09:30-13:30

Recent Advances on Computing Optimal Trajectories: From Continuous to Discrete and from Deterministic to Stochastic and Back.

Tsiotras, Panagiotis   Georgia Inst. of Tech.

Abstract: Since its inception in the late 1950's optimal control theory has been the cornerstone of many major technological developments in aerospace engineering and related fields. Despite six decades of continuous advances in this area, real-time optimal trajectory generation remains the elusive "holy grail" of control theorists. The recent emergence of autonomous robotic systems has brought along with it challenges that are beyond the capabilities of traditional trajectory optimizers. In this talk we will give an overview of some recent results for computing optimal trajectories for autonomous systems that leverage multi-scale methods in order to compute efficiently and robustly optimal trajectories for highly nonlinear, realistic systems. Nonetheless, the usefulness of these techniques diminishes quickly when one wants to plan trajectories in high-dimensional state/configuration spaces, especially in the presence of several state constraints and/or obstacles. To remedy some of these hindrances, recently there has been an increased focus on the use of probabilistic sampling-based techniques. We will present a new class of sampling-based methods that lead to "self-adapted" multi-resolution graph abstractions. We expedite convergence using ideas from approximate dynamic programming, thus bridging the gap between these recent methods and the more traditional methods based on optimal control. Finally, we discuss a new class of trajectory optimization methods for stochastic systems that are not gradient-based but are rather based on ideas from statistical mechanics and the use of path-integrals.

Biography: Dr. Panagiotis Tsiotras is the Dean's Professor at the School of Aerospace Engineering at Georgia Tech. At Georgia Tech, he is the Director of the Dynamics and Control Systems Laboratory and the Associate Director for Research for the Institute for Robotics and Intelligent Machines (IRIM). His current research interests are in optimal and nonlinear control and their connections with AI, with applications to vehicle autonomy. He received his PhD degree in Aeronautics and Astronautics from Purdue in 1993. He also holds degrees in Mechanical Engineering and Mathematics. He is a recipient of the NSF CAREER award, the Sigma Xi Society Excellence in Research award, and the Purdue University 2014 School of Aeronautics and Astronautics' Outstanding Aerospace Engineer (OAE) award (highest honor bestowed on that school's alumni). He is currently the Chief Editor of the Frontiers of Robotics and AI in the area of Space Robotics. Previously, he served at the Editorial Boards of the AIAA Journal of Guidance, Control, and Dynamics, the IEEE Transactions of Automatic Control, the IEEE Control Systems Magazine, and the Journal of Dynamical and Control Systems. He is a Fellow of AIAA and a Senior Member of the IEEE.

Afternoon Tutorial	Coordinated Science Laboratory Auditorium, Room B02
(Invited Session)	Tuesday, September 27, 2016
Chair: Hovakimyan, Naira	Univ. of Illinois

14:00-17:30

Community Detection and Inference in Graphs.

Abbe, Emmanuel   Princeton Univ.

Abstract: This tutorial covers recent developments on community detection for the stochastic block model (SBM). The first part covers basic random graphs tools, the second part covers basic results for the SBM with two communities, and the third part discusses recent results for the general stochastic block model, with connections to other inference on graph problems. Emphasis is put on the phase transition phenomena and on the information-theoretic vs. computational tradeoff.

Biography: Emmanuel Abbe received his Ph.D. degree from the Department of Electrical Engineering and Computer Science at the Massachusetts Institute of Technology, and his M.S. degree from the Mathematics Department at the Ecole Polytechnique Fédérale de Lausanne. He is currently an assistant professor at Princeton University, jointly in the Program for Applied and Computational Mathematics and the Department of Electrical Engineering. He is the recipient of the CVCI Prize in Mathematics at EPFL, the Foundation Latsis International Prize, the Bell Labs Prize, the NSF CAREER Award and the Google Faculty Research Award.

WeA1   Library
Networks I: Machine Learning (Invited Session)

Chair: Telgarsky, Matus Jan	Univ. of Illinois
Organizer: Hajek, Bruce	Univ. of Illinois
Organizer: Srikant, R.	Univ. of Illinois

08:30-08:50	WeA1.1

Sparse, Spiked Wigner Model: Phase Transitions and Information-Theoretic Bounds (I).

Banks, Jess	Santa Fe Inst.
Krzakala, Florent	Lab. de Physique Statistique
Moore, Cristopher	Santa Fe Inst.
Vershynin, Roman	Univ. of California, Davis
Xu, Jiaming	Purdue Univ.
Zdeborova, Lenka	CEA Saclay and CNRS

08:50-09:10	WeA1.2

Learning Tree-Structured Ising Models in Order to Make Predictions (I).

Bresler, Guy	Massachusetts Inst. of Tech.
Karzand, Mina	Massachusetts Inst. of Tech.

09:10-09:30	WeA1.3

Nonconvex Gradient Descent for Low-Rank Estimation: Linear Convergence, Robustness and Unified Theory (I).

Chen, Yudong	Cornell Univ.

09:30-09:50	WeA1.4

Graph Compression: The Effect of Clusters (I).

Abbe, Emmanuel	Princeton Univ.

WeA2 — Solarium
Computational and Biological Systems (Regular Session)

Chair: Kannan, Sreeram	Univ. of Washington, Seattle

08:30-08:50	WeA2.1

Amplitude Sampling.

Martínez-Nuevo, Pablo	Massachusetts Inst. of Tech.
Lai, Hsin-Yu	Massachusetts Inst. of Tech.
Oppenheim, Alan V.	Massachusetts Inst. of Tech.

08:50-09:10	WeA2.2

Fitting Convex Sets to Data Via Matrix Factorization.

Soh, Yong Sheng	California Inst. of Tech.
Chandrasekaran, Venkat	California Inst. of Tech.

09:10-09:30	WeA2.3

Modeling the P300-Based Brain-Computer Interface As a Channel with Memory.

Mayya, Vaishakhi	Duke Univ.
Reeves, Galen	Duke Univ.
Mainsah, Boyla	Duke Univ.

09:30-09:50	WeA2.4

Predicting Popularity Dynamics of Online Contents Using Data Filtering Methods.

Richier, Cédric	Univ. of Avignon
Elazouzi, Rachid	Univ. of Avignon
Tania, Jimenez	Univ. of Avignon
Altman, Eitan	INRIA
Georges, Linares	Univ. of Avignon

09:50-10:10	WeA2.5

Extracting Sparse Data Via Histogram Queries.

Wang, I-Hsiang	National Taiwan Univ.
Huang, Shao-Lun	Massachusetts Inst. of Tech.
Lee, Kuan-Yun	National Taiwan Univ.

WeA3	Butternut
Topics in Information Theory (Regular Session)	
Chair: Liu, Tie	Texas A&M Univ.
08:30-08:50	WeA3.1

Typical Sumsets of Linear Codes.

Zhu, Jingge	Ec. Pol. Fédérale de Lausanne
Gastpar, Michael	Univ. of California, Berkeley
08:50-09:10	WeA3.2

Symmetry Reduction of Information Inequalities.

Zhang, Kai	Univ. of Tennessee, Knoxville
Tian, Chao	Univ. of Tennessee, Knoxville
09:10-09:30	WeA3.3

Rate Distortion Regions of Heegard-Berger Problems with Successive Refinement and Scalable Coding.

Benammar, Meryem	Supélec
Zaidi, Abdellatif	Huawei Res. France
09:30-09:50	WeA3.4

Successive Refinement with Cribbing and Side Information.

Vu, Minh Thanh	KTH Royal Inst. of Tech.
Oechtering, Tobias J.	KTH Royal Inst. of Tech.
Wiese, Moritz	KTH Royal Inst. of Tech.
Skoglund, Mikael	KTH Royal Inst. of Tech.
09:50-10:10	WeA3.5

On Channel Resolvability in Presence of Feedback.

Bastani Parizi, Mani	Ec. Pol. Fédérale de Lausanne
Telatar, Emre	Ec. Pol. Fédérale de Lausanne

WeA4   Pine
Wireless Communication Systems (Regular Session)

Chair: Eletreby, Rashad	Carnegie Mellon Univ.

08:30-08:50   **WeA4.1**

Node Isolation of Secure Wireless Sensor Networks under a Heterogeneous Channel Model.

Eletreby, Rashad	Carnegie Mellon Univ.
Yagan, Osman	Carnegie Mellon Univ.

08:50-09:10   **WeA4.2**

Cache-Aided Content Delivery in MIMO Channels.

Ngo, Khac-Hoang	CentraleSupélec, Univ. of Paris-Saclay
Yang, Sheng	Supélec
Kobayashi, Mari	Supélec

09:10-09:30   **WeA4.3**

On the Outage Performance of IEEE 802.11 Broadcast Scheme in Vehicular Ad Hoc Networks.

Golnarian, Sahand	Univ. of Notre Dame
Laneman, J. Nicholas	Univ. of Notre Dame
Lemmon, Michael	Univ. of Notre Dame

09:30-09:50   **WeA4.4**

Capacity Scaling in Massive MIMO with Statistical Spatial Despreading.

Nam, Junyoung	Electronics and Telecommunications Res. Inst.

09:50-10:10   **WeA4.5**

Scheduling in Massive MIMO: User Clustering and Pilot Assignment.

Eddine, Hajri	CentraleSupélec
Assaad, Mohamad	CentraleSupélec
Caire, Giuseppe	Univ. of Southern California

WeA5	Lower Level
Sequential Methods (Invited Session)	

Chair: Veeravalli, Venugopal	Univ. of Illinois
Co-Chair: Fellouris, Georgios	Univ. of Illinois
Organizer: Veeravalli, Venu	Univ. of Illinois
Organizer: Fellouris, Georgios	Univ. of Illinois

08:30-08:50	WeA5.1

Sequential Multiple Hypothesis Testing and Applications to On-Line Detection and Diagnosis in Multi-Component Systems (I).

