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In Memoriam: Professor Ichiro Kato

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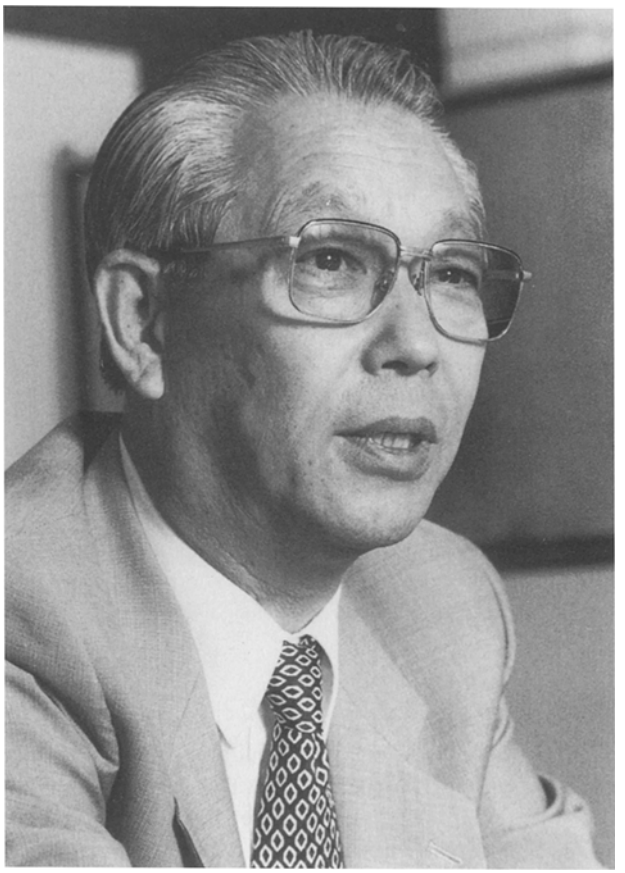

Prof. Ichiro Kato from Waseda University was a pioneer in the field of Autonomous Robots, until his untimely death last year. The eulogy which follows, written by Prof. Atsuo Takanishi, one of his colleagues, provides the highlights of the scientific contributions of this remarkable man.

The sad news of death of Dr. Ichiro Kato, Professor at Waseda University's School of Science and Engineering, on June 19, 1994 filled our hearts with great sorrow. Nearly one year has passed since then, but all the more I keenly realize his greatness and feel great respect for him. I owe what I am to his guidance and cannot be too grateful to him.

Although his best known works were the Robot Musician and the Biped Walking Robot (illustrated in Figs. 1 and 2), his studies were not limited to robotics. He did research in Rehabilitation Engineering and Medical Engineering and worked on a Breast Cancer Palpation Robot, a Mastication Robot, Electro-Myogram Controlled Hand Prostheses and Leg Prostheses. In pursuing all these studies, he had a philosophy that creation of anthropomorphic robots elucidates the nature of human beings (scientific viewpoint) and contributes to the development of robots and machines useful to human beings (engineering viewpoint). His works were always at the forefront of the

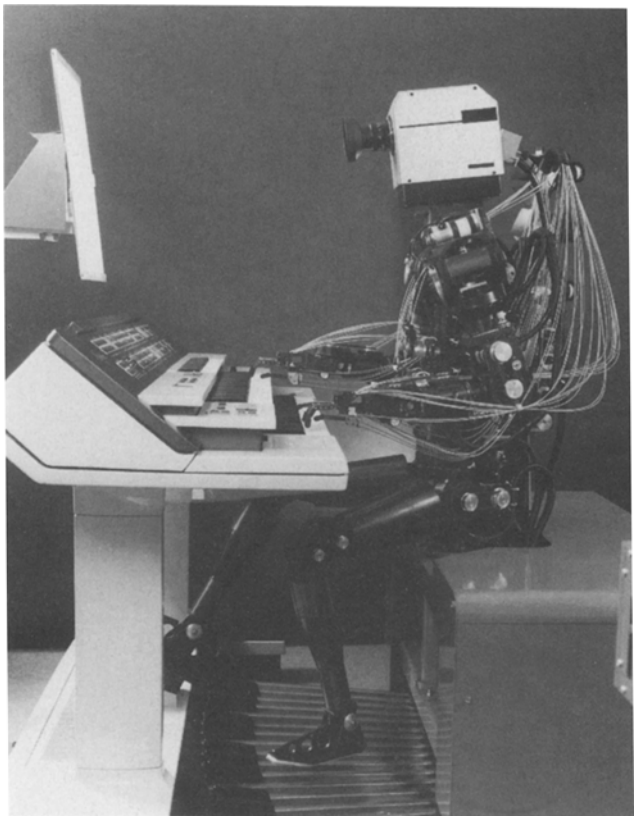

Fig. 1. The robot musician WASUBOT, which stands for WAseda SUmitomo roBOT, played a keyboard instrument after reading a music score, and had a repertoire of 16 tunes.

scientific and engineering studies, but he constantly explored beyond existing engineering systems and put the new ideas into practice.

His studies have been recognized and understood not only in the related academic circles but also by the general public. The WIME HAND, which he developed, is the only electro-myographically controlled hand prosthesis on the Japanese market. The mass media, including a TV program, the "Human Engineering course of the University of the Air," featured his studies, and his works were exhibited at the Tsukuba Science Expo '85. During the six-month term of the Exposition, the Musician Robot WASUBOT, WAseda SUmitomo roBOT, played an electronic organ at the Japanese government theme pavilion, and the Biped Walking Robot WHL-11, Waseda Hitachi Leg-11, walked more than 85 km in total. The robot musician WASUBOT and the Biped Walking Robot WHL-11, which were exhibited and demonstrated at the **Man and Scientific Technology Zone** in the theme pavilion run by the Japanese Government in **The International Science and Technology Exposition** in 1985, are two of Dr. Ichiro Kato's remarkable works through his life.

