President's Address at the 2017 Saitama University Entrance Ceremony

In this morning, in the campus of Saitama University, the cherry trees beautifully in bloom in pale pink coexist harmoniously with other trees sprouting out in soft green, as if they congratulate you. This is just "All in One Campus" and an embodiment of diversity.

Out of 607 new graduate students in total, the 87 of them are from 16 overseas countries. I would like to express a cordial welcome to all of you, as the SU President, on this pleasant spring day with a full of hope. And I do respect each of you for continuing study under your constrained condition. In addition, I sincerely express much respect to your families who have given support to you until today.

Three years have passed since I was appointed as the SU President, and I have read addresses several times at the Graduate School's entrance ceremonies and graduation ceremonies. According to the message from Professor Takaaki Kajita, the 2015 Nobel Physics Prize winner, the university is an entrance to the scholarly activity and the graduate school is a place of scholarly activity on the basis of research. From this viewpoint, I have stated the following three remarks on research in my addresses.

1. Research is a repetition of challenge and failure aiming for a higher state, and an act that you cannot do without passion.
2. Vigorous curiosity, strong desire, sharp observation and depthful insight of researcher are indispensable for causing serendipity, which means a lucky instance or experience that happened accidentally. The serendipity in research is not merely a fortune.
3. It is important for researchers to rethink about the meaning of their researches or "what are their researches for" through experiencing research activities, and to raise awareness of the issues on social involvement of researches.

Today, I try to consider this third remark a bit more concretely in relation to recent topics.

In this February, the Japanese Society for Artificial Intelligence published the ethical guideline on AI. While the prediction of its realization varies in time such as decades later or more than half a century later, the guideline is prepared in anticipation of the arrival of the times when "AI creates AI." Its uniqueness is that we ask AI itself to keep the ethics which researchers must have. After prescribing the ethics items for researchers such as the safety in development and use, provision of information and attention to users, prohibition of discrimination, respect for privacy, prevention of abuse, and talks with the society, the guideline requires that AI must be able to comply with the ethical guideline as with a researcher in order to become a social member. JSAI mentions that it is easy to image the figure of AI as a member of society, to Japanese who are familiar with Astroboy, and that it is favorable to deepen the discussion of what AI should be in the society.

As a matter of fact, an American science fiction writer, Isaac Asimov, has already created the three laws of robotics in his collection of short stories "I, Robot" published in 1950 (Spectra; Mti, 1991/11/1): 1) A robot may not injure a human being, or, through inaction, allow a human being to come to harm. 2) A robot must obey the orders given it by human

beings except where such orders would conflict with the First Law. 3) A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

What has been considered as a science fiction for nearly 70 years is now becoming a reality. The Institute of Electrical and Electronic Engineers (IEEE) also published a document on the examination of ethical issues last December. The main part of its executive summary is as follows. "We need to make sure that the technologies of AI are aligned to humans in terms of our moral values and ethical principles. AI has to behave in a way that is beneficial to people beyond reaching functional goals and addressing technical problems. By aligning the creation of AI with the values of its users and society we can prioritize the increase of human wellbeing as our metric for progress. "
(http://standards.ieee.org/news/2016/ethically_aligned_design.html)

The reason why the discussion on AI rapidly progresses as described above, is not only because the technological innovation is considerably advanced, but also because it is not known what will be changed and how it will change, which causes a vague anxiety to many people. If we thought about these issues in relation to "what is research for", we can easily understand the importance of consciousness of "connection with society" under various values and ethics during conducting research. Yes, one ultimate goal of research is likely to be "an increase of human wellbeing."

Another related topic is a discussion on military research. The Science Council of Japan resolved "Statement on military security research" on March 24 this year. The key points are as follows. Twice in 1950 and 1967, SCJ made public the statement: "Scientific research aiming at war is absolutely not done." In this background, there was concern about the reflection of the scientific community's war cooperation. We confirm here that the research on national security through military means is in tension with the academic freedom and the sound development of academia, and we inherit the above two statements. What the scientific community should pursue is the sound development of academia, and to respond to the mandate from society through it. With regard to the appropriateness of research, individual scientists as well as scientific communities must continue a serious debate with society. This issue again indicates the importance of thinking about "what is research for" in "connection with society".

I do want all of you to work furiously on your researches with out-of-the-box thinking by repeatedly challenging and failing to aim for higher states. The important thing is, however, that each of you sometimes considers “what is your research for” and reconsiders the meaning of your own research after experiencing certain research activities. Please keep looking at and thinking about things well, and do not miss the opportunity of your serendipity. I greatly expect your good research fight at Saitama University.

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