Lai, Tze Leung	Stanford Univ.
Shen, Milan	Airbnb
Tsang, Ka Wai	The Chinese Univ. of Hong Kong, Shenzhen

08:50-09:10	WeA5.2

Multiple Stopping Time Problems: Structural Results (I).

Krishnamurthy, Vikram	Univ. of British Columbia
Aprem, Anup	Univ. of British Columbia
Bhatt, Sujay	Univ. of British Columbia

09:10-09:30	WeA5.3

Quickest Search for Structured Subnetworks (I).

Heydari, Javad	Rensselaer Pol. Inst.
Tajer, Ali	Rensselaer Pol. Inst.

09:30-09:50	WeA5.4

Sequential Rank Change Detection (I).

Xie, Yao	Georgia Inst. of Tech.
Seversky, Lee	Air Force Res. Lab

WeB1   Library
Information Theory and Applications (Invited Session)

Chair: Viswanath, Pramod	Univ. of Illinois
Organizer: Viswanath, Pramod	Univ. of Illinois

10:30-10:50	WeB1.1

On the Existence of Near-Optimal Fixed Time Control of Traffic Intersection Signals (I).

Ouyang, Yi	Univ. of Southern California
Jain, Rahul	Univ. of Southern California
Varaiya, Varaiya	Univ. of California, Berkeley

10:50-11:10	WeB1.2

Duality between Feature Selection and Data Clustering (I).

Chan, Chung	The Chinese Univ. of Hong Kong
Al-Bashabsheh, Ali	The Chinese Univ. at Hong Kong
Zhou, Qiaoqiao	The Chinese Univ. of Hong Kong
Liu, Tie	Texas A&M Univ.

11:10-11:30	WeB1.3

Cover's Open Problem: "The Capacity of the Relay Channel" (I).

Wu, Xiugang	Stanford Univ
Barnes, Leighton Pate	Stanford Univ
Ozgur, Ayfer	Stanford Univ

11:30-11:50	WeB1.4

Designing Genome Assembly Algorithms from a Rate-Distortion Perspective (I).

Shomorony, Ilan	Univ. of California, Berkeley
Kamath, Govinda	Stanford Univ.
Xia, Fei	Tsinghua Univ.
Courtade, Thomas	Univ. of California, Berkeley
Tse, David	Univ. of California, Berkeley

11:50-12:10	WeB1.5

Network Inference Via Directed Information: The Deterministic Limit (I).

Kannan, Sreeram	Univ. of Washington Seattle

12:10-12:30	WeB1.6

Coded Distributed Computing: Straggling Servers and Multistage Dataflows (I).

Li, Songze	Univ. of Southern California
Yu, Qian	Univ. of Southern California
Maddah-ali, Mohammad Ali	Bell Labs Alcatel-Lucent
Avestimehr, Salman	Univ. of Southern California

WeB2	Solarium
Complex Networked Systems (Regular Session)	
Chair: Modiano, Eytan	Massachusetts Inst. of Tech.

10:30-10:50	WeB2.1

Robustness of Interdependent Random Geometric Networks.

Zhang, Jianan	Massachusetts Inst. of Tech.
Yeh, Edmund	Northeastern Univ
Modiano, Eytan	Massachusetts Inst. of Tech.

10:50-11:10	WeB2.2

On Initial Spreaders in Online Social Networks.

Zhao, Jun	CMU

11:10-11:30	WeB2.3

Symbolic Models of Networked Control Systems: A Feedback Refinement Relation Approach.

Mahmoud, Mahmoud Khaled Mohamed	Tech. Univ. of Munich
Rungger, Matthias	Tech. Univ. of Munich
Zamani, Majid	Tech. Univ. of Munich

11:30-11:50	WeB2.4

The Stability Transition Graph under Cascade Dynamics for Social Network Subscription Services.

Weber, Steven	Drexel Univ. Dept. of Ec.

11:50-12:10	WeB2.5

Edge Conductance Estimation Using MCMC.

Bora, Ashish	Univ. of Texas, Austin
Borkar, Vivek Shripad	Indian Inst. of Tech.
Garg, Dinesh	Indian Inst. of Science
Sundaresan, Rajesh	Indian Inst. of Science

WeB3   Butternut
Decentralized Control and Optimization II (Invited Session)

Chair: He, Niao	Univ. of Illinois
Co-Chair: Beck, Carolyn	Univ. of Illinois
Organizer: Nedich, Angelia	Univ. of Illinois
Organizer: Beck, Carolyn	Univ. of Illinois
Organizer: Olshevsky, Alexander	Univ. of Illinois

10:30-10:50	WeB3.1

On the Fast Convergence of Distributed Nesterov Gradient Methods (I).

Qu, Guannan	Harvard Univ.
Li, Na	Harvard Univ.

10:50-11:10	WeB3.2

A Second-Order Proximal Method of Multipliers Algorithm for Composite Minimization (I).

Dhingra, Neil K	Univ. of Minnesota
Jovanovic, Mihailo	Univ. of Minnesota

11:10-11:30	WeB3.3

Slopey Quantizers Are Locally Optimal for Witsenhausen's Counterexample (I).

Ajorlou, Amir	Massachusetts Inst. of Tech.
Jadbabaie, Ali	Univ. of Pennsylvania

11:30-11:50	WeB3.4

Input/Output Analysis of Primal-Dual Gradient Algorithms (I).

Simpson-Porco, John W.	Univ. of Waterloo

11:50-12:10	WeB3.5

NESTT: A Nonconvex Primal-Dual Splitting Method for Distributed and Stochastic Optimization (I).

Hajinezhad, Davood	Iowa State Univ.
Wang, Zhaoran	Princeton Univ.
Zhao, Tuo	Johns Hopkins Univ.
Hong, Mingyi	Iowa State Univ.

12:10-12:30	WeB3.6

Projected Gradient Descent on Riemannian Manifolds with Applications to Online Power System Optimization (I).

Hauswirth, Adrian	ETH Zurich
Bolognani, Saverio	ETH Zurich
Hug, Gabriela	ETH Zurich
Dorfler, Florian	ETH Zurich

WeB4   Pine
Dynamic Games (Regular Session)

Chair: Anastasopoulos, Achilleas	Univ. of Michigan

10:30-10:50	WeB4.1

Information Design for Strategic Coordination of Autonomous Devices with Non-Aligned Utilities.

Le Treust, Mael	ETIS, UMR 8051 / ENSEA, Univ. Cergy-Pontoise, CNRS
Tomala, Tristan	HEC Paris, GREGHEC UMR 2959

10:50-11:10	WeB4.2

Robust Supply Function Bidding in Electricity Markets with Renewables.

Xiao, Yuanzhang	Northwestern Univ.
Bandi, Chaithanya	Northwestern Univ.
Wei, Ermin	Northwestern Univ.

11:10-11:30	WeB4.3

Prospect Theory for Enhanced Smart Grid Resilience Using Distributed Energy Storage.

El Rahi, Georges	Virginia Tech.
Sanjab, Anibal	Virginia Tech.
Saad, Walid	Virginia Tech.
Mandayam, Narayan	WINLAB, Rutgers Univ.
Poor, H. Vincent	Princeton Univ.

11:30-11:50	WeB4.4

Structured Perfect Bayesian Equilibrium in Infinite Horizon Dynamic Games with Asymmetric Information.

Sinha, Abhinav	Univ. of Michigan, Ann Arbor
Anastasopoulos, Achilleas	Univ. of Michigan

11:50-12:10	WeB4.5

Decentralized Bayesian Learning in Dynamic Games.

Vasal, Deepanshu	Univ. of Michigan, Ann Arbor
Anastasopoulos, Achilleas	Univ. of Michigan

12:10-12:30	WeB4.6

A Framework for Decentralized Opacity in Linear Systems.

Ramasubramanian, Bhaskar	Univ. of Maryland, Coll. Park
Cleaveland, Rance	Univ. of Maryland
Marcus, Steven I.	Univ. of Maryland

WeB5	**Lower Level**
Sparse Recovery (Regular Session)	
Chair: Aeron, Shuchin	Tufts Univ.

10:30-10:50	WeB5.1

A Note on Information-Theoretic Bounds on Matrix Completion under Union of Subspaces Model.

Aggarwal, Vaneet	Purdue Univ.
Aeron, Shuchin	Tufts Univ.

10:50-11:10	WeB5.2

Online Sparse and Orthogonal Subspace Estimation from Partial Information.

Balzano, Laura	Univ. of Michigan
Xiao, Pengyu	Univ. of Michigan

11:10-11:30	WeB5.3

Sparse Reconstruction under Sensing Constraints: A Controlled Approach.

Mardani Najafabadi, Davood	Univ. of Central Florida
Atia, George	Univ. of Central Florida
Abouraddy, Ayman	Univ. of Central Florida

11:30-11:50	WeB5.4

On Compressive Orthonormal Sensing.

Zhou, Yi	Syracuse Univ.
Zhang, Huishuai	Syracuse Univ.
Liang, Yingbin	Syracuse Univ.

11:50-12:10	WeB5.5

On Failing Sets of the Interval-Passing Algorithm for Compressed Sensing.

Yakimenka, Yauhen	Univ. of Tartu
Rosnes, Eirik	Univ. of Bergen

WeC1   Library
Networks II: Stochastic Networks (Invited Session)

Chair: Sowers, Richard	Univ. of Illinois
Organizer: Hajek, Bruce	Univ. of Illinois
Organizer: Srikant, R	Univ. of Illinois

13:30-13:50	WeC1.1

A Generalization of Regenerating Codes for Clustered Storage Systems (I).

Narayana Moorthy, Prakash	Massachusetts Inst. of Tech.
Abdrashitov, Vitaly	Massachusetts Inst. of Tech.
Médard, Muriel	Massachusetts Inst. of Tech.

