

President's Address at the 2019-Autumn Saitama University Entrance Ceremony

On this pleasant day with full of hope, I would like to express my warm congratulations on your admission. Welcome to Saitama University.

In addition to 642 graduate students enrolled in April this year, we have 66 newly admitted graduate students in this autumn, the 28 and 38 of which are master's and doctoral students, respectively. It should be mentioned that the autumn students are from 19 countries, namely Afghanistan, Australia, Bangladesh, Brazil, Cameroon, China, Egypt, Guinea-Bissau, India, Mongol, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, USA, Uzbekistan, Vietnam, and Japan. This is a distinctive entrance ceremony with full of diversity corresponding to the vision: "Saitama University All in One Campus at Metropolitan Area Saitama – Embodiment of Diversity, Synergy and Integration". I would like to express my deep respect for your continuing study at the Saitama University Graduate School under this diversity rich environment.

All the trees in the Saitama University campus have just started to be tinged with their own autumn color in harmony with each other, as if they also congratulate you. About 40 years ago, the fifth President of Saitama University, Prof. Shunzo Okamoto made a decision to plant many, various trees in this campus where there was nothing at the time. The trees have grown up resulted in the present, my favorite beautiful campus. This fact teaches us the importance of time axis as the passage of time and also great importance of time axis origin corresponding to the first action. I am sure that each of you has now visions of your new life and study at Saitama University with your fresh resolve. Please keep the visions in your mind and make a progress smoothly along the new time axis with its origin, which is today, September 25, 2019.

Now, let me talk about some topics related to the year 2019.

In 2019, Saitama University celebrates its 70th anniversary. At the time of its opening in 1949, there were only two faculties: Faculty of Humanities and Sciences based on the former Urawa High School, and Faculty of Education based on Saitama Teacher's School. Tracing the history of 70 years since then, the time axis of Saitama University, where a number of branch points are connected, has reached to the present with several twists and turns. Saitama University has grown into a middle-sized national university with 8,600 students, consisting of five undergraduate schools and three graduate schools in the academic fields of liberal arts, economics, education, science and engineering. There are as many as 86,622 graduates of Saitama University over the past 70 years, including many outstanding researchers in diverse fields of study such as the 2015 Nobel Prize winner, Dr. Takaaki Kajita in the astrophysics and the 2016 Person of Cultural Merit, Dr. Kazuhiko Komatsu in the *Yokai* (specter) culture.

Dr. Kajita met respected professors and encountered the discrepancy between the observed and calculated data, which led to the discovery of the neutrino mass resulted in winning the Nobel Prize. He tells the students, "The university is an entrance to the

scholarly activity, and the graduate school is a place of scholarly activity on the basis of research. Nobody knows the time when there is an important encounter that will determine one's life. Please open your eyes and mind widely to prepare for that time." On the other hand, Dr. Komatsu came across cultural anthropology while attending Saitama University, and his graduation study on spirit possession in the rural area led him to become a researcher. He says, "Even though the research is hard, it's a fun puzzle. If I hadn't come to Saitama University, I might not have been doing my current research. I want you to find a chance and open up your own way." What is common to both of two Saitama University alumni is the importance of encounter and the excitement of research beyond the academic fields.

In 2019, Japan changed the Japanese traditional era name from Heisei to Reiwa with the accession of the new Emperor. The Heisei era lasted 30 years and was a series of unexpected events. The representative ones are the Great Hanshin-Awaji Earthquake and the Great East Japan Earthquake with the tsunami and the serious nuclear accident. As a matter of fact, I met a respected professor at Saitama University, became a researcher specializing in the vibration phenomenon of bridges, and have been keenly aware of "unexpected" events many times. The first one is a video image of the Tacoma Bridge, which largely oscillated and finally collapsed by a wind of only 19 m/s in 1940. Until then, nobody could have imagined that a huge suspension bridge was broken by the wind, and it was totally unexpected. With this experience as a lesson, the design of bridges under wind conditions has evolved, and the world's longest, 4 km long Akashi Kaikyo Bridge, the design of which I was involved in, has been realized in Japan.

