



**2019
ANNUAL DATA SCIENCE FORUM**

WOMEN IN DATA SCIENCE WORKSHOP

**MACHINE LEARNING IN SCIENCE AND ENGINEERING
SYMPOSIUM**

Georgia Tech  **Institute for Data
Engineering and Science**

Georgia Institute of Technology
Atlanta, Georgia
June 9–12

Conference Organizers

Chair: Dana Randall (Georgia Tech)
Co-Chair: Newell Washburn (CMU)

Srinivas Aluru (Georgia Tech)
Justin Romberg (Georgia Tech)
David Sherrill (Georgia Tech)
Deirdre Shoemaker (Georgia Tech)
Jeannette Wing (Columbia)

Track Chairs

Biomedical Engineering

May Wang (Georgia Tech)
Steven Chase (CMU)

Chemical Engineering

Fani Boukouvala (Georgia Tech)
Heather Mayes (Michigan)
Bryan Goldsmith (Michigan)

Chemistry

David Sherrill (Georgia Tech)
Dave Yaron (CMU)

Electrical and Computer Engineering

Negar Kiyavash (Georgia Tech)
Gauri Joshi (CMU)

Industrial Engineering and Operations Research

Shipra Agrawal (Columbia)
Adam Elmachtoub (Columbia)
Sebastian Pokutta (Georgia Tech)

Materials Science and Engineering

Rampi Ramprasad (Georgia Tech)
John Kitchin (CMU)

Mechanical Engineering

Amir Barati (CMU)

Physics

Manfred Paulini (CMU)
Deirdre Shoemaker (Georgia Tech)

Public Policy

Alex Davis (CMU)
Omar Asensio (Georgia Tech)

Sponsors

Anthem 



EQUIFAX

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Georgia Tech  **Institute for Data Engineering and Science**

 **Microsoft**



 **OpenEye**
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Women in Data Science Workshop (WDSW) Detailed Program

Sunday, June 9

Events on Sunday are in the Klaus Advanced Computing Building, located at 266 Ferst Drive NW.

8:00–9:00: Continental Breakfast (*Atrium*)

9:00–9:15: Introductions (*Atrium*)

9:15–9:50: Fireside Chats (*1116 E & W*)

- Moderator Dana Randall (Georgia Tech)
- 9:15–9:35: Lakshmi V. Kalluri (Anthem)
- 9:35–9:50: Brandeis Marshall (Spelman College)

10:00–11:00: Keynote Talk—Lo Li (CTO at Equifax) (*1116 E & W*)

11:15–12:15: Brief Overview Talks and Discussions (*1116 E & W*)

- 11:15–11:45: Ellen Zegura (Georgia Tech)
- 11:45–12:15: Jennifer Priestley (Kennesaw)

12:15–1:30: Lunch (*Atrium*)

1:30–2:30: Lightning Talks by Ph.D. Students (*1116 E & W*)

- Marissa Connor (Georgia Tech)
- Lili Zhang (Kennesaw)
- Yuliia Lut (Georgia Tech)
- Jie Hao, (Kennesaw)
- Tess Hellebrekers (CMU)
- Neda Tavakoli (Georgia Tech)

2:30–3:00: Break (*Atrium*)

3:00–5:00: Parallel Short Courses

- Introduction to Bayesian Analysis by Yao Xie Chen (*Classroom Wing, 2447*)
- Introduction to Deep Neural Networks by Zsolt Kira (*Classroom Wing, 2456*)
- Machine Learning with TensorFlow by Rasmi Elasmr (*Classroom Wing, 2443*)

Monday, June 10

All events are in the Georgia Tech Hotel and Conference Center, located at 800 Spring Street NW, except the reception, which is in the Atrium of the Klaus Advanced Computing Building, located at 266 Ferst Drive NW.

8:00–9:00: Continental Breakfast (*Conference Room 6*)

9:00–1:00: Hackathon (*Conference Rooms 6 & 7*)

6:00–7:00: Reception (*Klaus Building, Atrium*)

Machine Learning in Science and Engineering Symposium (MLSE) Program at a Glance

Sunday, June 9

Events on Sunday are in the Klaus Advanced Computing Building, located at 266 Ferst Drive NW.

3:00–5:00: Parallel Short Courses

Monday, June 10

All events for MLSE are in the Georgia Tech Hotel and Conference Center, located at 800 Spring Street NW, except the reception, which is in the Atrium of the Klaus Advanced Computing Building, located at 266 Ferst Drive NW.

