

TOPICS IN MOTION PLANNING, ANALYSIS AND CONTROL FOR MECHANICAL SYSTEMS

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The talk equips participants with a variety of fundamental ideas, methods and algorithms, developed for analysis and control of (periodic) behaviours in mechanical systems with one or several passive links such as walking/running robots and underactuated pendulums. Tools for finding and planning such motions and tools for their orbital stabilization are discussed and illustrated by several examples. In addition to analytical steps and computer simulations, experiments are reported and the implementation issues are discussed. The course can be of interest for graduate students and researchers in the subjects of Robotics, Mechatronics, Control, Analysis of Human Motions, and Applied Mathematics. Lectures and exercises require only basic knowledge of mechanics and control theory as well as basic familiarity with Matlab/Simulink.

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