



Halmstad Colloquium talk 2013-05-22:

Professor Magnus Egerstedt on

“Interacting with Multi-Robot Networks”

Abstract:

The last few years have seen significant progress in our understanding of how one should structure multi-robot systems. New control, coordination, and communication strategies have emerged and, in this talk, we summarize some of these developments. In particular, we will discuss how to go from local control rules to global behaviors in a systematic manner in order to achieve distributed geometric objectives, such as achieving and maintaining formations, area coverage, and swarming behaviors. We will also investigate how users can interact with networks of mobile robots in order to inject new information and objectives. The efficacy of these interactions depends directly on the interaction dynamics and the structure of the underlying information-exchange network. We will relate these network-level characteristics to controllability notions in order to produce effective human-swarm interaction strategies.

About:

Magnus Egerstedt is the Schlumberger Professor of Electrical and Computer Engineering at the Georgia Institute of Technology, where he has been on the faculty since 2001. He received the M.S. degree in Engineering Physics and the Ph.D. degree in Applied Mathematics from the Royal Institute of Technology, Stockholm, Sweden, and the B.A. degree in Philosophy from Stockholm University. Dr. Egerstedt's research interests include hybrid and networked control, with applications in motion planning, control, and coordination of mobile robots. Magnus Egerstedt is the director of the Georgia Robotics and Intelligent Systems Laboratory (GRITS Lab), a Fellow of the IEEE, and a received the ECE/GT Outstanding Junior Faculty Member Award, the Georgia Tech Teaching Efficiency Award, and the CAREER Award from the U.S. National Science Foundation.