Pseudospectral Computational Optimal Control and Its Applications

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Abstract: The confluence of recent advances in control theory and computational mathematics has made it possible to solve complex nonlinear optimal control problems. In this talk we will focus on Pseudospectral computational optimal control methods that have moved rapidly from mathematical theory to real-world applications. Results in algorithm developments, convergence analysis, and aerospace applications will be presented. We will discuss recent advances on a class of generalized optimal control problems involving stochastic parameters. Related applications in optimal search problems will also be presented.

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10:10 a.m.
Green Hall, Room 0120
Host: Jr-Shin Li, PhD

Short Bio: Qi Gong is an associate professor in the Department of Applied Mathematics and Statistics at University of California, Santa Cruz. He received his PhD in Systems and Control Engineering from Case Western Reserve University in 2004. Prior to joining UCSC, he was with the Department of Mechanical and Astronautical Engineering at Naval Postgraduate School as National Research Council postdoc and research associate. His recent research focuses on developing computational algorithms for solving nonlinear optimal control problems. He also conducts research on nonlinear control theory, trajectory optimization, and aerospace control applications.