7:30: Registration (*Second Floor Lobby*)

8:00–9:00: Continental Breakfast (*Grand Ballroom, Salons 3 & 4*)

9:00–12:00: Parallel Sessions

12:00–1:15: Lunch (*Grand Ballroom, Salons 3 & 4*)

- 12:10: Welcome & Introductions
- 12:15: Plenary Talk by Jennifer Neville (Purdue) — “Towards Relational AI: The Good, the Bad, and the Ugly of Learning over Networks”

1:15–2:00: Poster Session (*Conference Room A*)

2:00–3:30: Parallel Sessions (*Various Locations*)

3:30–4:00: Break

4:00–5:30: Parallel Sessions (*Various Locations*)

6:00–7:00: Reception (*Klaus Building, Atrium*)

Local Restaurants

Moe’s Southwest Grill—Tex Mex
85 5th St. NW
(404) 541-9940

Tin Drum Asia Cafe—Asian Fusion
88 5th Street NW
(404) 881-1368

Waffle House—Classic Southern Diner
66 5th Street NW
(404) 872-0028

Ray’s New York Pizza—Italian
26 5th Street NW
(404) 888-9911

Umma’s House Restaurant & Cafe—Korean & Bubble Tea
75 5th Street NW
(404) 477-3255

Cypress Street Pint & Plate—Pub Food & Drinks
817 West Peachtree Street NW
(404) 815-9243

Ecco Midtown—Upscale Continental
40 7th Street NE
(404) 347-9555

Marlow’s Tavern—Pub Food & Drinks
950 West Peachtree Street NW
(404) 815-0323

The Canteen—Micro Food Hall
• TGM Soup Co. • Fred’s Meat & Bread
• Yalla • Square Bar
75 5th Street NW (Centergy One Building)
(no phone)

Follow Us On Social Media

#MLSE

#WDSW-GT

@GTdatascience (on Facebook)

Guest Wi-Fi Access

WiFi access is provided campuswide, including at the Georgia Tech Hotel and Conference Center.

GTvisitor has two tiers of service:

Free: Users are limited to 3Mbps/s data speed and does not come with any technical support.

Premium:

\$3/day

\$10/week

Tuesday, June 11

7:30: Registration (*Second Floor Lobby*)

8:00–9:00: Continental Breakfast (*Grand Ballroom, Salons 3 & 4*)

9:00–12:00: Parallel Sessions (*Various Locations*)

12:15–1:15: Lunch with Plenary Talk by Eliu Antonio Huerta Escudero (UIUC)—“Convergence of Deep Learning and High Performance Computing: A Paradigm Shift for Multi-Messenger Astrophysics” (*Grand Ballroom, Salons 3 & 4*)

1:15–2:00: Poster Session (*Conference Room A*)

2:00–3:30: Parallel Sessions (*Various Locations*)

3:30–4:00: Break

4:00–5:30: Parallel Sessions (*Various Locations*)

Wednesday, June 12

7:30: Registration (*Second Floor Lobby*)

8:00–9:00: Continental Breakfast (*Grand Ballroom, Salons 3 & 4*)

9:00–10:00: Plenary Talk by Daniel Neill (NYU)—“Machine Learning and Event Detection for Population Health” (*Grand Ballroom, Salons 3 & 4*)

10:00–11:00: Plenary Talk by John McDonald (GT)—“The Potential of Machine Learning for Improved Diagnostics and Treatment” (*Grand Ballroom, Salons 3 & 4*)

11:00–12:00: Crosscutting Parallel Discussions

12:00–2:00: Lunch on Your Own

2:00–3:00: Plenary Talk by Ross Thomson (Google)—“Tools and Methods for Machine Learning” (*Grand Ballroom, Salons 3 & 4*)

3:00: Informal Discussions and Adjourn (*Grand Ballroom, Salons 3 & 4*)

Parallel Sessions at a Glance

Biomedical Eng	█	█	█	█	Conf Room C
Chemical Eng	█	█	█	█	Conf Room B
Chemistry	█	█	█	█	GB, Salon 1
Elec and Comp Eng	█	█	█	█	GB, Salon 2
Ind Eng and OR	█	█	█	█	GB, Salon 5
Materials Sci and Eng	█	█	█	█	Conf Room D
Mechanical Eng	█	█	█	█	GB, Salon 6
Physics	█	█	█	█	GB, Salon 1
Public Policy	█	█	█	█	GB, Salon 6

MLSE Detailed Program

Sunday, June 9

Events on Sunday are in the Klaus Advanced Computing Building, located at 266 Ferst Drive NW.

