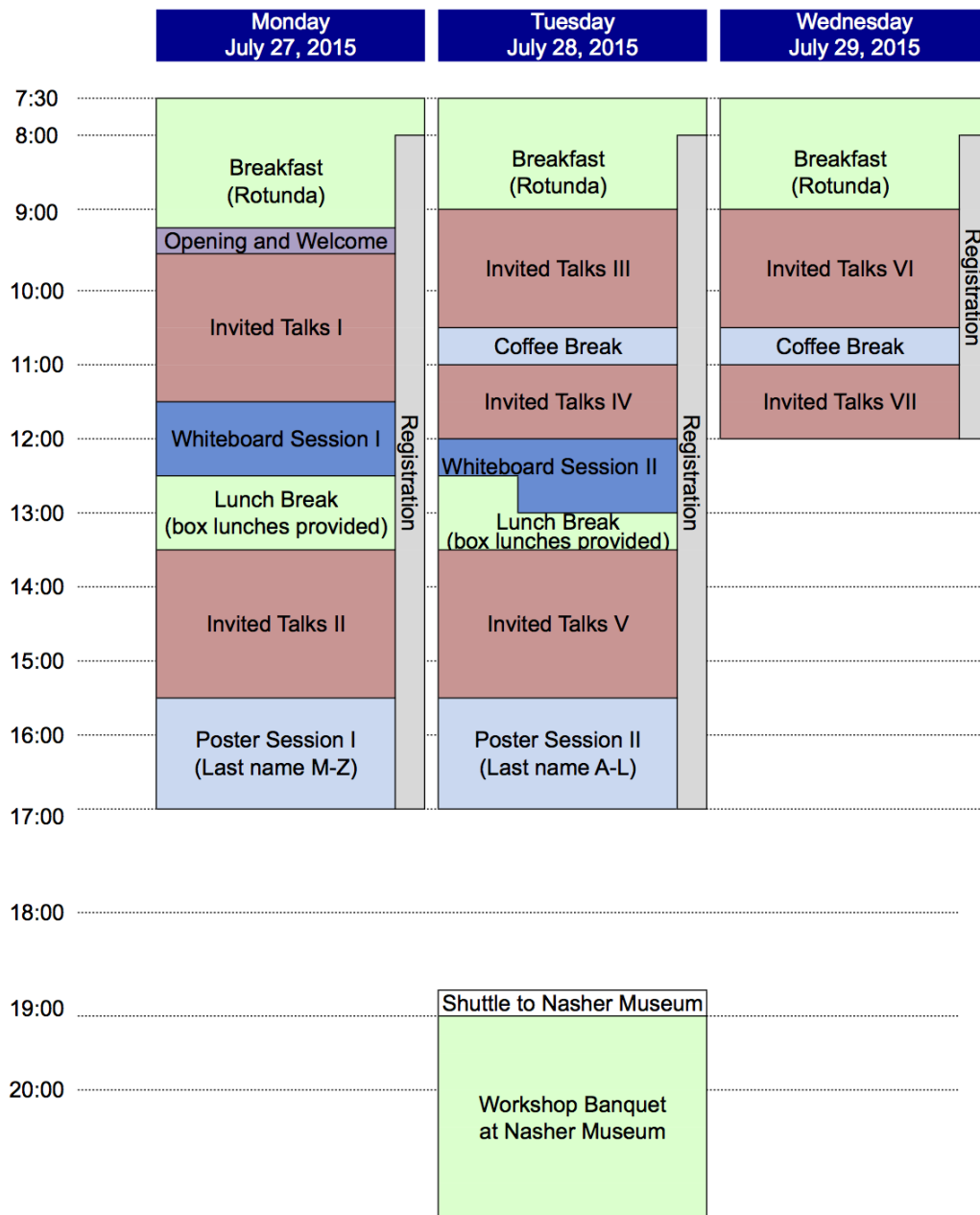


Technical Program

Duke University Workshop on Sensing and Analysis of High-Dimensional Data

July 27 - 29, 2015



Monday, July 27

09:15–09:30: Welcome

Lawrence Carin, Duke University

09:30–11:30: Invited Talks I

Chair: Katherine Heller, Duke University

How sparsity and L1 optimization impacts “continuous” applied mathematics, physics and engineering

