrete relationship, but also the fundamental concepts such as body, others, perception, and actions suffer alteration. These changes also have cultural and social dependencies. For instance, by the development of social robots, robots become more autonomous and interactive, and they are experienced more and more as "others" or "quasi-others." This would bring a change in the notion of "others," but in fact, cultural factors also significantly influence this attachment to non-humans: the interaction between human beings to robots may differ by culture. And, the BCI, for example, connects the human brain to various cyber networks, which may extend our body and my mind, and blur the boundary between the human body and the environment. But the image of this cyberspace is often mediated by animation film. The same sort of thing is applied to perceptions and actions. They are replaced or rewritten by AI, but this change is also closely related to culture and society.
In this panel, we will consider the interaction between technology and humans from robotics, psychology, phenomenology, and social theory, focusing on AI and robots and the change brought about by them.

Title1　(Paper Abstract)
Ghost in Cyber Networks: The Problem of Agency and Boundary of Man-Technology Network.
(Presenter) Tetsuya Kono,　Rikkyo University
Abstract
In Ghost in the Shell, a Japanese cyberpunk science fiction animation, computer technology has advanced to the point that it allows people to interface their biological brain with various cyber networks. The main character in Ghost in the Shell, Major Kusanagi, is a cyborg with a fully prosthetic body, in which her cyberbrain is contained. This is a future image of the human body that the extended mind thesis (EM) suggests. EM has become a prevailing view in the field of the philosophy of mind and cognitive science, a view that claims that the mind is not simply ensconced inside the head, but extends to the whole system of brain-body-environment. Our psychological functions are based on larger systems extending outside the skull and skin. We can outsource some parts of our mind. If my mind is extended and incorporated into cyber networks would that change the nature of consciousness? If EM theory were to be true, the boundary between the concept of self and other would be fundamentally ambiguous and open to our surroundings. Can Major Kusanagi have a boundary between the inside/outside and myself/other's self? I shall discuss two problems regarding EM:one problem concerns how to demarcate the boundary of the agent(demarcation problem), and another is in what sense we are the owner of the mental

activities (ownership/ autonomy problem), especially those in the cyber space.

Title2 (Paper Abstract)
Invisibility and the Perceptive Gap between AI and Humans: Embodied Nature of Morality and its Limits
(Presenter) Takao Koga; Kobe University
Abstract

Invisibility has been one of the important philosophical issues in the 20th century, as seen in Heidegger's attempt of a"phenomenology of the invisible" or in Merleau-Ponty's The Visible and the Invisible. Although their attempts are no doubt extremely fruitful, their approaches focus a little too much on the "ontological"dimension of invisibility, i.e. the condition necessary for our existence and experience. Against this, the "ontic" dimension of invisibility needs to be emphasized. With the development of science and technology, it has become more and more difficult for us to ignore the influence of invisible things such as toxic environmental substances, viruses, genes, radioactivity, etc. Accordingly, how to deal with these invisible things has become a constant and urgent problem. One ultimate solution to this might be to leave a decision to AI; since it is only through technology that invisible entities are detected, its connecting of various sensory devices could lead to better decisions than humans make. Even though this may still be a futuristic assumption, thinking about this gap in perception between humans and AI gives us an insight into the embodied nature of our morality and its limits. In this light, I will explore the moral implication of invisibility in relation to technology and AI.

Title3 (Paper Abstract)
Tactics in Human-Technology Relations
(Presenter) Kiyotaka Naoe, Tohoku University
Abstract

Digital technologies are expanding our everyday life actions in every aspect. The key to this expansion is Human-Technology Relations. Formerly, in human-machine relations, machine is said to deskill human labors. But it is gradually known that knowledge and skill can be encapsulated in a machine. The instrument is "skilled" as the human job is "de-skilled." (cf. Baird 2004) So even in "simple labor," human-technology relation plays a crucial role, or human and non-human constitute a hybrid network. This relation has, however, at least two types: "the body-controlling, routine" type and" the problem finding" type. In the former case, the relation is stabilized, becomes "taken-for-granted," and actions can be done quickly and always in the same way, but in the latter case, the relation is flexible, actions can be ready to prepare for unforeseen or analogous situations with the help of skills such as idea, judgment, and awareness to perform. While the classical machine can encapsulate skills in the former case, AI is said to be able to realize the latter relations.
In this presentation, I will investigate the human-technology relations in the latter sense, and consider how to describe these relations. Is it possible to describe them from a first-person

perspective? If these relations are not to be reduced their cognitive functions but have cultural characters, how can we find tactics of actors in these relations? Through this consideration, we will discuss the limit of encapsulation by AI.

Title4 (Paper Abstract)
Why Skilled Workers are Still Needed in Mechanized Factories
(Presenter) Toshihiro SUZUKI; Sojo University

Abstract
Do we still need skilled workers in mechanized factories? In the Japanese tradition, these people are often called "shoku-nin" (artisans)and are often highly esteemed. To understand their expertise, I will refer to the analysis of Tetsuro Nakaoka (1928-), a Japanese historian and philosopher of technology. Nakaoka, as a historian of technology, focuses on the significant role of skilled workers in the development of modern Japanese industry and, as a philosopher of technology, gives a very unique description of the working practice of skilled workers in modern mechanized factories. According to him, skilled workers "talk to nature with their hands" and "see natural objects by operating machines" in factories. He claims that workers, like scientists and engineers, also try to "understand nature", and that two different ways of understanding nature, the understanding of skilled workers and engineers, function complementarily in mechanized factories. I will show some concrete examples of working practice in iron factories and illustrate how skilled workers "talk to nature with their hands". Then, I will analyze the roles of engineers and workers in these factories and explain the uniqueness of the Japanese industry. In conclusion, I will discuss the significance of skilled workers (artisans) even in factories with highly developed automation technologies (including AI and robotics).