TEMPLE UNIVERSITY
ELECTRICAL AND COMPUTER ENGINEERING

PHILADELPHIA CHAPTER
CSS CAS IEEE SMC Systems, Man, and Cybernetics Society

IEEE PHILADELPHIA CHAPTER OF CSS/CASS/SMCS AND TEMPLE UNIVERSITY ECE DEPARTMENT PRESENT

LEARNING-BASED DISTRIBUTED CONTROL

BY

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Date: Wednesday, October 23, 2024
Time: 12:00 noon to 1:00 pm;
Location: Online Webinar (https://temple.zoom.us/j/97507971742)

Abstract:

Distributed control is a classical research topic. While a rich theory is available, some assumptions such as availability of subsystem dynamics and topology and the subsystems following the prescribed controllers exactly have proven difficult to remove. An interesting direction in recent times to get away from these assumptions has been the utilization of learning for control. In this talk, we consider some problems in control design for distributed systems using learning. Our core message is that utilizing control-relevant properties in learning algorithms can not only guarantee concerns such as stability, performance, safety, and robustness that are important in control of physical systems, but also help with issues such as data sparsity and sample complexity that are concerns during the implementation of learning algorithms.

Biography:

Vijay Gupta is the Elmore Professor of Electrical and Computer Engineering and the Associate Head for Graduate and Professional Programs in ECE at the Purdue University, having joined the faculty in May 2022. He received his B. Tech degree at Indian Institute of Technology, Delhi, and his M.S. and Ph.D. at California Institute of Technology, all in Electrical Engineering. He previously served as a research associate in the Institute for Systems Research at the University of Maryland, College Park, a consultant at the United Technologies Research Center, and as a faculty member, the Associate Chair and the Director for Graduate Studies in the Department of Electrical Engineering at Notre Dame. He is a Fellow of IEEE and has received the 2018 Antonio Ruberti Young Research Award from the IEEE Control Systems Society, the 2013 Donald P. Eckman Award from the American Automatic Control Council, and a 2009 National Science Foundation (NSF) CAREER Award. Gupta's research and teaching interests are at the interface of learning, game theory, and distributed systems, with applications to transportation networks, power grid, and parallel computing.