Stan Osher, University of California, Los Angeles

Iteratively reweighted L1 approaches to sparse composite regularization

Phil Schniter, The Ohio State University

A universal primal-dual convex optimization framework

Volkan Cevher, École Polytechnique Fédérale de Lausanne

Solving random quadratic systems of equations is nearly as easy as solving linear systems

Yuxin Chen, Stanford University

11:30–12:30: Whiteboard Session I

Washington Duke Presidents Gallery

12:30–13:30: Lunch

Washington Duke Presidents I

13:30–15:30: Invited Talks II

Chair: Robert Calderbank, Duke University

Parallel-L0, a fully parallel algorithm for combinatorial compressed sensing

Jared Tanner, University of Oxford

LASSO with nonlinear measurements

Babak Hassibi, California Institute of Technology

Applied random matrix theory

Joel Tropp, California Institute of Technology

Sub-Nyquist sampling without sparsity

Yonina Eldar, Technion

15:30–17:00: Poster Session I

Washington Duke Presidents Gallery

Tuesday, July 28

09:00–10:30: Invited Talks III

Chair: Rebecca Willett, University of Wisconsin-Madison

Sparse if-then rule models

Cynthia Rudin, Massachusetts Institute of Technology

Non-Convex, Bayesian-inspired algorithms for sparse and low-rank estimation

David Wipf, Microsoft Research

Scalable Bayesian nonparametric dictionary learning

John Paisley, Columbia University

10:30–11:00: Coffee Break

Washington Duke Rotunda

11:00–12:00: Invited Talks IV

Chair: Miguel Rodrigues, University College London

Graph matching: relax or not?

Alex Bronstein, Tel Aviv University

The Latent Variable - Autoregressive Latent Trajectory (LV-ALT) model: a general framework for longitudinal data analysis

Ken Bollen, University of North Carolina, Chapel Hill

12:00–13:00: Whiteboard Session II

Washington Duke Presidents Gallery

12:30–13:30: Lunch

Washington Duke Presidents I

13:30–15:30: Invited Talks V

Chair: Galen Reeves, Duke University

Network analysis and nonparametric statistics

Patrick Wolfe, University College London

Elementary estimators for “big-p” statistical models

Pradeep Ravikumar, University of Texas, Austin

High-dimensional biological sequences through simple models and posterior diagnostics

Marc Suchard, University of California, Los Angeles

False discovery rate smoothing

James Scott, University of Texas, Austin

15:30–17:00: Poster Session II

Washington Duke Presidents Gallery

19:00–22:00: Workshop Banquet

Nasher Museum of Art

Wednesday, July 29

09:00–10:30: Invited Talks VI

Chair: Henry Pfister, Duke University

Semidefinite programming relaxations for graph estimation

Andrea Montanari, Stanford University

Correlation mining from massive data: high dimensional sampling regimes

Alfred Hero, University of Michigan

Modeling ordered data by counting inversions

Marina Meila, University of Washington

10:30–11:00: Coffee Break

Washington Duke Rotunda

11:00–12:00: Invited Talks VII

Chair: Sayan Mukherjee, Duke University

Graphical modeling with the Bethe approximation

Tony Jebara, Columbia University

A theory of neural dimensionality, dynamics, and measurement

Surya Ganguli, Stanford University

Whiteboard Session I

Model Selection in High-Dimensional Misspecified Models

Pallavi Basu, University of Southern California

Compressed Sensing without Sparsity Assumptions

Miles Lopes, University of California, Davis

Connections Between Coding and Compressed Sensing

Henry Pfister, Duke University

Efficient PCA for large high-dimensional datasets via Randomized Sketching

Farhad Pourkamali-Anaraki, University of Colorado, Boulder

Scalable Approximations of Marginal Posteriors in Variable Selection

Galen Reeves, Duke University

Learning Single Index Models in High Dimensions

Rebecca Willett, University of Wisconsin-Madison

Whiteboard Session II

ConceFT: Concentration in Frequency and Time

Ingrid Daubechies, Duke University

Hierarchical Graph-Coupled HMMs for Heterogeneous Personalized Health Data

Kai Fan, Duke University

Theoretical Limits in Sparsity and Deep Learning

Raja Giryes, Duke University

Learning mixtures of subspaces

Sayan Mukherjee, Duke University

Abstract Algebraic Subspace Clustering

Manolis Tsakiris, Johns Hopkins University

Randomized blocked algorithms for efficiently computing rank-revealing factorizations of matrices