During the construction of the Akashi Kaikyo Bridge, on January 17, 1995, the Great Hanshin-Awaji Earthquake occurred. I still remember clearly that I was greatly shocked when I visited the disaster area for damage investigation. The engineers at that time had no choice but to explain that the earthquake was far beyond what was expected in the design, and I think that was the honest response. After that, the bridge design method was improved, such as setting the magnitude of earthquakes assumed in the design more appropriately, and seismic retrofitting works had been completed for existing bridges. At that time, the Great East Japan Earthquake occurred. It was March 11, 2011. There was almost no damage to the bridges due to the direct action of the earthquake, and it can be said that the lessons learned from the Great Hanshin-Awaji Earthquake had been utilized. However, disasters and nuclear accidents caused by the tsunami were unimaginable.

Although the term "unexpected" should not be used lightly, it is within the scope of assumption that an unexpected event will occur in the sense that we have to make some assumptions about the future, which cannot be predicted with certainty. It seems that the key is to be flexible in thinking without relying on beliefs and common sense. And thinking based on humanities and social science is indispensable even for science and technology issues. In the scientific world, there is now a trend of changing from "Science for Knowledge" for each special field to "Science for Future Society" for interdisciplinary

fields. In order to deal with social issues, the knowledge to pay attention not only to the vertical direction to dig up the specialty, but also to the horizontal direction to get rid of the barriers of specialty are required. For example, in order to seek the happiness of human society, such as the United Nations' Sustainable Development Goals (SDGs) including disaster preventions for realizing "No one is left behind" society, diverse knowledge must be aggregated and integrated.

In January 2019, the Japan Federation of Economic Organizations: Keidanren, launched the "Industry-Academia Council on the Future of Recruitment and University Education". Although it originated in the employment issue specific to Japan, the development of human resources in the Society 5.0 era has been discussed. And the importance of liberal arts education, in which students not only develop their logical thinking and normative judgment skills but also acquire basic abilities of finding/solving problems and designing social systems, by studying humanities, social sciences, and natural sciences, has been pointed out. This also has a lot to do with the previous discussion, that is the integration of diverse knowledge.

Society 5.0 is the future society that Japan advocated as a successor to hunting, agricultural, industrial and information societies. The environment surrounding the world is in a period of major change, and Japan aims to realize Society 5.0, which achieves both economic development and the resolution of complex social issues by introducing new technologies. In Society 5.0, AI and robots based on big data will support human tasks and coordination, and everyone will lead a comfortable, vibrant and high-quality life. This is not the future controlled and monitored by AI and robots, and the human resources who are responsible for the future society need logical thinking and normative judgment.

By the way, the Japanese Society for Artificial Intelligence published the ethical guideline on AI in February 2017. Although the prediction of its realization time is different, such as decades later or more than half a century later, the guideline was prepared for in anticipation of the arrival of the time when AI creates AI. Its uniqueness is that we ask AI itself to keep the ethics, which human researchers must have, in order for AI to become a social member.

Meanwhile, in March in the same year 2017, a commemorative ceremony for the naming of the 113th new element, Nihonium, was held, and I was invited to attend it because four researchers from Saitama University had been members of the RIKEN discovering team. The research team was awarded the Best Team of the Year 2016. To maximize team performance, individuals need to demonstrate their skills in their roles, but this may be neglected in the name of collaboration. Therefore, the award selection was based on individual satisfaction and learning as well as team effectiveness and efficiency.

In the present knowledge society, cooperation and teamwork of diverse experts are indispensable to find solutions to problems without answers, which are crosscutting. AI could be an extremely excellent expert for deriving correct answers, but it is a human role

to deal with problems without correct answers or expected situations. To demonstrate teamwork, both humans and AI must work hard together in order to satisfy and learn as members of the team. After all, continuous learning is necessary for both humans and AI.

2019 is the final year of my unanticipated presidency. Today's state of universities is very much limited in the degree of freedom and narrowed in the range of suppositions. However, with all of you in one team and also with the vision of "Saitama University All in One Campus at Metropolitan Area Saitama: Embodiment of Diversity, Synergy and Integration", I would like to connect the role of Saitama University to the future, as a bridge which connects diverse people and the world.

You should not narrow yourselves the possibilities of the future by insisting on your specific field of research. I do expect all of you to fully exploit the environment of Saitama University where the various academics coexist, and to do your best research fight. Let's embody together the diversity, synergy and integration.

Lastly, I sincerely hope that your student life at Saitama University will be a meaningful and productive one.

September 25, 2019

Hiroki Yamaguchi, Dr. Eng.
President, Saitama University