13:50-14:10	WeC1.2

Performance Upper Bounds in the Labeled Stochastic Block Model (I).

Yun, Seyoung	Los Alamos National Lab.
Proutiere, Alexandre	KTH Royal Inst. of Tech.

14:10-14:30	WeC1.3

On the Penalty of Learning in Queueing Bandits (I).

Krishnasamy, Subhashini	Univ. of Texas, Austin
Sen, Rajat	Univ. of Texas, Austin
Johari, Ramesh	Stanford Univ.
Shakkottai, Sanjay	Univ. of Texas, Austin

14:30-14:50	WeC1.4

Analyzing Distributed Join-Idle-Queue: A Fluid Limit Approach (I).

Mitzenmacher, Michael	Harvard Univ.

14:50-15:10	WeC1.5

A Greedy Randomized Algorithm Achieving Sublinear Optimality Gap in a Dynamic Packing Model (I).

Stolyar, Alexander	Lehigh Univ.
Zhong, Yuan	Columbia Univ.

WeC2   Solarium
Signal Processing for Big Data (Invited Session)

Chair: Varshney, Lav R.	Univ. of Illinois
Co-Chair: Veeravalli, Venugopal	Univ. of Illinois
Organizer: Moulin, Pierre	Univ. of Illinois
Organizer: Veeravalli, Venugopal	Univ. of Illinois
Organizer: Varshney, Lav R.	Univ. of Illinois

13:30-13:50	WeC2.1

Interpretable Machine Learning Via Convex Cardinal Shape Composition (I).

Varshney, Kush R.	IBM Thomas J. Watson Res. Center

13:50-14:10	WeC2.2

Accelerated Method for Nonconvex Phase Retrieval (I).

Zhou, Yi	Syracuse Univ.
Zhang, Huishuai	Syracuse Univ.
Liang, Yingbin	Syracuse Univ.

14:10-14:30	WeC2.3

Minimax Optimal Subsampling for Large Sample Linear Regression (I).

Singh, Aarti	Carnegie Mellon Univ.

14:30-14:50	WeC2.4

On Unsupervised Clustering under the Union of Tensor Subspaces (I).

Chaghazardi, Mohammadhossein	Tufts Univ.
Aeron, Shuchin	Tufts Univ.

WeC3   Butternut
Combinatorial and Algebraic Coding Theory (Regular Session)

Chair: Goela, Naveen	Tech. Res
13:30-13:50	WeC3.1

Learning to Decode Linear Codes Using Deep Learning.

Nachmani, Eliya	Tel Aviv Univ.
Be'ery, Yair	Tel Aviv Univ.
Burshtein, David	Tel Aviv Univ.
13:50-14:10	WeC3.2

The Structure of Polarized Channels Via Explicit Parameters.

Goela, Naveen	Tech. Res.
14:10-14:30	WeC3.3

Dense Gray Codes, or Easy Ways to Generate Cyclic and Non-Cyclic Gray Codes for the First N Whole Numbers.

Cormen, Thomas	Dartmouth Coll.
Fan, Jessica	Dartmouth Coll.
14:30-15:50	WeC3.4

On the Capacity of the Binary Adversarial Wiretap Channel.

Wang, Carol	National Univ. of Singapore

WeC4   Pine
Information Theory (Regular Session)

Chair: Xu, Jiaming	Purdue Univ

13:30-13:50	WeC4.1

Sufficient Conditions for the Equality of Exact and Wyner Common Information.

Vellambi, Badri	New Jersey Inst. of Tech.
Kliewer, Joerg	New Jersey Inst. of Tech.

13:50-14:10	WeC4.2

Synthesis of Gaussian Trees with Correlation Sign Ambiguity: An Information Theoretic Approach.

Moharrer, Ali	Louisiana State Univ.
Wei, Shuangqing	Louisiana State Univ.
Amariucai, George	Iowa State Univ.
Deng, Jing	Univ. of North Carolina, Greensboro

14:10-14:30	WeC4.3

Total Correlation of Gaussian Vector Sources on the Gray–Wyner Network.

Op 't Veld, Giel	École Pol. fédérale de Lausanne
Gastpar, Michael	Univ. of California, Berkeley

14:30-14:50	WeC4.4

Distributed Lossy Interactive Function Computation.

Torabi, Solmaz	Drexel Univ.
Walsh, John MacLaren	Drexel Univ.

14:50-15:10	WeC4.5

Nearly Optimal Sparse Group Testing.

Grigorescu, Elena	Purdue Univ.
Jaggi, Sidharth	The Chinese Univ. of Hong Kong
Zhou, Samson	Purdue Univ.
Gandikota, Venkata	Purdue Univ.

WeC5   Lower Level
Topics in Statistical Inference (Regular Session)

Chair: Courtade, Thomas	Univ. of California, Berkeley

13:30-13:50	WeC5.1

Algorithms for Item Categorization Based on Ordinal Ranking Data.

Aeron, Shuchin	Tufts Univ.
Girson, Josh	Tufts Univ.

13:50-14:10	WeC5.2

Linear Regression with an Unknown Permutation: Statistical and Computational Limits.

Pananjady, Ashwin	Univ. of California, Berkeley
Wainwright, Martin	Univ. of California, Berkeley
Courtade, Thomas	Univ. of California, Berkeley

14:10-14:30	WeC5.3

Interpreting Latent Variables in Factor Models Via Convex Optimization.

Taeb, Armeen	California Inst. of Tech.
Chandrasekaran, Venkat	California Inst. of Tech.

14:30-14:50	WeC5.4

Efficient Bayesian Learning in Social Networks with Gaussian Estimators.

Mossel, Elchanan	Weizmann Inst. and U.C. Berkeley
Olsman, Noah	California Inst. of Tech.
Tamuz, Omer	Weizmann Inst.

14:50-15:10	WeC5.5

Estimation Error of the Constrained Lasso.

Zerbib, Nissim	Ec. Normale Superieure
Li, Yen-Huan	Ec. Pol. Federale de Lausanne
Hsieh, Ya-Ping	Ec. Pol. Federale de Lausanne
Cevher, Volkan	Ec. Pol. Federale de Lausanne

WeD1	Library
Statistical Learning II (Invited Session)	

Chair: Oh, Sewoong	Univ. of Illinois
Organizer: Oh, Sewoong	Univ. of Illinois

15:30-15:50	WeD1.1

Using Entropy for Discovering Causality (I).

Kocaoglu, Murat	Univ. of Texas, Austin
Dimakis, Alex	Univ. of Texas, Austin
Vishwanath, Sriram	Univ. of Texas, Austin
Hassibi, Babak	California Inst. of Tech.

15:50-16:10	WeD1.2

An Efficient Algorithm for Joint Alignment from Pairwise Differences (I).

Chen, Yuxin	Stanford Univ.
Candes, Emmanuel	Stanford Univ.

16:10-16:30	WeD1.3

Proving the Replica-Symmetric Prediction for Compressed Sensing Using a Conditional CLT (I).

Reeves, Galen	Duke Univ.
Pfister, Henry	Duke Univ.

16:30-16:50	WeD1.4

Global Optimality of Local Search for Low Rank Matrix Recovery (I).

Bhojanapalli, Srinadh	Toyota Tech. Inst. at Chicago
Neyshabur, Behnam	Toyota Tech. Inst. at Chicago
Srebro, Nathan	Toyota Tech. Inst. at Chicago

16:50-17:10	WeD1.5

Finding Low-Rank Solutions to Convex Smooth Problems Via the Burer-Monteiro Approach.

Park, Dohyung	Univ. of Texas, Austin
Kyrillidis, Anastasios	Univ. of Texas, Austin
Caramanis, Constantine	Univ. of Texas, Austin
Sanghavi, Sujay	Univ. of Texas, Austin

WeD2	Solarium
Decentralized and Distributed Decision-Making (Invited Session)	
Chair: Başar, Tamer	Univ. of Illinois
Co-Chair: Nedich, Angelia	Univ. of Illinois
Organizer: Veeravalli, Venu	Univ. of Illinois
Organizer: Başar, Tamer	Univ. of Illinois
Organizer: Nedich, Angelia	Univ. of Illinois

15:30-15:50	WeD2.1

Optimal Decentralized Control of System with Partially Exchangeable Agents (I).

Arabneydi, Jalal	McGill Univ.
Mahajan, Aditya	McGill Univ.

15:50-16:10	WeD2.2

In Pursuit of Novelty: A Decentralized Approach to Subspace Clustering (I).

Rahmani, Mostafa	Univ. of Central Florida
Atia, George	Univ. of Central Florida

16:10-16:30	WeD2.3

Distributed Algorithms for Network Optimization under Non-Sparse Equality Constraints (I).

Cherukuri, Ashish	Univ. of California, San Diego
Cortes, Jorge	Univ. of California, San Diego

16:30-16:50	WeD2.4

The Tension between Anarchy and Stability in Noncooperative Designs (I).

Marden, Jason	Univ. of California, Santa Barbara

16:50-17:10	WeD2.5

Rigid Formation Control with Nonlinear Passive Actuation (I).

Lan, Bradley	Univ. of Iowa
Dasgupta, Soura	Univ. of Iowa

WeD3   Butternut
Topics in Optimization (Regular Session)

Chair: Varshney, Kush R.	IBM Thomas J. Watson Res. Center

15:30-15:50	WeD3.1

Optimal Ranking of Test Items Using the Rasch Model.

Vats, Divyanshu	Carnegie Mellon Univ.
Lan, Andrew S.	Rice Univ.
Studer, Christoph	Cornell Univ.
Baraniuk, Richard	Rice Univ.

15:50-16:10	WeD3.2

A Simpler Approach to Low-Rank Tensor Canonical Polyadic Decomposition.