Sergey Voronin, University of Colorado Boulder

Poster Session I

Universal Denoising in Approximate Message Passing

Yanting Ma, North Carolina State University

Information geometry and model reduction

Sorin Mitran, University of North Carolina, Chapel Hill

Spectrally Grouped Edge-Preserving Reconstruction

Ikenna Odinaka, Duke University

Random Forests Can Hash

Qiang Qiu, Duke University

Complete Dictionary Learning Over the Sphere

Qing Qu, Columbia University

Learning Program Attributes in Control Flow Graphs

Akshay Rangamani, Johns Hopkins University

Fluorescence Modeling for OB-CD Raman Spectroscopy

Owen Rehrauer, Purdue University

Bayesian Nonparametric Higher Order Markov Chains

Abhra Sarkar, Duke University

The performance of differentially private PCA

Anand Sarwate, Rutgers University

Linear Systems with Sparse Inputs

Shahin Sefati, Johns Hopkins University

Computational statistics for CLARITY volumes

Anish Simhal, Duke University

Signal processing approaches for genomic data

Catherine Stamoulis, Harvard Medical School

Reduced Stochastic Models of Permeable Medium Flow

Charles Talbot, University of North Carolina, Chapel Hill

Compressed NMF is Fast and Accurate

Mariano Tepper, Duke University

Abstract Algebraic Subspace Clustering

Manolis Tsakiris, Johns Hopkins University

Gaussian Process Kernels for Cross-Spectrum Analysis

Kyle Ulrich, Duke University

An efficient algorithm for computing a CUR factorization

Sergey Voronin, University of Colorado Boulder

Bayesian Or's of And's for Interpretable Classification

Tong Wang, Massachusetts Institute of Technology

Spatial dependent deep factor model

Yizhe Zhang, Duke University

Poster Session II

Analysis & Simulation Framework: X-ray Threat Detection

Amit Ashok, University of Arizona

Extreme Compressive Sampling for Covariance Estim.

Martin Azizyan, Carnegie Mellon University

Image Reconstruction in Radio Astronomy

Dror Baron, North Carolina State University

Sparse Multinomial Logistic Regression via AMP

Evan Byrne, The Ohio State University

Learning a Personalized CDSS From EHR Data

Dan Coroian, Duke University

Bayesian Cluster Detection for Rare Variants

Jyotishka Datta, Duke University

Burst Deblurring

Mauricio Delbracio, Duke University

Efficient variance estimation for high-dimensional linear models

Lee Dicker, Rutgers University

Model reduction of stochastic biomechanical system

Yan Feng, Duke University

Deep Neural Networks with Random Gaussian Weights: A Universal Classification Strategy?

Raja Giryes, Duke University

Coding and compression in snapshot XRD imaging

Joel Greenberg, Duke University

Compressive Parameter Estimation via AMP

Shermin Hamzehei, University of Massachusetts Amherst

Pose-invariant cross-modality facial expression

Jordan Hashemi, Duke University

On the sample complexity of correlation mining

Alfred Hero, University of Michigan

Minimax Rates for Photon Limited Image Reconstruction

Xin Jiang, University of Wisconsin-Madison

Locating Rare and Weak Material Anomalies by Convex Demixing of Propagating Wavefield Data

Mojtaba Kadkhodaie, University of Minnesota

Variational Automatic Relevance Determination

Yan Kaganovsky, Duke University

NMR structural calculation via semidefinite programming

Yuehaw Khoo, Princeton University

Robust Prediction of DBS targeting structures

Jinyoung Kim, Duke University

Reed-Muller Codes Achieve Capacity on Erasure Channels
Santhosh Kumar, Texas A & M University

Stable Super-Resolution of Mixture Models
Yuanxin Li, The Ohio State University

Belief-Propagation Reconstruction for Compressed Sensing: Quantization vs. Gaussian Approximation
Mengke Lian, Duke University

Partial Face Recognition
Luoluo Liu, Johns Hopkins University

Compressed Sensing without Sparsity Assumptions
Miles Lopes, University of California, Davis

Optical imaging for forensics
John Lu, National Institute of Standards and Technology

Randomized Kaczmarz Algorithm and its Cousins: Exact MSE Analysis and Asymptotically Sharp Bounds
Yue Lu, Harvard John A. Paulson School of Engineering and Applied Sciences