

**Tuesday**  
**July 14, 2015**  
**3:45 p.m.**

Lecture Room:  
**V 7.03**

Universität Stuttgart  
Campus Vaihingen  
Pfaffenwaldring 7

**Peter Sagirow**  
**Distinguished Seminar Series**

## About the Peter Sagirow Distinguished Seminar Series

Each year, the Institute for Systems Theory and Automatic Control (IST) brings an outstanding researcher to campus to report on the state of the art, achievements and challenges in the field of systems and control. With this distinguished seminar series, the IST intends to honor the late Peter Sagirow and the decisive role he played in the development of the field of engineering cybernetics at the University of Stuttgart.

## Control of Multi-Robot Systems: From Formations to Human-Swarm Interactions



**Prof. Dr. Magnus Egerstedt**

**Schlumberger Professor**  
**School of Electrical and Computer**  
**Engineering**  
**Georgia Institute of Technology**  
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**USA**

### Abstract

These last few years have seen significant progress in our understanding of how one should structure multi-robot systems to make the robots solve tasks in an effective and coordinated manner. New control, coordination, and communication protocols have been developed and in this talk, we will give an introductory overview over some of these recent developments. In particular, we will show how one can go from high-level specifications and instructions for the team as a whole, to local coordination rules for the individual robots that achieve and maintain formations, cover areas, and make the robots move together. These rules will draw significant inspiration from biological systems, such as swarming insects, flocking birds, or schooling fish.

### About the Speaker

Magnus Egerstedt is the Schlumberger Professor and Associate Chair of Research in the School of Electrical and Computer Engineering at the Georgia Institute of Technology. Before coming to Georgia Tech, he was a postdoctoral scholar at Harvard University and a graduate student at the Royal Institute of Technology, in his native hometown of Stockholm, Sweden. Dr. Egerstedt conducts research in the areas of control theory and robotics, and is particularly interested in swarm robotics. He is the director of the famous Georgia Robotics and Intelligent Systems Laboratory (GRITS Lab), a Fellow of the IEEE, and a recipient of a large number of important teaching and research awards, including the Alumni of the Year Award from the Royal Institute of Technology and the CAREER Award of the U.S. National Science Foundation.