Pimentel-Alarcon, Daniel Leonardo	Univ. of Wisconsin-Madison

16:10-16:30	WeD3.3

Subgradient Methods with Perturbations in Network Problems.

Valls, Víctor	Trinity Coll. Dublin
Leith, Douglas	National Univ. of Ireland Maynooth

16:30-16:50	WeD3.4

On the Interplay of Network Structure and Gradient Convergence in Deep Learning.

Ithapu, Vamsi K.	Univ. of Wisconsin-Madison
Ravi, Sathya N.	Univ. of Wisconsin-Madison
Singh, Vikas	Univ. of Wisconsin-Madison

16:50-17:10	WeD3.5

Towards a Theoretical Analysis of PCA for Heteroscedastic Data.

Hong, David	Univ. of Michigan
Balzano, Laura	Univ. of Michigan
Fessler, Jeffrey	Univ. of Michigan

17:10-17:30	WeD3.6

The Role of Strong Convexity-Concavity in the Convergence and Robustness of the Saddle-Point Dynamics.

Cherukuri, Ashish	Univ. of California, San Diego
Mallada, Enrique	Johns Hopkins Univ.
Low, Steven	California Inst. of Tech.
Cortes, Jorge	Univ. of California, San Diego

WeD4 — Pine
Information Theory II (Regular Session)

Chair: Chen, Jinyuan	Stanford Univ.

15:30-15:50	WeD4.1

Partial Strong Converse for the Non-Degraded Wiretap Channel.

Wei, Yi-Peng	Univ. of Maryland
Ulukus, Sennur	Univ. of Maryland

15:50-16:10	WeD4.2

Universal Covertness for Discrete Memoryless Sources.

Chou, Remi	The Pennsylvania State Univ.
Bloch, Matthieu	Georgia Inst. of Tech.
Yener, Aylin	The Pennsylvania State Univ.

16:10-16:30	WeD4.3

New Results on the Secure Capacity of Symmetric Two-User Interference Channels.

Chen, Jinyuan	Louisiana Tech. Univ.

16:30-16:50	WeD4.4

On the Fine Asymptotics of Information Theoretic Privacy.

Kalantari, Kousha	Arizona State Univ.
Kosut, Oliver	Arizona State Univ.
Sankar, Lalitha	Arizona State Univ.

16:50-17:10	WeD4.5

Source-Channel Secrecy for Shannon Cipher System.

Yu, Lei	Univ. of Science and Tech. of China
Li, Houqiang	Univ. of Science and Tech. of China
Li, Weiping	Univ. of Science and Tech. of China

17:10-17:30	WeD4.6

Covert Communications on Renewal Packet Channels.

Soltani, Ramin	Univ. of Massachusetts, Amherst
Goeckel, Dennis	Univ. of Massachusetts, Amherst
Towsley, Don	Univ. of Massachusetts, Amherst
Houmansadr, Amir	Univ. of Massachusetts, Amherst

WeD5	Lower Level
Control and Robotics (Regular Session)	

Chair: La, Hung	Univ. of Nevada, Reno

15:30-15:50	WeD5.1

Design and Implementation of an Autonomous Robot for Steel Bridge Inspection.

Pham, Nhan	Univ. of Nevada, Reno
La, Hung	Univ. of Nevada, Reno

15:50-16:10	WeD5.2

Distributed Flocking Control of Mobile Robots by Bounded Feedback.

Nguyen, Thang	Cleveland State Univ.
Han, Thanh-Trung	Ton Duc Thang Univ.
La, Hung	Univ. of Nevada, Reno

16:10-16:30	WeD5.3

A Bisimulation-Like Algorithm for Abstracting Control Systems.

Wagenmaker, Andrew	Univ. of Michigan
Ozay, Necmiye	Univ. of Michigan

16:30-16:50	WeD5.4

On Incremental Stability of Time-Delayed Stochastic Control Systems.

Jagtap, Pushpak	Tech. Univ. of Munich
Zamani, Majid	Tech. Univ. of Munich

16:50-17:10	WeD5.5

On the Transformation of Optimal Centralized Controllers into Near-Globally Optimal Static Distributed Controllers: Theoretical Lower Bounds and Extension to Stochastic Systems.

Fattahi, Salar	Univ. of California, Berkeley
Lavaei, Javad	Univ. of California, Berkeley

17:10-17:30	WeD5.6

Gradient-Free Distributed Resource Allocation Via Simultaneous Perturbation Stochastic Approximation.

Ramirez-Llanos, Eduardo	Univ. of California, San Diego
Martinez, Sonia	Univ. of California, San Diego

ThA1   Library

High Dimensional Estimation: Statics and Dynamics (Invited Session)

Chair: Do, Minh	Univ. of Illinois
Co-Chair: Lu, Yue	Harvard Univ.
Organizer: Do, Minh	Univ. of Illinois
Organizer: Lu, Yue M.	Harvard Univ.

08:30-08:50	ThA1.1

A High-Dimensional Analysis of Streaming Algorithms for M-Estimation (I).

Wang, Chuang	Harvard Univ.
Mattingly, Jonathan	Duke Univ.
Lu, Yue M.	Harvard Univ.

08:50-09:10	ThA1.2

An Approximate Cross Validation Formula for Bayesian Sparse Linear Regression (I).

Kabashima, Yoshiyuki	Tokyo Inst. of Tech.
Obuchi, Tomoyuki	Tokyo Inst. of Tech.
Uemura, Makoto	Hiroshima Univ.

09:10-09:30	ThA1.3

Phase Transitions and Optimal Algorithms in High-Dimensional Gaussian Mixture Clustering (I).

Lesieur, Thibault Selim	CEA IPHT
Banks, Jess	Santa Fe Inst.
De Bacco, Caterina	Santa Fe Inst.
Krzakala, Florent	Lab. de Physique Statistique
Moore, Cristopher	Santa Fe Inst.
Zdeborova, Lenka	CEA Saclay and CNRS

09:30-09:50	ThA1.4

Structure and Parameter Estimation of High-Dimensional Graphical Models (I).

Vuffray, Marc	Los Alamos National Lab.
Lokhov, Andrey	Los Alamos National Lab.
Misra, Sidhant	Los Alamos National Lab.
Chertkov, Michael	Los Alamos National Lab.

09:50-10:10	ThA1.5

Precise High Dimensional Performance of the LASSO with Quadratic Sampling (I).

Abbasi, Ehsan	California Inst. of Tech.
Thrampoulidis, Christos	California Inst. of Tech.
Hassibi, Babak	California Inst. of Tech.

ThA2   Solarium
Coding Theory I (Invited Session)

Chair: Gabrys, Ryan	Univ. of California, Los Angeles
Organizer: Milenkovic, Olgica	Univ. of Illinois
Organizer: Gabrys, Ryan	Univ. of California, Los Angeles

08:30-08:50	ThA2.1

Bounds and Constructions for Geometric Orthogonal Codes (I).

Chee, Yeow Meng	Nanyang Tech. Univ.
Kiah, Han Mao	Nanyang Tech. Univ.
Ling, San	Nanyang Tech. Univ.
Wei, Hengjia	Nanyang Tech. Univ.

08:50-09:10	ThA2.2

Robust Channel Coding Strategies for Machine Learning Data (I).

Mazooji, Kayvon	Univ. of California, Los Angeles
Sala, Frederic	Univ. of California, Los Angeles
Van den Broeck, Guy	Univ. of California, Los Angeles
Dolecek, Lara	Univ. of California, Los Angeles

09:10-09:30	ThA2.3

Centralized Multi-Node Repair in Distributed Storage (I).

Zorgui, Marwen	Univ. of California, Irvine
Wang, Zhiying	Univ. of California, Irvine

09:30-09:50	ThA2.4

Multi-Stage Quantum Turbo Codes with an Arbitrary Small Decoding Error Probability (I).

Andriyanova, Iryna	ENSEA/Univ. of Cergy-Pontoise/CNRS
Tillich, Jean-Pierre	INRIA

ThA3	Butternut
Information Theory and Statistics (Regular Session)	

Chair: Sankar, Lalitha	Arizona State Univ.

08:30-08:50	ThA3.1

The Mutual Information in Random Linear Estimation.

Barbier, Jean	Ec. Pol. Fédérale de Lausanne
Dia, Mohamad	Ec. Pol. Fédérale de Lausanne
Macris, Nicolas	Ec. Pol. Fédérale de Lausanne
Krzakala, Florent	Lab. De Physique Statistique

08:50-09:10	ThA3.2

Polynomial Spectral Decomposition of Conditional Expectation Operators.

Makur, Anuran	Massachusetts Inst. of Tech.
Zheng, Lizhong	Massachusetts Inst. of Tech.

09:10-09:30	ThA3.3

Atypicality for Class of Exponential Family.

Sabeti, Elyas	Univ. of Hawaii
Host-Madsen, Anders	Univ. of Hawaii

09:30-09:50	ThA3.4

Hypothesis Testing in the High Privacy Limit.

Liao, Jiachun	Arizona State Univ.
Sankar, Lalitha	Arizona State Univ.
Tan, Vincent	National Univ. of Singapore
Calmon, Flavio	Massachusetts Inst. of Tech.

09:50-10:10	ThA3.5

Community Recovery in Hypergraphs.

Ahn, Kwangjun	Korea Adv. Inst. of Science & Tech.
Lee, Kangwook	KAIST
Suh, Changho	KAIST

ThA4 — Pine

Network Information Theory (Regular Session)

Chair: Devroye, Natasha	Univ. of Illinois, Chicago

08:30-08:50	ThA4.1

Energy Efficiency of Wireless Cooperation.

Jain, Aman	Princeton Univ.
Kulkarni, Sanjeev	Princeton Univ.
Verdú, Sergio	Princeton Univ.