3:00–5:00: Parallel Short Courses

- Introduction to Bayesian Analysis by Yao Xie Chen
(Classroom Wing, 2447)
- Introduction to Deep Neural Networks by Zsolt Kira
(Classroom Wing, 2456)
- Machine Learning with TensorFlow by Rasmi Elasmari
(Classroom Wing, 2443)

Monday, June 10

All events for MLSE are in the Georgia Tech Hotel and Conference Center, located at 800 Spring Street NW, except the reception, which is in the Atrium of the Klaus Advanced Computing Building, located at 266 Ferst Drive NW.

7:30: Registration (Second Floor Lobby)

8:00–9:00: Continental Breakfast (Grand Ballroom, Salons 3 & 4)

9:00–12:00: Parallel Sessions

Wednesday, June 12

7:30: Registration (Second Floor Lobby)

8:00–9:00: Continental Breakfast (Grand Ballroom, Salons 3 & 4)

9:00–10:00: Plenary Talk—Daniel Neill (NYU)—“Machine Learning and Event Detection for Population Health” (Grand Ballroom, Salons 3 & 4)

10:00–11:00: Plenary Talk—John McDonald (GT)—“The Potential of Machine Learning for Improved Diagnostics and Treatment” (Grand Ballroom, Salons 3 & 4)

11:00–12:00: Crosscutting Parallel Discussions

Data Management—Organized by Xu Chu (Grand Ballroom, Salons 3 & 4)

11:00–11:15: Talk by Xu Chu on Structured Data Management and Machine Learning

11:15–11:30: Talk by Chao Zhang on Text Data Management and Machine Learning

11:30–12:00: Open Discussions on Data Management Challenges in Machine Learning Reproducibility in Machine Learning, Science, and Engineering

Reproducibility in Machine Learning, Science, and Engineering—Organized by David Sherrill and Yan Wang

(Conference Room A)

- Lori Burns (Georgia Tech)
- Johannes Hachmann (Buffalo, SUNY)
- Yan Wang (Georgia Tech)

12:00–2:00: Lunch on Your Own

2:00–3:00: Plenary Talk—Ross Thomson (Google)—“Tools and Methods for Machine Learning” (Grand Ballroom, Salons 3 & 4)

3:00: Informal Discussions and Adjourn (Grand Ballroom, Salons 3 & 4)

Chemistry (*Grand Ballroom, Salon 1*)

- 4:00: Daniel Nascimento (Pacific Northwest National Lab)—“Non-Covalent Interaction Components from an Intermolecular Potential Machine Learning Approach”
- 4:30: Adam Abbott (UGA)—“PES-Learn: An Open-Source Software Package for the Automated Generation of Machine Learning Models of Molecular Potential Energy Surfaces”
- 4:50: Xiangyun Lei (Georgia Tech)—“Design and Analysis of Machine Learning Exchange-Correlation Functionals via Rotationally Invariant Convolutional Descriptors”
- 5:10: Derek Metcalf (Georgia Tech)—“Approaches for Machine Learning of Ab Initio Intermolecular Properties”

Electrical and Computer Engineering (*Grand Ballroom, Salon 2*)

- 4:00: Negar Kiyavash (Georgia Tech)—“Causal Inference: A Time Series Approach”
- 4:30: Mark Cheung (CMU)—“An Analysis of Topology Adaptive Graph Convolutional Networks”

Industrial Engineering and Operations Research

(*Grand Ballroom, Salon 5*)

- 4:00: Giulia Pedrielli (Arizona State)—“Verification of Cyber Physical Systems: A Stochastic Optimization Perspective”
- 4:30: Paul Grigas (UC, Berkeley)—“Structure Enhancing Algorithms and Losses in Non-Convex Learning Problems”

Materials Science and Engineering

There are no talks for this track during this session.

Mechanical Engineering

There are no talks for this track during this session.

Physics

There are no talks for this track during this session.

