



On Legs, Tracks and Wheels – Mobile Robots for Unstructured Environments

by

Dr. Martin Buehler
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Date: 6 May 2011 (Friday)

Time: 2:30 pm – 4:00 pm

Venue: Lecture Theatre, 9/F, William M.W. Mong Engineering Building, CUHK

Abstract

Our robots must sense the world, move in the world, and forcefully interact with the world. Yet, reliable and cost-effective perception, mobility and manipulation remain challenges to the successful fielding and commercialization of robots in virtually all domains. This presentation will focus on robot mobility and offer insights gained from past work on diverse mobile robot systems. These include R&D-type, bio-inspired legged robots in academia and industry (RHex, BigDog, and others), and commercially successful mobile robots with articulated tracks and wheels at iRobot (Warrior, PackBot, SUGV, Roomba). The presentation concludes with some recent project highlights from the iRobot research group, and a glimpse of new robot prototypes, like the AVA platform.

Biography of the Speaker

Dr. Martin Buehler pursued an academic career in robotics (Yale Ph.D. 1990, MIT PostDoc 1990/91, McGill tenured professor 1997) where he invented and developed several ground breaking legged robots (ARL Monopod, Scout I/II, RHex and others, see www.martinbuehler.net). After 12 years in academia, he moved to Boston Dynamics in 2003 as Director of Robotics and Chief Engineer for the DARPA BigDog project. He also acted as a Principal Investigator for the DARPA RHex, RiSE, LittleDog projects.

He served as an Associate Editor of the IEEE Transactions on Robotics and Automation and on the Editorial Board of the International Journal of Robotics Research. Currently he is an Associate Editor of the Journal of Field Robotics. He has over 100 publications on legged robots, dynamic manipulation and direct drive control, and co-edited Springer books on the DARPA Grand and Urban Challenges.

Since 2008 he has been with iRobot Corporation, where he is the Chief Principal Investigator and a Director of Research. He applies his unique industrial-academic experience to leading teams that develop robotics technologies that make a difference in people's lives.

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ALL ARE WELCOME

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** Light refreshment will be served at 2pm before the lecture **