08:50-09:10	ThA4.2

When Is the Zero-Error Capacity Positive in the Relay, Multiple-Access, Broadcast and Interference Channels?

Devroye, Natasha	Univ. of Illinois, Chicago

09:10-09:30	ThA4.3

The Gaussian Interference Channel in the Presence of a Malicious Jammer.

Hosseinigoki, Fatemeh	Arizona State Univ.
Kosut, Oliver	Arizona State Univ.

09:30-09:50	ThA4.4

Distortion Bounds for Transmitting Correlated Sources with Common Part Over MAC.

Yu, Lei	Univ. of Science and Tech. of China
Li, Houqiang	Univ. of Science and Tech. of China
Chen, Chang Wen	State Univ. of New York, Buffalo

09:50-10:10	ThA4.5

A Two-Round Interactive Receiver Cooperation Scheme for Multicast Channels.

Exposito, Victor	Mitsubishi Electric R&D Centre Europe (MERCE), CentraleSupélec
Yang, Sheng	CentraleSupélec
Gresset, Nicolas	Mitsubishi Electric R&D Centre Europe (MERCE)

ThA5 — Lower Level
Networks and Optimization (Regular Session)

Chair: Cortes, Jorge	Univ. of California, San Diego

08:30-08:50	ThA5.1

An Optimal Treatment Assignment Strategy to Evaluate Demand Response Effect.

Li, Pan	Univ. of Washington
Zhang, Baosen	Univ. of Washington

08:50-09:10	ThA5.2

Dynamic Pricing and Proactive Caching with Unknown Demand Profile.

Alotaibi, Faisal	The Ohio State Univ.
Eryilmaz, Atilla	The Ohio State Univ.
El Gamal, Hesham	The Ohio State Univ.

09:10-09:30	ThA5.3

Cycle Basis Distributed ADMM Solution for Optimal Network Flow Problem Over Bi-Connected Graphs.

Asadi, Reza	Univ. of California, Irvine
Kia, Solmaz	Univ. of California, Irvine
Regan, Amelia	Univ. of California, Irvine

09:30-09:50	ThA5.4

Mobility-Aware Centralized D2D Caching Networks.

Hosny, Sameh	The Ohio State Univ.
Eryilmaz, Atilla	The Ohio State Univ.
Abouzeid, Alhussein	Rensselaer Pol. Inst.
ElGamal, Hesham	The Ohio State Univ.

09:50-10:10	ThA5.5

Deadline Scheduling As Restless Bandits.

Yu, Zhe	Cornell Univ.
Xu, Yunjian	Singapore Univ. of Tech. and Design
Tong, Lang	Cornell Univ.

ThB1   Library

Statistics and Machine Learning (Invited Session)

Chair: Oh, Sewoong	Univ. of Illinois
Co-Chair: Viswanath, Pramod	Univ. of Illinois
Organizer: Oh, Sewoong	Univ. of Illinois
Organizer: Viswanath, Pramod	Univ. of Illinois

10:30-10:50	ThB1.1

The Lovasz Local Lemma in the Presence of Noise (I).

Achlioptas, Dimitris	Univ. of California, Santa Cruz

10:50-11:10	ThB1.2

Information Measures, Experiments, Multi-Category Hypothesis Tests, and Surrogate Losses (I).

Duchi, John	Stanford Univ.
Khosravi, Khashayar	Stanford Univ.
Ruan, Feng	Stanford Univ.

11:10-11:30	ThB1.3

Restricted Strong Convexity and Weak Submodularity (I).

Elenberg, Ethan	Univ. of Texas, Austin
Khanna, Rajiv	Univ. of Texas, Austin
Dimakis, Alex	Univ. of Texas, Austin
Negahban, Sahand	Yale Univ.

11:30-11:50	ThB1.4

Incremental Methods for Additive Convex Optimization (I).

Gurbuzbalaban, Mert	Massachusetts Inst. of Tech.
Parrilo, Pablo A.	Massachusetts Inst. of Tech.
Ozdaglar, Asu	Massachusetts Inst. of Tech.

11:50-12:10	ThB1.5

A Permutation-Based Model for Crowdsourcing: Optimal Estimation and Robustness (I).

Shah, Nihar	Univ. of California, Berkeley
Balakrishnan, Sivaraman	Univ. of California, Berkeley
Wainwright, Martin	Univ. of California, Berkeley

12:10-12:30	ThB1.6

Persistence of Centrality in Random Growing Trees (I).

Jog, Varun	Univ. of Wisconsin-Madison
Loh, Po-Ling	Univ. of Wisconsin-Madison

ThB2   Solarium
Machine Learning II (Invited Session)

Chair: Milenkovic, Olgica	Univ. of Illinois
Chair: Tsourakakis, Charalampos	Harvard Univ.
Organizer: Milenkovic, Olgica	Univ. of Illinois
Organizer: Tsourakakis, Charalampos	Harvard Univ.

10:30-10:50	ThB2.1

Clustering with an Oracle (I).

Mazumdar, Arya	Univ. of Massachusetts, Amherst
Saha, Barna	Univ. of Massachusetts, Amherst

10:50-11:10	ThB2.2

Data Derived Convergence of Slow Mixing Markov Random Processes (I).

Asadi, Meysam	Univ. of Hawaii, Manoa
Santhanam, Narayana Prasad	Univ. of Hawaii

11:10-11:30	ThB2.3

Online Decision-Making with High-Dimensional Covariates (I).

Bayati, Mohsen	Stanford Univ.

11:30-11:50	ThB2.4

Descending Price Algorithm for Determining Market Clearing Prices in Matching Markets.

Su, Shih-Tang	Univ. of Michigan
Subramanian, Vijay	Univ. of Michigan

11:50-12:10	ThB2.5

Observer Placement for Source Localization: The Effect of Budgets and Transmission Variance.

Spinelli, Brunella	Ec. Pol. Fédérale de Lausanne
Celis, L. Elisa	Ec. Pol. Fédérale de Lausanne
Thiran, Patrick	Ec. Pol. Fédérale de Lausanne

12:10-12:30	ThB2.6

High-Speed Compressive Range Imaging Via Structured Illumination (I).

Yuan, Xin	Nokia

ThB3	**Butternut**
Detection and Estimation (Regular Session)	
Chair: Xie, Yao	Georgia Inst. of Tech.

10:30-10:50	ThB3.1

State Estimation in Stochastic Hybrid Systems with Quadratic Guard Conditions.

Zhang, Wenji	Kansas State Univ.
Natarajan, Balasubramaniam	Kansas State Univ.

10:50-11:10	ThB3.2

Compressive Sensing Via Sparse Graph Codes with Continuous Alphabet.

Yin, Dong	Univ. of California, Berkeley
Pedarsani, Ramtin	Univ. of California, Berkeley
Li, Xiao	Univ. of California, Berkeley
Ramchandran, Kannan	Univ. of California, Berkeley

11:10-11:30	ThB3.3

Towards the Design of Prospect-Theory Based Human Decision Rules for Hypothesis Testing.

Nadendla, V. Sriram Siddhardh (Sid)	Syracuse Univ.
Brahma, Swastik	Syracuse Univ.
Varshney, Pramod	Syracuse Univ.

11:30-11:50	ThB3.4

Online Seismic Event Picking Via Sequential Change-Point Detection.

Shuang, Li	Georgia Inst. of Tech.
Cao, Yang	Georgia Inst. of Tech.
Leamon, Christina	Georgia Inst. of Tech.
Xie, Yao	Georgia Inst. of Tech.
Shi, Lei	Georgia State Univ.
Song, Wenzhan	Georgia State Univ.

11:50-12:10	ThB3.5

On a Notion of Estimation Entropy for Stochastic Hybrid Systems.

Awan, Asad Ullah	Tech. Univ. of Munich
Zamani, Majid	Tech. Univ. of Munich

12:10-12:30	ThB3.6

On the Observability of Systems with Rolling Shutter.

Montenbruck, Jan Maximilian	Univ. of Stuttgart
Zeng, Shen	Univ. of Stuttgart
Allgöwer, Frank	Univ. of Stuttgart

ThB4   Pine
Security, Secrecy and Wiretap Channels (Regular Session)

Chair: Amin, Saurabh	Massachusetts Inst. of Tech.

10:30-10:50	ThB4.1

Competitive Online Algorithm for Leasing Wireless Channels in 3-Tier Sharing Framework.

Saha, Gourav	Rensselaer Pol. Inst.
Abouzeid, Alhussein	Rensselaer Pol. Inst.
Matinmikko, Marja Anneli	Univ. of Oulu

10:50-11:10	ThB4.2

Unifying Notions of Generalized Weights for Universal Security on Wire-Tap Networks.

Martínez-Peñas, Umberto	Aalborg Univ.
Matsumoto, Ryutaroh	Tokyo Inst. of Tech.

11:10-11:30	ThB4.3

Network Sensing for Security against Link Disruption Attacks.

Dahan, Mathieu	Massachusetts Inst. of Tech.
Sela Perelman, Lina	Massachusetts Inst. of Tech.
Amin, Saurabh	Massachusetts Inst. of Tech.

11:30-11:50	ThB4.4

Game Theoretic Defense Approach to Wireless Networks against Stealthy Decoy Attacks.

Anwar, Ahmed	Univ. of Central Florida
Atia, George	Univ. of Central Florida
Guirguis, Mina	Texas State Univ.

11:50-12:10	ThB4.5

Quasi-Quadratic Residue Codes and Their Weight Distributions.

Boston, Nigel	Univ. of Wisconsin-Madison
Hao, Jing	Univ. of Wisconsin-Madison

12:10-12:30	ThB4.6

Second Order Asymptotics for Degraded Wiretap Channels: How Good Are Existing Codes?

Tahmasbi, Mehrdad	Georgia Inst. of Tech.
Bloch, Matthieu	Georgia Inst. of Tech.

