

## Exchange program between Kazakhstan and Japan

The Takeda Foundation invited 11 students and researchers from Kazakhstan to visit Japan from July 17 to 25, 2017, and helped them study Japanese robot development.



Orientation at VDEC Building, the University of Tokyo

Kazakhstan has been promoting industrial innovation based on their national development plan, “Kazakhstan 2030”, and has a keen interest in Japan’s cutting-edge technologies. The current exchange involved not only university students but also young researchers who are interested in technology transfer from university to industry. Dr. Yoshio Nishimura, a former professor at the University of Tokyo, gave an introductory lecture on the relationship between innovation and R & D as the orientation for the exchange program on July 18.

The current exchange focused on two basic areas of robotic activity, communication between humans and robot, and movable robots that help humans. To study about communication between humans and robots, the Kazakhstan students and researchers (the group) visited two institutes in Keihanna, the Data-driven Intelligent System Research Center (DIRECT) of the National Institute of Information and Communication Technology (NICT), and the Advanced Telecommunications Research Institute International (ATR).



At DIRECT

## Exchange program between Kazakhstan and Japan

At DIRECT, the group studied WISDOM X, a system of semantic understanding of vast amount of data and for proposing functions of meaningful combination of selected information. They also studied auto-translating technology, VoiceTra, and tried automatic translation from Russian to Japanese by downloading the program.

In the Kawato Lab of ATR, the group studied technology for a direct communication pathway between the brain and an external device, Brain-Machine Interface.

In the Ishiguro Lab, the group experienced communication between humans and robots through language. They learned that gender and the sense of touch as well as language itself play very important roles in communication between humans and robots.



At the Ishiguro Lab of ATR

For the study of movable robots that help humans, the group visited two labs, the Kuniyoshi-Niiyama Lab at the University of Tokyo, and the Suzuki Lab at Tsukuba University. In the morning of July 21, the group visited the Kuniyoshi-Niiyama Lab of the University of Tokyo, and studied the development of movable robots that mimic human muscle. Their robots can dynamically walk and jump.



At the Kuniyoshi-Niiyama Lab

## Exchange program between Kazakhstan and Japan

One member of the group was a representative of the Kazakhstan Robot Contest team that were participating in the International Robot Competition (Robocon 2017), and he luckily encountered the Japanese participating team at the University of Tokyo campus. They exchanged information and wished each other good luck. As it turned out later, the Kuniyoshi-Niiyama Lab supported the University of Tokyo team.



With Japanese Robocon team

In the afternoon of July 21, the group visited the National Museum of Emerging Science and Innovation, and enjoyed an exhibition of the cutting-edge technology that included a moving and talking robot, ASIMO.



At the National Museum of Emerging Science and Innovation,

During the weekend of July 22 and 23, the group enjoyed Japanese culture by visiting historic places and modern streets in Tokyo including Asakusa and Shibuya

## Exchange program between Kazakhstan and Japan

On Monday, July 25, the group the visited Suzuki Lab in Tsukuba University, and studied a physiological approach for the development of human assistive robots (Cybernetics) based on the understanding of cognition and behavior in humans.



With Professor Suzuki at Tsukuba University

The current exchange program gave Kazakhstan students and researchers the precious opportunity to experience developments in advanced robotics including the development of communicating and assistive robots. We hope their experience will contribute to the promotion of innovation in Kazakhstan.