



CCEC Seminars

Presents

Walking and Running in Bipedal Robots: Control Theory and Experiments



with

Jessy W. Grizzle

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Abstract:

A canonical problem in bipedal robots is how to design a closed-loop system that generates stable, periodic motions (i.e., limit cycles). Some of the inherent difficulties facing the control engineer include the intermittent nature of the contact conditions with the ground, the many degrees of freedom in the mechanisms, and underactuation.

This presentation summarizes recent theoretical advances that allow the systematic design of provably, asymptotically stable, walking and running gaits in underactuated, planar, bipedal robots. The presentation is liberally illustrated with graphics and videos that explain and support the underlying theory.

About the Speaker:

Jessy W. Grizzle has been with the Electrical Engineering and Computer Science Department of the University of Michigan since 1987. Though trained as a nonlinear control theoretician, he holds fourteen patents in the automotive industry dealing with emissions reduction and fuel economy enhancement through improved controller design. His current interest in bipedal locomotion grew out of a sabbatical in Strasbourg, France in late 1998.