ThB5	Lower Level
Decentralized Learning and Optimization (Invited Session)	

Chair: Raginsky, Maxim	Univ. of Illinois
Organizer: Raginsky, Maxim	Univ. of Illinois
Organizer: Nedich, Angelia	Univ. of Illinois
Organizer: Langbort, Cedric	Univ. of Illinois

10:30-10:50	ThB5.1

Augmented DEXTRA for Fast Distributed Optimization Over Directed Graphs (I).

Xi, Chenguang	Tufts Univ.
Khan, Usman A.	Tufts Univ.

10:50-11:10	ThB5.2

Regret Bounds for the Distributed Online Alternating Direction Method of Multipliers (I).

Akbari, Mohammad	Queen's Univ.
Gharesifard, Bahman	Queen's Univ.
Linder, Tamas	Queen's Univ.

11:10-11:30	ThB5.3

Strategic Measures Approach to Decentralized Control: Some Recent Existence and Approximation Results (I).

Yuksel, Serdar	Queen's Univ.
Saldi, Naci	Queen's Univ.

11:30-11:50	ThB5.4

Evolutionary Stability and Adaptation in Population Games (I).

Touri, Behrouz	Univ. of Colorado, Boulder
Shamma, Jeff	Georgia Tech.

11:50-12:10	ThB5.5

Decentralized Stochastic Optimization with Multi-Agent Mirror Descent (I).

Rabbat, Michael	McGill Univ.

ThC1   Library

Networks III: Algorithms (Invited Session)

Chair: Eryilmaz, Atilla	The Ohio State Univ.
Organizer: Hajek, Bruce	Univ. of Illinois
Organizer: Srikant, R	Univ. of Illinois

13:30-13:50	ThC1.1

Minimizing Age of Information in Broadcast Wireless Networks (I).

Kadota, Igor	Massachusetts Inst. of Tech.
Uysal-Biyikoglu, Elif	METU-ODTU
Singh, Rahul	Texas A&M Univ.
Modiano, Eytan	Massachusetts Inst. of Tech.

13:50-14:10	ThC1.2

Fast Algorithms for Estimating Personalized PageRank Using Commonly Generated Random-Walks (I).

Vial, Daniel	Univ. of Michigan
Subramanian, Vijay	Univ. of Michigan

14:10-14:30	ThC1.3

Informational Braess' Paradox: The Effect of Information on Traffic Congestion (I).

Acemoglu, Daron	Massachusetts Inst. of Tech.
Makhdoumi, Ali	Massachusetts Inst. of Tech.
Malekian, Azarakhsh	Massachusetts Inst. of Tech.
Ozdaglar, Asu	Massachusetts Inst. of Tech.

14:30-14:50	ThC1.4

Sublinear Estimation of a Single Element in Sparse Linear Systems (I).

Shyamkumar, Nitin	Cornell Univ.
Banerjee, Siddhartha	Cornell Univ.
Lofgren, Peter	Stanford Univ.

14:50-15:10	ThC1.5

Efficient Sampling for Better OSN Data Provisioning (I).

Duffield, Nicholas	Texas A&M Univ.
Krishnamurthy, Balachander	AT&T Labs Res.

ThC2   Solarium
Machine Learning I (Invited Session)

Chair: Milenkovic, Olgica	Univ. of Illinois
Chair: Tsourakakis, Charalampos	Harvard Univ.
Organizer: Milenkovic, Olgica	Univ. of Illinois
Organizer: Tsourakakis, Charalampos	Harvard Univ.

13:30-13:50	ThC2.1

Data-Dependent Bounds on Network Gradient Descent (I).

Bijral, Avleen	Microsoft
Sarwate, Anand	Rutgers Univ.
Srebro, Nathan	Toyota Tech. Inst. at Chicago

13:50-14:10	ThC2.2

Active Top-K Ranking from Pairwise Comparisons (I).

Mohajer, Soheil	Univ. of Minnesota
Suh, Changho	KAIST

14:10-14:30	ThC2.3

Assembling a Network Out of Ambiguous Patches (I).

Yartseva, Lyudmila	Ec. Pol. Fédérale de Lausanne
Elbert Simões, Jefferson	UFRJ
Grossglauser, Matthias	Ec. Pol. Fédérale de Lausanne

14:30-14:50	ThC2.4

Scalable Motif-Aware Graph Clustering (I).

Tsourakakis, Charalampos	Harvard Univ.

14:50-15:10	ThC2.5

Language Edit Distance and Connection to Fundamental Graph and Biology Problems (I).

Saha, Barna	Univ. of Massachusetts, Amherst

ThC3	Butternut
Wireless Communications (Regular Session)	
Chair: Devroye, Natasha	Univ. of Illinois, Chicago

13:30-13:50	ThC3.1

MIMO One Hop Networks with No Eve CSIT.

Mukherjee, Pritam	Univ. of Maryland
Ulukus, Sennur	Univ. of Maryland

13:50-14:10	ThC3.2

On the Capacity of the AWGN Channel with Additive Radar Interference.

Shahi, Sara	Univ. of Illinois, Chicago
Tuninetti, Daniela	Univ. of Illinois, Chicago
Devroye, Natasha	Univ. of Illinois, Chicago

14:10-14:30	ThC3.3

Finite Block Length Coding for Low-Latency High-Reliability Wireless Communication.

Dickstein, Leah	Univ. of California, Berkeley
Narasimha Swamy, Vasuki	Univ. of California, Berkeley
Ranade, Gireeja	Microsoft
Sahai, Anant	Univ. of California, Berkeley

14:30-14:50	ThC3.4

Spatial Birth-Death Wireless Networks.

Sankararaman, Abishek	Univ. of Texas, Austin
Baccelli, François	Univ. of Texas, Austin

14:50-15:10	ThC3.5

Fundamental Limits of Cache-Aided Wireless BC: Interplay of Coded-Caching and CSIT Feedback.

Zhang, Jingjing	EURECOM
Elia, Petros	EURECOM

ThC4	Pine
Coding for Distributed and Approximate Computing (Regular Session)	
Chair: Wang, Zhiying	Univ. of California, Irvine

13:30-13:50	ThC4.1

Resource Allocation for Data-Parallel Computing in Networks with Data Locality.

Wang, Weina	Arizona State Univ.
Ying, Lei	Arizona State Univ.

13:50-14:10	ThC4.2

Fault-Tolerant Distributed Logistic Regression Using Unreliable Components.

Yang, Yaoqing	Carnegie Mellon Univ.
Grover, Pulkit	Carnegie Mellon Univ.
Kar, Soummya	Carnegie Mellon Univ.

14:10-14:30	ThC4.3

Error Correction for Approximate Computing.

Zhang, Hang	Georgia Inst. of Tech.
Abdi, Afshin	Georgia Inst. of Tech.
Fekri, Faramarz	Georgia Inst. of Tech.
Esmaeilzadeh, Hadi	Georgia Inst. of Tech.

14:30-14:50	ThC4.4

Anytime Coding for Distributed Computation.

Ferdinand, Nuwan	Univ. of Toronto
Draper, Stark	Univ. of Toronto

14:50-15:10	ThC4.5

On the Worst-Case Communication Overhead for Distributed Data Shuffling.

Attia, Mohamed A.	Univ. of Arizona
Tandon, Ravi	Univ. of Arizona

ThC5   Lower Level
Recent Developments in Information Theory, Probability and Statistics (Invited Session)

Chair: Raginsky, Maxim	Univ. of Illinois
Organizer: Raginsky, Maxim	Univ. of Illinois
Organizer: Wu, Yihong	Univ. of Illinois

13:30-13:50	ThC5.1

Low-Redundancy Bit Interleaving (I).

Klein-Orbach, Alon	Hebrew Univ. of Jerusalem
Kochman, Yuval	Hebrew Univ. of Jerusalem

13:50-14:10	ThC5.2

Minimization of a Particular Singular Value (I).

Alavian, Alborz	Univ. of Maryland, Coll. Park
Rotkowitz, Michael	The Univ. of Maryland

14:10-14:30	ThC5.3

Inference of High-Dimensional Autoregressive Generalized Linear Models (I).

Hall, Eric	Uptake
Raskutti, Garvesh	Univ. of California, Berkeley
Willett, Rebecca	Univ. of Wisconsin-Madison

14:30-14:50	ThC5.4

When Is Shannon's Lower Bound Tight at Finite Blocklength? (I).

Kostina, Victoria	California Inst. of Tech.

14:50-15:10	ThC5.5

Diophantine Approximation for Network Information Theory: A Survey of Old and New Results (I).

Nazer, Bobak	Boston Univ.
Ordentlich, Or	Massachusetts Inst. of Tech.

ThD1   Library
Statistical Learning I (Invited Session)

Chair: Oh, Sewoong	Univ. of Illinois
Organizer: Oh, Sewoong	Univ. of Illinois

15:30-15:50	ThD1.1

The Search Problem in Mixture Models (I).

Sanghavi, Sujay	Univ. of Texas, Austin

15:50-16:10	ThD1.2

Sparse PCA Via Covariance Thresholding (I).

Deshpande, Yash	Stanford Univ.
Montanari, Andrea	Stanford Univ.

16:10-16:30	ThD1.3

Computing and Maximizing Influence in Linear Threshold and Triggering Models (I).

Khim, Justin	Univ. of Pennsylvania
Jog, Varun	Univ. of Wisconsin-Madison
Loh, Po-Ling	Univ. of Wisconsin-Madison

16:30-16:50	ThD1.4

Fast Constrained Submodular Maximization: Personalized Data Summarization (I).

Karbasi, Amin	Yale Univ.

16:50-17:10	ThD1.5

Synthesis of MCMC and Belief Propagation (I).