Public Policy (*Grand Ballroom, Salon 6*)

- 4:00: Theresa Gebert (CMU)—“The Efficacy of Shallow Learning Models in Modeling Adverse Pregnancy Events in the Numom2b Study”
- 4:30: Alex Davis (CMU)—“A Decision Science Approach for Client-Side Regulation of Machine Learning”

Biomedical Engineering (*Conference Room C*)

- 9:00: Ashok K. Goel (Georgia Tech)—“VERA Goes to College: Inquiry-Based Modeling for Learning about Ecology in College-Level Biology”
- 9:25: Alexandre Lomsadze (Georgia Tech)—“Learning Evolution Created Patterns of DNA and Protein Structure in Algorithms of Automatic Genome Annotation”
- 9:50: King Jordan (Georgia Tech)—“Conditional Random Fields for the Characterization of Human Genetic Ancestry”
- 10:15: Break
- 10:30: Cheng Zhu—“Simulations of Protein-Protein Interaction Dynamics Under Force”
- 10:55: Wei Sun (Georgia Tech)—“Application of Machine Learning in Cardiovascular Biomechanical Analysis”
- 11:20: Denis V. Tsygankov (Georgia Tech)—“Application of Machine Learning to Quantification of Complex Cellular Patterns in Imaging Data Using a Set of Metrics from the Shape-to-Graph Mapping”

Chemical Engineering (*Conference Room B*)

- 9:00: Jennifer Reed (Wisconsin-Madison)—“Applications of Machine Learning in Protein and Metabolic Engineering”
- 9:30: Mark Styczynski (Georgia Tech)—“Machine Learning for Systems-Scale Metabolic Modeling”
- 10:00: Jin Wang (Auburn)—“Dynamic Transcriptomic Profiling Reveals Novel Short-term and Long-term Strategies to Cope with Oxygen Limitation in *Scheffersomyces stipitis*”
- 10:30: Christos Georgakis (Tufts)—“Machine Learning Applications in Pharmaceuticals Reactions”
- 11:30: Shivesh Chaudhari (Georgia Tech)—“A Strategy for Neuron Identification in Whole-Brain Videos”

Chemistry

There are no talks for this track during this session.

Electrical and Computer Engineering (*Grand Ballroom, Salon 2*)

- 9:00: Mark Davenport (Georgia Tech)—“Learning from Noisy Paired Comparisons”
- 9:30: Jayant Koushik (CMU)—“Influence Functions for Black-Box Optimization”

Electrical and Computer Engineering Continued

(Grand Ballroom, Salon 2)

- 10:00: Bhavya Kailkhura (LLNL)—“Sample Design for Small Data Machine Learning”
10:45: Anand Sarwate (Rutgers)—“Differentially Private Learning for Collaborative Research Systems”
11:15: Lalitha Sankar (ASU)—“Generative Adversarial Methods for Privacy and Fairness”

Industrial Engineering and Operations Research

(Grand Ballroom, Salon 5)

- 9:00: Fatma Kilinc-Karzan (CMU)—“Dynamic Data-Driven Estimation of Non-Parametric Choice Models”
9:45: Yao Xie (Georgia Tech)—“Robust Detector Using Wasserstein Uncertainty Sets”
10:30: Break
11:00: Raed Al Kontar (Michigan)—“Predictive Analytics via Gaussian Processes”
11:30: Vishal Gupta (Southern Cal)—“Data-Pooling in Stochastic Optimization”

Materials Science and Engineering *(Conference Room D)*

- 9:00: Elsa Olivetti (MIT)—“Text and Data Mining to Aid Materials Synthesis”
9:45: Debra Audus (NIST)—“Databases and Beyond: Enabling Polymer Informatics”
10:30: Venkatesh Botu (Corning, Inc.)—“Material Informatics in Industry”
11:15: Joseph Montoya (Toyota Research Institute)—“Machine Learning at Toyota Research Institute”

Mechanical Engineering *(Grand Ballroom, Salon 6)*

- 9:30: S. Ashwin Renganathan (Georgia Tech)—“Bayesian Optimization with Non-Stationary Stochastic Processes for Aerospace Engineering Conceptual Design”
10:00: Zhaoyi Xu (Georgia Tech)—“Design and Optimization of Jet into Crossflow for Mixing-Enhancement Using High Fidelity Simulations and Machine Learning”
10:30: Achour Gabriel (Georgia Tech)—“Development of a Conditional Generative Adversarial Network for Airfoil Shape Optimization”

Industrial Engineering and Operations Research

(Grand Ballroom, Salon 5)

- 2:00: Velibor Mistic (UC, Los Angeles)—“Optimization of Tree Ensembles”
2:30: Khashayar Khosravi (Stanford)—“Mostly Exploration-Free Algorithms for Contextual Bandits”
3:00: Elias Khalil (Georgia Tech)—“Neural Integer Optimization: Learning to Satisfy Generic Constraints”

Materials Science and Engineering

There are no talks for this track during this session.

