

Mobile Robots Seminar

February 4, 2016

Prof. Sangbae Kim, the director of the Biomimetic Robotics Laboratory and an Associate Professor of Mechanical Engineering at MIT, visited Masdar Institute and delivered a special seminar entitled *MIT Cheetah: New Design Paradigm for Mobile Robots*.

Recent technological advances in legged robots are opening up a new era of mobile robotics. In particular, legged robots have a great potential to help disaster situations or elderly care services. Whereas manufacturing robots are designed for maximum stiffness, allowing for accurate and rapid position tracking without contact, mobile robots have a different set of hardware/software design requirements including dynamic physical interactions with environments. Events such as the Fukushima power plant explosion highlight the need for robots that can traverse various terrains and perform dynamic physical tasks in unpredictable environments, where robots need to possess compliance that allows for impact mitigation as well as high force capability.

Professor Kim's seminar discussed the new mobile robot design paradigm focusing on the actuator characteristics and the impulse planning algorithms. As a successful embodiment of such paradigm, the talk introduced the constituent technologies of the MIT Cheetah. Currently, the MIT cheetah is capable of running up to 13 mph with an efficiency rivaling animals, and capable of jumping over an 18 inch-high obstacle autonomously.