Shin, Jinwoo	KAIST
Chertkov, Michael	Los Alamos National Lab.
Ahn, Sungsoo	KAIST

17:10-17:30	ThD1.6

Asynchrony Begets Momentum, with an Application to Deep Learning.

Mitliagkas, Ioannis	Stanford Univ.
Zhang, Ce	Stanford Univ.
Hadjis, Stefan	Stanford Univ.
Ré, Christopher	Stanford Univ.

ThD2 — Solarium
Coding Theory II (Invited Session)

Chair: Gabrys, Ryan	Univ. of California, Los Angeles
Organizer: Milenkovic, Olgica	Univ. of Illinois
Organizer: Gabrys, Ryan	Univ. of California, Los Angeles

15:30-15:50	ThD2.1

Explicit Constructions of High-Rate Regenerating Codes with Optimal Repair Bandwidth for All Parameters (I).

Ye, Min	Univ. of Maryland
Barg, Alexander	Univ. of Maryland

15:50-16:10	ThD2.2

Private Information Retrieval from Coded Data (I).

El Rouayheb, Salim	IIT Chicago

16:10-16:30	ThD2.3

Duplication-Correcting Codes for Data Storage in DNA of Living Organisms (I).

Jain, Siddharth	California Inst. of Tech.
Farnoud, Farzad	Univ. of Virginia
Schwartz, Moshe	Ben-Gurion Univ. of the Negev
Bruck, Jehoshua	California Inst. of Tech.

16:30-16:50	ThD2.4

In Memoriam: David MacKay and Solomon Golomb (I).

Barg, Alexander	Univ. of Maryland

16:50-17:10	ThD2.5

100 Years of Shannon: Chess, Computing and Botvinik (I).

Andriyanova, Iryna	ENSEA/Univ. of Cergy-Pontoise/CNRS

ThD3	**Butternut**
Coding for Data Exchange and Storage (Regular Session)	

Chair: Duursma, Iwan	Univ. of Illinois

15:30-15:50	ThD3.1

Cooperative Data Exchange: A Coalitional Game Perspective.

Heidarzadeh, Anoosheh	Texas A&M Univ.
Sprintson, Alex	Texas A&M Univ.

15:50-16:10	ThD3.2

Multi-Library Coded Caching.

Sahraei, Saeid	Ec. Pol. Fédérale de Lausanne
Gastpar, Michael	Univ. of California, Berkeley

16:10-16:30	ThD3.3

Replicated Convolutional Codes: A Design Framework for Repair-Efficient Distributed Storage Codes.

Zhu, Bing	Peking Univ. Shenzhen Graduate School
Li, Xin	Peking Univ. Shenzhen Graduate School
Li, Hui	Peking Univ. Shenzhen Graduate School
Shum, Kenneth	The Chinese Univ. of Hong Kong

16:30-16:50	ThD3.4

Local Erasure Correction Codes with Unequal Locality Profile.

Kim, Geonu	Seoul National Univ.
Lee, Jungwoo	Seoul National Univ.

16:50-17:10	ThD3.5

Rank-Metric Codes with Local Recoverability.

Kadhe, Swanand	Texas A&M Univ.
El Rouayheb, Salim	IIT Chicago
Duursma, Iwan	Univ. of Illinois
Sprintson, Alex	Texas A&M Univ.

17:10-17:30	ThD3.6

Bounds on the Rate of Linear Locally Repairable Codes Over Small Alphabets.

Agarwal, Abhishek	Univ. of Minnesota
Mazumdar, Arya	Univ. of Massachusetts, Amherst

17:30-17:50	ThD3.7

Factor-Graph Representations of Stabilizer Quantum Codes.

Li, July X.	The Chinese Univ. of Hong Kong
Vontobel, Pascal	The Chinese Univ. of Hong Kong

ThD4   Pine

Optimization-Based Methods in Networked Control (Invited Session)

Chair: Rotkowitz, Michael	Univ. of Maryland
Co-Chair: Raginsky, Maxim	Univ. of Illinois
Organizer: Raginsky, Maxim	Univ. of Illinois
Organizer: Rotkowitz, Michael	Univ. of Maryland

15:30-15:50	ThD4.1

On the Optimal Design of Structured Static Controllers for Linear Systems (I).

| Dhingra, Neil K | Univ. of Minnesota |
| Jovanovic, Mihailo | Univ. of Minnesota |

15:50-16:10	ThD4.2

Learning Approaches for Expressive and Deceptive Control Strategies (I).

| Lamperski, Andrew | Univ. of Minnesota |

16:10-16:30	ThD4.3

Polynomial Optimization Methods for Determining Lower Bounds on Decentralized Assignability (I).

| Alavian, Alborz | Univ. of Maryland, Coll. Park |
| Rotkowitz, Michael | Univ. of Maryland |

16:30-16:50	ThD4.4

Periodic Time-Triggered Sparse Linear Quadratic Controller Design (I).

| Bahavarnia, MirSaleh | Lehigh Univ. |
| Motee, Nader | Lehigh Univ. |

16:50-17:10	ThD4.5

New Directions in Nonnegative Matrix Factorization (I).

Koochakzadeh, Ali	Univ. of Maryland
Miran, Sayyed Sina	Univ. of Maryland
Samangouei, Pouya	Univ. of Maryland
Rotkowitz, Michael	Univ. of Maryland

17:10-17:30	ThD4.6

New Methods for Handling Binary Constraints (I).

Yadav, Abhay Kumar	Univ. of Maryland
Ranjan, Rajeev	Univ. of Maryland
Mahbub, Upal	Univ. of Maryland
Rotkowitz, Michael	Univ. of Maryland

ThD5	Lower Level
Decentralized Control and Optimization I (Invited Session)	

Chair: Beck, Carolyn	Univ. of Illinois
Organizer: Nedich, Angelia	Univ. of Illinois
Organizer: Beck, Carolyn	Univ. of Illinois
Organizer: Olshevsky, Alexander	Univ. of Illinois

15:30-15:50	ThD5.1

Adaptive Social Networks: Strong Attractors and Emergence and Downfall of Leaders (I).

Santos, Augusto	Carnegie Mellon Univ.
Kar, Soummya	Carnegie Mellon Univ.
Krishnan, Ramayya	Carnegie Mellon Univ.
Moura, Jose' M. F.	Carnegie Mellon Univ.

15:50-16:10	ThD5.2

An Approach for Distributed State Estimation of LTI Systems (I).

Mitra, Aritra	Purdue Univ.
Sundaram, Shreyas	Purdue Univ.

16:10-16:30	ThD5.3

Asynchronous Incremental Aggregated Gradient Descent: Convergence Analysis and Parameter Server Implementation (I).

Aytekin, Arda	KTH Royal Inst. of Tech.
Feyzmahdavian, Hamid Reza	KTH Royal Inst. of Tech.
Johansson, Mikael	KTH Royal Inst. of Tech.

16:30-16:50	ThD5.4

Open Multi-Agent Systems: Gossiping with Deterministic Arrivals and Departures (I).

Hendrickx, Julien	Université catholique de Louvain
Martin, Samuel	CRAN, Univ. de Lorraine

16:50-17:10	ThD5.5

On Distributed Computational Approaches for Optimal Control of Traffic Flow Over Networks (I).

Ba, Qin	Univ. of Southern California
Savla, Ketan	Univ. of Southern California

17:10-17:30	ThD5.6

Distributed Nonconvex Multiagent Optimization Over Time-Varying Digraphs (I).

Scutari, Gesualdo	Purdue Univ.
Sun, Ying	Purdue Univ.

17:10-17:30	ThD5.7

Synchronization Bound for Networks of Nonlinear Oscillators.

Davison, Elizabeth	Princeton Univ.
Dey, Biswadip	Princeton Univ.
Leonard, Naomi	Princeton Univ.

Chair: Hovakimyan, Naira	Univ. of Illinois
08:30-09:30	FrPP.1

Human Decision-Making and Multi-Armed Bandit Problems.

Leonard, Naomi   Princeton Univ.

Abstract: Human decision-making in explore–exploit tasks, from resource allocation to search in an uncertain environment, can be modeled using multi-armed bandit problems, where the decision maker must choose among multiple options with uncertain rewards. Rigorous examination of the heuristics that humans use in these tasks can help in designing and evaluating strategies for performance in a wide range of real-world decision-making scenarios that involve humans, machines or both. In the standard setting, the objective is to optimize accumulated reward over a sequence of choices, which creates a tension between choosing the most rewarding among known options (exploitation) and choosing poorly known but potentially more rewarding options (exploration). I will discuss results from multi-armed bandit experiments with human participants and features of human decision-making captured by a model that relies on Bayesian inference, confidence bounds, and Boltzmann action selection. I will discuss extensions to distributed cooperative decision-making in multi-player multi-armed bandit problems and to satisficing objectives.

Biography: Naomi Ehrich Leonard is the Edwin S. Wilsey Professor of Mechanical and Aerospace Engineering and an associated faculty member of the Program in Applied and Computational Mathematics at Princeton University.   She is Director of Princeton's Council on Science and Technology and an affiliated faculty member of the Princeton Neuroscience Institute and Program on Quantitative and Computational Biology.   Leonard is a MacArthur Fellow and a member of the American Academy of Arts and Sciences. She is a Fellow of the IEEE, ASME, SIAM, and IFAC. She received the B.S.E. degree in Mechanical Engineering from Princeton University in 1985 and the M.S. and Ph.D. degrees in Electrical Engineering from the University of Maryland in 1991 and 1994. From 1985 to 1989, she worked as an engineer in the electric power industry.

