



Washington University in St. Louis

SCHOOL OF ENGINEERING & APPLIED SCIENCE

Preston M. Green Department of Electrical & Systems Engineering

Seminar Announcement

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Thursday, March 2, 2017
Green Hall, Room 0120
10:00 A.M.

Concepts and Computational Methods for Populations of Dynamical Systems

Abstract: Interacting with populations of dynamical systems has emerged as a very popular theme across virtually all of the applied sciences in recent years. Examples for problems dealing with populations of dynamical systems range from the control of quantum ensembles to the estimation of state distributions within heterogeneous cell populations. Despite the diversity of different applications, there is a specific systems theoretic paradigm common to all such problems, namely the consideration of populations of nearly identical systems, and the premise of manipulation and observation on the population-level only. This paradigm gives rise to several new theoretical and computational challenges. In this talk, we will present results on the study of the two fundamental concepts of observability and controllability for populations of dynamical systems. Our emphasis will be on demonstrating new fundamental principles and insights, as well as the development of computational methods resulting from these.

Bio: Shen Zeng studied at the University of Stuttgart, Germany, and received degrees in Engineering Cybernetics, Mechatronics and Mathematics. He received the Ph.D. degree in Engineering in 2016 from the University of Stuttgart, and is currently a postdoctoral researcher and lecturer there.

Host: R. Martin Arthur