SEMINAR NOTICE

Preston M. Green Department of Electrical and Systems Engineering

The 2013 John Zaborszky Distinguished Lecture Series: Lecture 3

The Standard Parts Problem and Quantization in Optimal Control

John Baillieul
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Boston University

Abstract: Recently W.S. Wong has proposed the concept of **control communication complexity** (CCC) as a formal approach for understanding how a group of **distributed agents** can choose independent actions from a prescribed "**action code book**" that cooperatively realize common goals and objectives. A prototypical goal is the computation of a function, and CCC provides a promising new approach to understanding complexity in terms of the cost of realizing a selected evaluation. This lecture will introduce **control communication complexity** in terms of what are called **standard parts optimal control problems**. Problems in **optimal ensemble averaged motion sequences** and **distributed control of dynamical systems** defined on Lie groups are discussed.

Wednesday October 2, 2013
10:00 - 11:30 a.m.
Green Hall, room 0120

Host: Hiro Mukai

Short Bio: John Baillieul's research deals with robotics, the control of mechanical systems, and mathematical system theory. His PhD dissertation, completed at Harvard University under the direction of R.W. Brockett in 1975, was an early work dealing with connections between optimal control theory and what came to be called “sub-Riemannian geometry.” His main controllability theorem applied the concept of finiteness embodied in the Hilbert basis theorem to develop a controllability condition that could be verified by checking the rank of an explicit finite dimensional operator. Baillieul’s current research is aimed at understanding decision making and novel ways to communicate in mixed teams of humans and intelligent automata.

The Annual Zaborszky Lecture Series was created in 1990 to honor Professor John Zaborszky, the founder and first chairman of the Department of Systems Science and Mathematics (now the Preston M. Green Department of Electrical & Systems Engineering). Each year a distinguished scholar is invited to present a series of three lectures in his/her field of expertise.

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