He always looked twenty to thirty years ahead and attached as much importance to the shape of robots as to their function in the belief that the 21st century would be the age of Personal Robots and Cyborgs.

He greatly contributed to the development of Waseda University by successively holding various posts: Dean of the School of Science and Engineering, Chairman of the Graduate School of Science and Engineering, Councilor, Conferee, and by drafting the plan for establishing the School of Human Science and the Advanced Research Center for Science and Engineering. At faculties and graduate schools, he proposed his own practical education theory and practiced it.

He was also a leader in the academic world. He was President of the Society of Biomechanisms from 1979

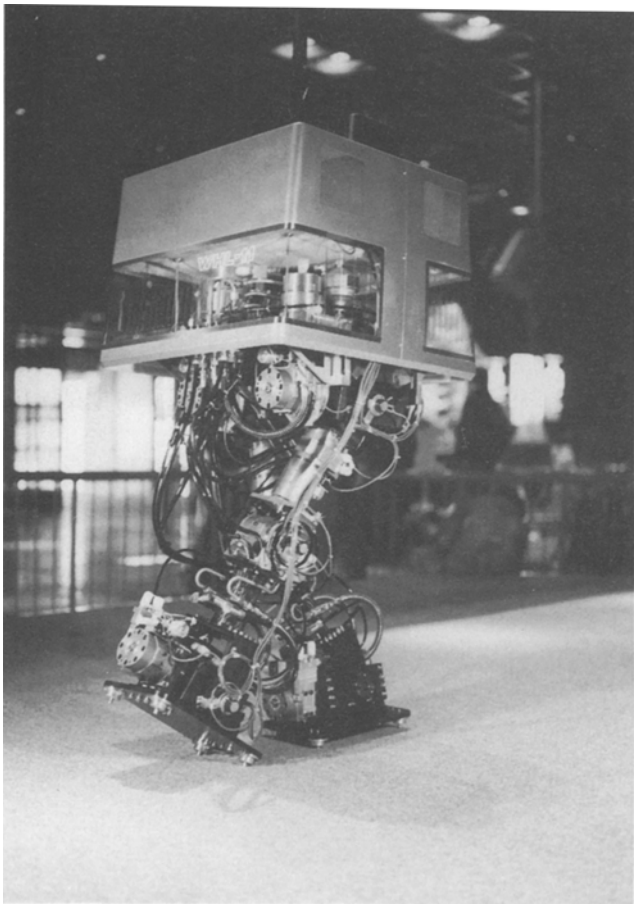

Fig. 2. The biped walking robot WHL-11, which stands for Waseda Hitachi Leg No. 11, walked more than 65 km through the exhibition period.

to 1982, Honorary President of the Society from 1992 until his death, and President of the Robotics Society of Japan from 1985 to 1986. Internationally, he was Chairman of the organizing committee of the 4th International Symposium on Industrial Robots in 1974, the 7th in 1977, the 11th in 1981, and the 15th in 1985, as well as Chairman of the organizing committee of the 2nd International Conference on Advanced Robotics in 1985, Honorary Chairman of the 3rd International Conference on Advanced Robotics in 1987, Chairman of the organizing committee of the 6th International Conference on Advanced Robotics in 1993, and was to take the General Chair at IEEE International Conference on Robotics and Automation in May, 1995.

He rendered a great service not only to the scientific profession but also to many other fields. Being a member of the Japan–U.S. Committee on Scientific Cooperation and of the researcher judging committee of the Japan Society for the Promotion of Science, he contributed to the promotion of scientific research at home and abroad. As a mediator of the Research Development Corporation, he participated in the establishment of national patent rights. He was a judge of the Science and Technology Foundation of Japan and took part in the selection of the Japan Award. He was a special member of the Education Ministry's National Rehabilitation Center for the Disabled. He made five visits to China in relation to technical exchanges and exerted every effort to promote technical exchange between Japan and China as a director of the Japan–China Industrial Technology Culture Center. As a professor emeritus of Huazhong University of Science and Technology, an advisory professor of Xi'an Jiao Tong

University, and an honorary citizen of Tainan city, he promoted friendship and scientific exchange between the two countries.

He was awarded many prizes including the Engelberger Award of the U.S., the Robot International Achievement Medal of Italy, and the Mihailo Pupin Medal of Yugoslavia. He received a Medal with Purple Ribbon in 1987, which testified to the greatness of his remarkable achievements. As the Father of robotics in Japan, a founder of robot engineering, he contributed greatly to its development not only in Japan but also in the rest of the world.

In 1991, at the Advanced Research Center for Science and Engineering, Waseda University, he started the Humanoid project with the researchers with whom he had carried out the two WABOT projects. In the Humanoid project, the proposed a symbiotic society of man and robot in the 21st century and was enthusiastically conducting researches on congenial communication between man and robot, which will be a big issue in the next century.

His sudden death at the early age of 69 before finishing the projects was our great sorrow and meant an irreparable loss to the robotics world. I now pray that his soul may rest in peace. I will strive to carry out the project in pursuance of his will and train the younger researchers who will become leaders in robotics of the next century.