Leonard's research and teaching are in control and dynamical systems, where she has made contributions to both theory and application. Her current interests include coordinated control of multi-agent systems, mobile sensor networks, collective animal behavior, and human decision dynamics.   She has recently focused on developing rigorous means to show how features of agent interconnections, such as network structure, heterogeneity of information, and leadership, determine collective dynamics and performance as measured by speed, accuracy, robustness to uncertainty, and flexibility in a changing environment. She has collaborated with biologists to study the mechanisms that explain the inspiring collective dynamics of animal groups, including killifish, honeybees, caribou, and starlings, as well as to explain human decision-making under uncertainty. Capitalizing on her findings, she has developed models and rigorous methodology for design of distributed control of multi-agent systems with guaranteed performance. Leonard led a large, multidisciplinary project that culminated in a major field demonstration in Monterey Bay, CA of a first-of-its-kind automated and adaptive ocean observing system. The system comprised a coordinated network of underwater robotic vehicles that moved about on their own for weeks at a time collecting scientific data about the ocean.   Leonard also engages in work at the intersection of dance and collective dynamics.

FrA1   Library
Cyber Security in (Networked) Control Systems (Invited Session)

Organizer/Chair: Voulgaris, Petros G.	Univ. of Illinois

10:00-10:20	FrA1.1

Towards a Secure Cloud: Distributed Computing Over Encrypted Data (I).

Freris, Nikolaos	New York Univ. Abu Dhabi

10:20-10:40	FrA1.2

Recursive Reachable Set Computation for On-Line Safety Assessment of the Cyber-Physical System against Stealthy Cyber Attacks (I).

Kwon, Cheolhyeon	Purdue Univ.
Hwang, Inseok	Purdue Univ.

10:40-11:00	FrA1.3

Optimal Network Topologies for Mitigating Epidemic and Security Risks (I).

Hota, Ashish	Purdue Univ.
Sundaram, Shreyas	Purdue Univ.

11:00-11:20	FrA1.4

Secure System Identification (I).

Showkatbakhsh, Mehrdad	Univ. of California, Los Angeles
Tabuada, Paulo	Univ. of California, Los Angeles
Diggavi, Suhas	Univ. of California, Los Angeles

11:20-11:40	FrA1.5

Secure Clock Synchronization under Collusion Attacks (I).

Duan, Xiaoming	Zhejiang Univ.
Freris, Nikolaos	New York Univ. Abu Dhabi
Cheng, Peng	Zhejiang Univ.

11:40-12:00	FrA1.6

A Moving Target Approach for Identifying Malicious Sensors in Control Systems (I).

Weerakkody, Sean	Carnegie Mellon Univ.
Sinopoli, Bruno	Carnegie Mellon Univ.

12:00-12:20	FrA1.7

Privacy-Preserving Asymptotic Average Consensus in Point-To-Point Communication Networks (I).

Manitara, Nicolaos	Univ. of Cyprus
Hadjicostis, Christoforos	Univ. of Cyprus

FrA2 — Solarium

Decentralized Control and Complex Networked Systems (Regular Session)

Chair: Pequito, Sergio	Univ. of Pennsylvania

10:00-10:20   **FrA2.1**

Rate-Cost Tradeoffs in Control.

Kostina, Victoria	California Inst. of Tech.
Hassibi, Babak	California Inst. of Tech.

10:20-10:40   **FrA2.2**

The Value of Timing Information in Event-Triggered Control.

Khojasteh, Mohammad Javad	Univ. of California, San Diego
Tallapragada, Pavankumar	Univ. of California, San Diego
Cortes, Jorge	Univ. of California, San Diego
Franceschetti, Massimo	Univ. of California, San Diego

10:40-11:00   **FrA2.3**

Event-Triggered Stabilization of Scalar Linear Systems under Packet Drops.

Tallapragada, Pavankumar	Univ. of California, San Diego
Franceschetti, Massimo	Univ. of California, San Diego
Cortes, Jorge	Univ. of California, San Diego

11:00-11:20   **FrA2.4**

Minimum Number of Sensors to Ensure Observability of Physiological Systems: A Case Study.

Xue, Yuankun	Univ. of Southern California
Pequito, Sergio	Univ. of Pennsylvania
Rosado Coelho, Joana Maria	Inst. Superior T´Ec. Univ. of Lisbon
Bogdan, Paul	Univ. of Southern California
Pappas, George	Univ. of Pennsylvania

11:20-11:40   **FrA2.5**

Rate-Limited Control of Systems with Uncertain Gain.

Kostina, Victoria	California Inst. of Tech.
Peres, Yuval	Microsoft
Racz, Miklos	Microsoft
Ranade, Gireeja	Microsoft

11:40-12:00   **FrA2.6**

Load Balancing and Speed Scaling Interaction in Processor-Sharing Systems with Exponential Power Functions.

Ding, Guohui	Univ. of Colorado, Boulder
Chen, Lijun	Univ. of Colorado, Boulder

FrA3	**Butternut**
Statistical Learning Theory (Regular Session)	
Chair: Tekin, Cem	Bilkent Univ.

10:00-10:20	FrA3.1

Online Contextual Influence Maximization in Social Networks.

Saritac, Anil Ömer	Bilkent Univ.
Karakurt, Altuğ	Bilkent Univ.
Tekin, Cem	Bilkent Univ.

10:20-10:40	FrA3.2

A Bayesian Perspective on Residential Demand Response Using Smart Meter Data.

Zhou, Datong Paul	Univ. of California, Berkeley
Balandat, Maximilian	Univ. of California, Berkeley
Tomlin, Claire	Univ. of California, Berkeley

10:40-11:00	FrA3.3

From Behavior to Sparse Graphical Games: Efficient Recovery of Equilibria.

Ghoshal, Asish	Purdue Univ.
Honorio, Jean	Purdue Univ.

11:00-11:20	FrA3.4

Collaborative Learning of Stochastic Bandits Over a Social Network.

Kolla, Ravi Kumar	IIT Madras
Jagannathan, Krishna	IIT Madras
Gopalan, Aditya	Indian Inst. of Science

11:20-11:40	FrA3.5

Gambler's Ruin Bandit Problem.

Akbarzadeh, Nima	Bilkent Univ.
Tekin, Cem	Bilkent Univ.

11:40-12:00	FrA3.6

Stochastic Frank-Wolfe Methods for Nonconvex Optimization.

J. Reddi, Sashank	Carnegie Mellon Univ.
Sra, Suvrit	Massachusetts Inst. of Tech.
Poczos, Barnabas	Carnegie Mellon Univ.
Smola, Alex	Carnegie Mellon Univ.

12:00-12:20	FrA3.7

The Goodness of Covariance Selection Problem from AUC Bounds.

Tafaghodi Khajavi, Navid	Univ. of Hawaii, Manoa
Kuh, Anthony	Univ. of Hawaii, Manoa

FrA4   Pine
Sensor Networks (Regular Session)

Chair: Wang, Weina	Arizona State Univ.

10:00-10:20	FrA4.1

Queue-Based Broadcast Gossip Algorithm for Consensus.

Kar, Soummya	Carnegie Mellon Univ.
Negi, Rohit	Carnegie Mellon Univ.
Mahzoon, Majid	Carnegie Mellon Univ.
Sahu, Anit Kumar	Carnegie Mellon Univ.

10:20-10:40	FrA4.2

On the Choice of Parameters in the Eschenauer-Gligor Key Predistribution under Multiple Link Constraints.

Zhao, Jun	CMU & ASU/Princeton

10:40-11:00	FrA4.3

Distributed Bayesian Quickest Change Detection in Sensor Networks Via Large Deviation Analysis.

Li, Di	Texas A&M Univ.
Kar, Soummya	Carnegie Mellon Univ.
Cui, Shuguang	Texas A&M Univ.

11:00-11:20	FrA4.4

New Square-Root and Diagonalized Kalman Smoothers.

Wadehn, Federico	ETH Zurich
Loeliger, Hans-Andrea	ETH Zurich
Bruderer, Lukas	ETH Zurich
Sahdeva, Vijay	ETH Zurich

11:20-11:40	FrA4.5

Asymptotic Performance Analysis of Majority Sentiment Detection in Online Social Networks.

Tong, Tian	Carnegie Mellon Univ.
Negi, Rohit	Carnegie Mellon Univ.

11:40-12:00	FrA4.6

Modeling and Tracking Transmission Line Dynamic Behavior in Smart Grids Using Structured Sparsity.

Babakmehr, Mohammad	Colorado School of Mines
Simoes, Marcelo	Colorado School of Mines
Ravel, Ammerman	Colorado School of Mines

12:00-12:20	FrA4.7

Minimizing Heat Loss in DC Networks Using Batteries.

Zocca, Alessandro	CWI Amsterdam
Zwart, Bert	CWI Amsterdam

FrA5	Lower Level
Network Inference (Invited Session)	

Organizer/Chair: Kiyavash, Negar	Univ. of Illinois

10:00-10:20	FrA5.1

Causal Inference and the Data-Fusion Problem -- Population versus Individual Level Decision-Making (I).

Bareinboim, Elias	Purdue Univ.

10:20-10:40	FrA5.2

Distributed Estimation and Learning Over Heterogeneous Networks (I).

Rahimian, M. Amin	Univ. of Pennsylvania
Jadbabaie, Ali	Univ. of Pennsylvania

10:40-11:00	FrA5.3

On Sparse Approximations for Time-Series Networks (I).

Quinn, Christopher	Purdue Univ.

11:00-11:20	FrA5.4

Dynamic Metric Learning from Pairwise Comparisons (I).

Greenewald, Kristjan	Univ. of Michigan
Kelley, Stephen	Massachusetts Inst. of Tech.
Hero, Alfred	Univ. of Michigan

11:20-11:40	FrA5.5

Necessary and Sufficient Conditions for Sketched Subspace Clustering.

Pimentel-Alarcon, Daniel Leonardo	Univ. of Wisconsin-Madison
Balzano, Laura	Univ. of Michigan
Nowak, Robert	Univ. of Wisconsin-Madison