



Deep Learning Program Opening Workshop
August 12-16, 2019
SCHEDULE

Monday, August 12th

Ahmadih Family Auditorium, 107 Gross Hall, Duke University

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| 8:30 | Registration |
| 8:50-9:00 | David Banks , Samsi Director and Duke University
<i>"Welcome"</i> |
| 9:00-9:40 | Xiaoming Huo , Georgia Institute of Technology
<i>"A Survey of Statistical Research in Neural Networks and Deep Learning"</i> |
| 9:40-10:20 | Amitabh Basu , Johns Hopkins University
<i>"Admissibility of Solution Estimators for Stochastic Optimization"</i> |
| 10:20-10:50 | Coffee |
| 10:50-11:30 | Harrison Zhou , Yale University
<i>"Statistical and Computational Guarantees of EM with Random Initialization"</i> |
| 11:30-12:10 | Poh-Ling Loh , University of Wisconsin
<i>"Robust Information Bottleneck"</i> |
| 12:10-1:40 | Lunch on your Own |
| 1:40-2:20 | Jianqing Fan , Princeton University
<i>"Towards Deep Learning: Understanding Statistical Properties by Bridging Convex and Nonconvex Optimization"</i> |
| 2:20-3:00 | Anindya Bhadra , Purdue University
<i>"Horseshoe Regularization for Machine Learning in Complex and Deep Models"</i> |
| 3:00-3:30 | Coffee |
| 3:30-4:10 | Veronika Rockova , University of Chicago
<i>"Posterior Concentration for Sparse Deep Learning"</i> |
| 4:10-4:50 | Andrew Zammit Mangion , University of Wollongong
<i>"Deep Compositional Spatial Models"</i> |
| 4:50-5:30 | Shih-Kang Chao , University of Missouri
<i>"Sparsifying Deep Neural Networks with Generalized Regularized Dual Averaging"</i> |
| 5:30-7:00 | Posters and Reception |

Tuesday August 13th

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- 9:00-9:40 **Lawrence Carin**, Duke University
“On Adversarial Learning”
- 9:40-10:20 **Ruiqi Liu**, Indiana University
“Deep Instrumental Variables Estimator”
- 10:20-10:50 Coffee
- 10:50-11:30 **Junier Oliva**, UNC-Chapel Hill
“Improving Generative Models”
- 11:30-12:10 **Rebecca Willett**, University of Chicago
“Learning to Solve Inverse Problems in Imaging”
- 12:10-1:40 Lunch on your Own
- 1:40-2:20 **Faming Liang**, Purdue University
“An Adaptively Weighted Stochastic Gradient MCMC Algorithm for Global Optimization in Deep Learning”
- 2:20-3:00 **Wyatt Bridgman and Sorin Mitran**, UNC-Chapel Hill
“Information Geometric and Topological Approaches to Deep Learning”
- 3:00-3:30 Coffee
- 3:30-4:10 **Bianca Dumitrascu**, SAMSI/Princeton
“Domain Adaptation Challenges in Genomics: a deep learning take on medical pathology”
- 4:10-4:50 **Deborshee Sen**, SAMSI/Duke
“Neural Network Density Estimation”
- 4:50-5:30 **Jason Klusowski**, Rutgers University
“Complexity Bounds for Deep Learning Networks via the Probabilistic Method”
- 6:00-8:30 **NC ASA Social: Clouds Brewing**, 905 W Main St #22, Durham, NC

Wednesday August 14th

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- 9:00-9:40 **Rui Song**, NCSU
“Statistical Inference for Online Decision Making via Stochastic Gradient Descent”
- 9:40-10:20 **Guang Cheng**, Purdue University
“Modern Statistical Theory Inspired by Deep Learning”
- 10:20-10:50 Coffee

- 10:50-11:30 **Johannes Schmidt-Hieber**, University of Twente
"Deep ReLU Networks Viewed as a Statistical Method"
- 11:30-12:10 **Yao Xie**, Georgia Institute of Technology
"ReLU regression: Complexity and Approximation Algorithms"
- 12:10-1:40 Lunch on your Own
- 1:40-2:20 **Quoc Tran-Dinh**, UNC-Chapel Hill
"ProxSARAH Algorithms for Stochastic Composite Nonconvex Optimization"
- 2:20-3:00 **Deanna Needell**, UCLA
"Deep Models for Improved Topic Recovery"
- 3:00-3:30 Coffee
- 3:30-4:10 **Xiuyuan Cheng**, Duke University
"Group-equivariant Representation by Jointly Decomposed Convolution"
- 4:10-4:50 **Guanghui (George) Lan**, Georgia Institute of Technology
"Optimization and Learning with Nonconvex Functional Constraints"
- 4:50-5:30 Working Group Formation

Thursday August 15th

Breakout Rooms: Gross Hall 318, 324, 351

- 9:30-11:30 Working group planning meeting: Bayesian Methods in Deep Learning, Gross Hall 318
- 9:30-11:30 Working group planning meeting: Teaching Deep Learning, Gross Hall 324
- 9:30-11:30 Working group planning meeting: Uncertainty Quantification for Deep Models, Gross Hall 351
- 11:30-1:00 Lunch on Your Own
- 1:00-3:00 Working group planning meeting: Novel Applications, Gross Hall 318
- 1:00-3:00 Working group planning meeting: Interpretable Deep Networks, Gross Hall 324
- 1:00-3:00 Working group planning meeting: Architecture Search, Gross Hall 351
- 3:30-5:30 Working group planning meeting: Deep Learning for Dimension Reduction, Gross Hall 318
- 3:30-5:30 Working group planning meeting: Statistical Optimality, Gross Hall 324
- 3:30-5:30 Working group planning meeting: Regularization Techniques for Training Deep Networks, Gross Hall 351

Friday August 16th

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9:00-10:30 Working Group Leaders: describe research plans

10:30-11:00 Coffee

11:00-11:45 Working Group Leaders: describe research plans

11:45-12:00 Closing Remarks

12:15 Shuttle to RDU Airport