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MECHANICAL ENGINEERING COLLOQUIUM SERIES 2015-2016

Mechanical Engineering Lecture in Robotics

MIT Cheetah: New Design Paradigm Shift toward Mobile Robots

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On Friday, November 13th at 4:00pm in 3-370

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. The talk will discuss 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 will introduce 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.

Refreshments will be served before the seminar.
Please contact Tony Pulsone at pulsone@mit.edu with any questions.

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