

Title:

Robotics for Space Exploration: Challenge to the Moon and Beyond

Abstract:

In this seminar talk, past and recent activities on robotics for space exploration conducted by Dr. Kazuya Yoshida, Aerospace Engineering Professor of Tohoku University, Japan and CTO of ispace technologies inc., are introduced. Professor Yoshida has been working on a variety of robotics research topics with respect to the dynamics and control of space robotic systems. His interests are ranging from orbital free-flying robots to planetary exploration rovers. The applications are extended to the development of university-based micro-satellites and also the terrestrial applications of space technology, such as robotic remote exploration for disaster response application. His technical contributions are evidenced by many space flight and robotic missions, such as ETS-VII (orbital experiments of a free-flying space robot), HAYABUSA / HAYABUSA-2 (Japanese asteroid sample return probes), RISING / RISING-2 (50 kg microsatellites for science mission) and QUINCE (a mobile robot to aid in the Fukushima power plant incident.)

The talk will highlight his current challenge toward the Google Lunar XPRIZE (team HAKUTO) and background technology on micro-rover development.

Biography:

Professor Kazuya Yoshida received B. Eng., M. Eng. and Dr. Eng, degrees in Mechanical Engineering Science from Tokyo Institute of Technology, Japan, in 1984, 1986, and 1990, respectively. He served as Research Associate of Tokyo Institute of Technology from 1986 to 1994, and Visiting Scientist of Massachusetts Institute of Technology, U.S.A. in 1994. From 1995 to 2003 he was appointed as Associate Professor, and since 2003 he is Full Professor in Department of Aerospace Engineering, Tohoku University, Japan. He also serves as Director of Center of Robotics for Extreme and Uncertain Environments in Tohoku University since 2011.

In addition, he has been contributing to space robotics education for international students at International Space University in Strasbourg, France (for Master of Space Studies) and various locations in the world (for Summer Study Programs).

Member of IEEE since 1990, and a committee co-chair of the Robotics and Automation Society (RAS) Technical Committee (TC) on Space Robotics, since 2007.

