



2019 Dynamical Systems and Control Theory Program Review

Dr. Fred Leve | August 19-21, 2019 | Arlington, VA

Basic Research Innovation Collaboration Center (BRICC)
4100 North Fairfax Drive, Suite 450 | Research Room
Arlington, VA 22203

Agenda Day 1 | July 19, 2019

Time	Topic	Speaker
8:00-8:30	Registration	
8:30-8:40	Introduction	Dr. Frederick Leve, AFOSR
8:40-9:10	AFRL/RQ: Power and Thermal Core Technology Competency	Michael Oppenheimer, AFRL/RQ
9:10-9:35	Proof of a UxAS Software Service in SPARK	Laura Humphrey
9:35-10:00	In Search of Scalable Dynamic Multi-vehicle Defense	David Casbeer, AFRL/RQ
10:00-10:20	BREAK	
10:20-10:45	Thermal Management for Aircraft	Michael Oppenheimer, AFRL/RQ
10:45-11:10	Control & Estimation in the Presence of Adversarial Action and Uncertainty	Mier Patcher, AFIT
11:10-11:35	Stochastic Control for Systems with Rosenblatt Noise	Tyron Duncan / Bozena Pasikk-Duncan, KU
11:35-11:55	BREAK	
11:55-12:20	Adaptive Horizon Model Predictive Control	Art Krener, UC Davis
12:20-12:45	Dual-Threshold Models for Activation and Influence Propagation in Networks	Eduardo Pasiliao / Emily Doucette, AFRL/RW
12:45-13:10	Network Partitioning and Aggregation for Hierarchical Control	Murat Arcak, UC Berkeley
13:10-14:40	LUNCH	
14:40-15:20	Action-Based Methods in Dynamics and Stability Issues in Networked Systems	Bill McEneaney (et. Al) UCSD/Wayne State
15:20-15:45	Advances in Stochastic Surveillance and Network Flow Dynamics	Francesco Bullo, UCSB
15:45-16:10	Identification of Critical Nodes in Large-scale Spatial Networks	Sonia Martinez-Diaz, UCSD

16:10-16:35	Constraints and Memory-null Controllabilities for Fractional PDEs	Mahamadi Warma, U Puerto Rico
16:35-17:00	Optimal Sensor Location for Distributed Parameter Systems	Kristen Morris, U Waterloo
MEETING ADJOURN FOR THE DAY		

Agenda Day 2 July 20, 2019		
Time	Topic	Speaker
8:00-8:30	Registration	
8:30-9:00	Munitions Aerodynamics, Guidance, Navigation and Control Core Technical Competency	Emily Doucette, AFRL/RW
9:00-9:25	First-order Optimization Algorithms: Tradeoffs between Robustness and Acceleration	Mihailo Jovanovic, USC
9:25-9:50	Adaptive Dynamical Learning and Control for Flight Vehicles	Scott Nivinson, AFRL/RW
9:50-10:15	Optimality Conditions via Set-Valued Analysis	Helen Frankowska, CNRS U Paris
10:15-10:35	BREAK	
10:35-11:00	A Switched Systems Approach for Navigation and Control with Intermittent Feedback	Warren Dixon, UFL
11:00-11:25	Systematic Tools for Satisfying Temporal Logic Specifications in Hybrid Dynamical Systems	Ricardo Sanfelice, UCSB
11:25-11:50	A Fast First-order Optimization Algorithm Based on Stability Theory for Hybrid Dynamical Systems	Andy Teel, UCSB
11:50-12:10	BREAK	
12:10-12:35	Regularizing for Robustness: Accelerated Optimization Dynamics via Hybrid Feedback	Jorge Poveda, Harvard
12:35-13:00	Robust Formation Control in the Presence of Intermittent Information	Sean Phillips, AFRL/RV
13:00-13:25	Entropy and Quantized Control of Switched Systems	Sayan Mitra / Daniel Liberzon, UIUC

13:25-14:15	Formal Methods in Analysis and Control Theory	Jeremy Avigad et al, CMU
14:15-15:45	LUNCH	
15:45-16:10	Monadic Decision Processes and Hierarchical Planning for Autonomous Systems	David Spivak, MIT
16:10-16:35	Structural Decomposition for Quantum Two-level Systems	Ian Peterson / Matthew James, ANU
16:35-17:00	Reduction of Decoherence in Quantum Information Systems Using Direct Adaptive Control of Infinite Dimensional Systems	Mark Balas, U Tenn, Knoxville
	MEETING ADJOURN FOR THE DAY	

Agenda Day 3 July 21, 2019		
Time	Topic	Speaker
8:00-8:30	Registration	
8:30-9:00	Advanced Space Resilient Technologies Future Direction	Andrew Williams, AFRRL/RV
9:00-9:25	Interactive 2D3D Vision-Based Operator Control	Romeil Sandhu, Stoneybrook U
9:25-9:50	Tight Coordination with Time-Varying Temporal Constraints for a Fleet of Heterogeneous Vehicles	Naira Hovakimyan, UIUC
9:50-10:15	Sparse Approximation Methods for Optimal Control and Stationary Action Problem	Peter Dower, U Melbourne
10:15-10:35	BREAK	
10:35-11:00	Synthesis and Analysis of Hybrid Systems under Spatial and Temporal Specifications	Dimitra Panagou, U Mich
11:00-11:25	An Observer for a Distributed, Discrete-Time Linear System	Steve Morse, Yale
11:25-11:50	Linearization and Optimal Feedback Design via Lifting Operators	Nader Motee, Lehigh U
11:50-12:10	BREAK	

12:10-12:35	Spectral Bayesian Estimation for Stochastic Hybrid Systems	Taeyong Lee / Melvin Leok, GWU / UCSD
12:35-13:00	Permutation- and Graph-Based Representations of Lie Brackets: New Approaches to Controllability and Moment-Based Control	Jrshin Li, Wash U
13:00-13:25	Notions of Heterogeneity in Networked Systems	Mehran Mesbahi, U Wash
13:25-14:55	LUNCH	
14:55-15:20	Data Driven Systems and Control Framework for Multiway Dynamical Systems	Indika Rajapakse Et al, U Mich / UTRC
15:20-15:45	Prescribed-Time Control and Estimation of PDEs	Drew Steeves, UCSD
15:45-16:10	Nonlinear-Nonquadratic Optimal Control, Implications of Dissipativity, and Universal Feedback Regulators for Stochastic Systems	Wassim Haddad, GaTech
16:10-16:35	Scalable Analysis and Control of Dynamic Flow Networks	Gustav Nilsson, GaTech
16:35-17:00	Formal Safety Verification for Nonlinear Systems Using Advanced Reachability Analysis Methods	Joseph Scott, Clemson
	MEETING ADJOURN	