Workshop on Emerging Applications of Control and System Theory (EACST 2017)

UT Dallas, TI Auditorium (ECSS 2.102), September 28-30, 2017

Final Program

Thursday, September 28

8:00 *Registration*

8:45 Steve Yurkovich and Poras Balsara (UT Dallas)
Welcome and Opening Remarks

9:00-10:30 Session TM1

- 9:00 Brian Anderson (Australian National University)
  Collective Formation Control of Multiple Constant-Speed UAVs with Limited Interactions
- 9:30 Elena Valcher (University of Padova)
  On the Consensus of High-Order Multi-Agent Systems with Cooperative/antagonistic Interactions and Switching Topologies
- 10:00 Soura Dasgupta (University of Iowa)
  Feedback Control for Distributed Massive MIMO Communication

10:30-11:00 *Coffee Break*

11:00-12:30 Session TM2

- 11:00 Rodolphe Sepulchre (University of Cambridge)
  Excitable Behaviors
- 11:30 Allen Tannenbaum (State University of New York at Stoneybrook)
  Machine Learning for Joint Classification and Segmentation
- 12:00 P.R. Kumar (Texas A&M University)
  Control Systems Under Attack: The Securable and Unsecurable Subspaces of a Linear Stochastic System

12:30-14:00 *Lunch Break*

14:00-15:30 Session TA1

- 14:00 Richard Murray (California Institute of Technology)
  Feedback and Control in Biological Circuit Design
- 14:30 Frank Allgower (University of Stuttgart)
  Passivity-based ensemble control for cell cycle synchronization
- 15:00 Domitilla Del Vecchio (Massachusetts Institute of Technology)
  The "Power Network" of Genetic Circuits

15:30-16:00 *Coffee Break*

16:00-17:30 Session TA2

- 16:00 Pramod Khargonekar (University of California, Irvine)
  Grid Integration of Renewable Electricity and Distributed Control
- 16:30 Shinji Hara (University of Tokyo)
  Hierarchically Decentralized Control for Networked Dynamical Systems with Global and Local Objectives
- 17:00 Kirsten Morris (University of Waterloo)
  The Role of Sensor and Actuator Models in Control of Distributed Parameter Systems

Friday, September 29

9:00-10:30 Session FM1

9:00 Stephen Boyd (Stanford University)
Parameter Selection and Pre-Conditioning for a Graph Form Solver
9:30 Munther Dahleh (Massachusetts Institute of Technology)
Robustness Sensitivities in Large Networks
10:00 Malcolm Smith (University of Cambridge)
Electrical Network Synthesis: A Survey of Recent Work

10:30-11:00 *Coffee Break*

11:00-12:30 Session FM2

11:00 Richard Braatz (Massachusetts Institute of Technology)
Control and Systems Theory for Advanced Manufacturing
11:30 Francesco Bullo (University of California, Santa Barbara)
Synchronization tests and computational methods for Kuramoto Oscillators
12:00 Murat Arcak (University of California, Berkeley)
Control and Optimization Problems in Hyperpolarized Carbon-13 MRI

12:30-14:00 *Lunch Break*

14:00-15:30 Session FA1

14:00 Andrew Heunis (University of Waterloo)
Quadratic Hedging with Mixed State and Control Constraints
14:30 Tryphon Georgiou (University of California, Irvine)
Wasserstein Geometry of Quantum States and Optimal Transport of Matrix-Valued Measures
15:00 Toshiharu Sugie (Kyoto University)
Design Theory of Distributed Controllers Via Gradient-Flow Approach

15:30-16:00 *Coffee Break*

16:00-17:30 Session FA2

16:00 Frank Doyle (Harvard University)
Controlling Biological Time: Nonlinear Model Predictive Control for Populations of Circadian Oscillators
16:30 Eduardo Sontag (Rutgers University)
Dynamic response phenotypes in systems biology: Scale-invariance and monotone I/O systems
17:00 Brian Ingalls (University of Waterloo)
Bioaugmentation Approaches for Suppression of Antibiotic Resistance: Model-Based Design

18:00-20:00 Reception, followed by Banquet Dinner (invitation only)
UT Dallas, Founders Building, 2nd Floor Atrium

Saturday, September 30

9:00-10:30 Session SM1

9:00 Vince Poor (Princeton University)
Privacy in Networks of Interacting Agents
9:30 Yutaka Yamamoto (Kyoto University)
Hypertracking Beyond the Nyquist Frequency
10:00 Michel Gevers (Université Catholique de Louvain)
Identification of Dynamical Networks

10:30-11:00 *Coffee Break*

11:00-12:30 Session SM2

11:00 Keith Glover (University of Cambridge)
Smooth Operators Enhance Robustness
11:30 Pradeep Misra (Wright State University)
System Completion Problem: Theory and Applications
12:00 Mehmet Eren Ahsen (Icahn School of Medicine at Mount Sinai)
Predicting the performance of classifiers and optimal ensemble learning in the absence of ground truth