

## Information Theory and Data Science Workshop (16 Jan 2023–27 Jan 2023)

Please click for the [link to the playlist](#).

Name & Affiliation	Talk Title
Emmanuel Abbé EPFL, Switzerland	The leap complexity in neural network learning
Afonso Bandeira ETH Zurich, Switzerland	Statistical-to-Computational Gaps: The Low-Degree method and Free-Energy Barriers
Yuheng Bu University of Florida, USA	From sensitivity-constrained information bottleneck to fair selective prediction
Arnab Bhattacharyya National University of Singapore, Singapore	Near-optimal learning of tree-structured distributions
Clement Canonne University of Sydney, Australia	Lower bounds for estimation under information constraints: general recipe, and new dishes
Wei-Ning Chen Stanford University, USA	Achieving joint privacy and communication efficiency in federated learning and analytics
Alex Dimakis University of Texas at Austin, USA	Deep Generative models and Inverse problems
Amin Gohari The Chinese University of Hong Kong, China	On the rate-distortion theory and the generalization error of learning algorithms
Aditya Gopalan Indian Institute of Science, India	Free Inference for Bandits with Rich Actions
Deniz Gunduz Imperial College London, UK	Semantic and Pragmatic Compression: New Problems and Information Theoretic Bounds
Reinhard Heckel Technical University of Munich, Germany	The role of data and models for deep-learning based image reconstruction
Oliver Johnson University of Bristol, UK	Information-theoretic limit theorems old and new
P. N. Karthik National University of Singapore, Singapore	Almost Cost-Free Communication in Federated Best Arm Identification

Name & Affiliation	Talk Title
Hyeji Kim University of Texas at Austin, USA	Advancing information theory and coding via deep learning
Prashanth L.A. Indian Institute of Technology Madras, India	A Wasserstein Distance Approach for Concentration of Empirical Risk Estimates
Kangwook Lee University of Wisconsin-Madison, USA	Score-based Generative Modeling Secretly Minimizes the Wasserstein Distance
Yi Li Nanyang Technological University, Singapore	Lower Bounds for Sparse Oblivious Subspace Embeddings
Yan Hao Ling National University of Singapore, Singapore	Optimal Rates of Teaching and Learning Under Uncertainty
Marco Mondelli Institute of Science and Technology Austria, Austria	Inference in High Dimensions for (Mixed) Generalized Linear Models: the Linear, the Spectral and the Approximate
Mehul Motani National University of Singapore, Singapore	Studying Generalization in Deep Neural Networks
Frederique Oggier Nanyang Technological University, Singapore	Entropy-based Centrality and Clustering
Sewoong Oh University of Washington, USA	The power of adaptivity in representation learning: From meta-learning to federated learning
Ayfer Ozgur Stanford University, USA	Information Constrained Optimal Transport: From Relay to Generative Adversarial Networks
Dimitris Papailiopoulos University of Wisconsin-Madison, USA	Looped Transformers are Universal Computers and Prompts are their Programs
Galen Reeves Duke University, USA	Inference from heterogeneous pairwise data
Miguel Rodrigues University College London, UK	Generalization Behaviour of Learning Algorithms: Recent Information-Theoretic Advances
Cynthia Rush Columbia University, USA	On the Robustness to Misspecification of $\alpha$ -Posteriors and Their Variational Approximations
Cong Shen The University of Virginia, USA	The Role of Random Orthogonality in Federated Learning

Name & Affiliation	Talk Title
Yan Shuo Tan National University of Singapore, Singapore	Understanding and overcoming the statistical limitations of decision trees
Ali Tajer Rensselaer Polytechnic Institute, USA	Causal Bandits
Himanshu Tyagi Indian Institute of Science, India	Lower Bounds for Discrete Distribution Testing Under Information Constraints
Antonios Varvitsiotis Singapore University of Technology and Design, Singapore	Multiplicative Updates for Symmetric-cone Factorizations
Yao Xie Georgia Institute of Technology, USA	Invertible Neural Networks for Graph Prediction