Mechanical Engineering

There are no talks for this track during this session.

Physics

There are no talks for this track during this session.

Public Policy *(Grand Ballroom, Salon 6)*

- 2:30: Octavio Mesner (CMU)—“A Method for Mixed Conditional Mutual Information Using kNN”
3:00: Kristen Allen (CMU)—“Using Post-Level Sentiment Features for Suicide Risk Prediction on Reddit”

3:30–4:00: Break

4:00–5:30: Parallel Sessions

Biomedical Engineering *(Conference Room C)*

- 4:00: Steven Chase (CMU) & May D. Wang (Georgia Tech)—“Advances of AI and ML in BME (A short paper for IEEE Journal of Biomedical Informatics)”

Chemical Engineering

There are no talks for this track during this session.

12:15–1:15: Lunch with Plenary Talk—Eliu Antonio Huerta Escudero (UIUC)—“Convergence of Deep Learning and High Performance Computing: A Paradigm Shift for Multi-Messenger Astrophysics” (*Grand Ballroom, Salons 3 & 4*)

1:15–2:00: Poster Session (*Conference Room A*)

2:00–3:30: Parallel Sessions

Biomedical Engineering (*Conference Room C*)

2:00: Jennifer Bone (CMU)—“Hierarchical Machine Learning and Statistical Algorithms for the Development of High-Fidelity Bio-Printed Constructs”

2:25: Shivesh Chaudhary (Georgia Tech)—“A Strategy for Neuron Identification in *C. elegans* Whole-Brain Videos”

2:50: Hang Wu (Georgia Tech)—“Learning Whole-Slide Image Classification via Graph Convolutional Neural Networks”

Chemical Engineering

There are no talks for this track during this session.

Chemistry (*Grand Ballroom, Salon 1*)

2:00: Thomas Miller (Caltech)—“Quantum Machine Learning for Electronic Structure”

2:30: Daniel Smith (MoISSI)—“The MoISSI Quantum Chemistry Archive Project”

3:00: Justin Smith (Los Alamos National Lab)—“Approaching Coupled Cluster Accuracy with a General-Purpose Neural Network Potential through Transfer Learning”

Electrical and Computer Engineering (*Grand Ballroom, Salon 2*)

2:00: Osman Yagan (CMU)—“Statistical Inference and Decision-Making with Sequential Samples”

2:30: Christina Lee (Cornell)—“Iterative Collaborative Filtering for Sparse Noisy Tensor Estimation”

3:00: Yao Xie (Georgia Tech)—“Sequential Change-Point Detection for Network Hawkes Processes”

Mechanical Engineering Continued (*Grand Ballroom, Salon 6*)

11:00: Ashok Goel (Georgia Tech)—“Towards Large-Scale Design Creativity”

11:30: Discussion on ML and Design

Physics (*Grand Ballroom, Salon 1*)

9:00: Zhenbin Wu (Illinois at Chicago)—“FPGA-Accelerated Machine Learning Inference for Particle”

9:35: Brian Nord (Fermilab)—“From Neutrinos to Galaxies: Deep Learning Accelerates Discovery Across the Universe”

10:10: Deborah Ferguson (Georgia Tech)—“Using Machine Learning to Optimize Placement of Numerical Relativity”

10:45: Sara Bahaadini (Northwestern)—“Machine Learning for Gravity Spy”

11:20: Azim Ahmadzadeh (Georgia State)—“Pitfalls and Challenges of Rare-Event Time Series Prediction: A”

11:40: Maxwell Hostetter (Georgia State)—“Feature Selection Amongst Magnetic Field Parameters for Solar”

Public Policy

There are no talks for this track during this session.

12:00–1:15: Lunch (*Grand Ballroom, Salons 3 & 4*)

• 12:10: Welcome & Introductions

• Dana Randall (MLSE 2019 Conference Chair, Georgia Tech)

• Chaouki Abdallah (Executive VP of Research, Georgia Tech)

• 12:15: Plenary Talk—Jennifer Neville (Purdue) —“Towards Relational AI: The Good, the Bad, and the Ugly of Learning over Networks”

1:15–2:00: Poster Session (*Conference Room A*)

2:00–3:30: Parallel Sessions

Biomedical Engineering (*Conference Room C*)

- 2:00: Fredrik O. Vannberg (Georgia Tech)—“Open Source Machine Learning for Predicting Optimal Cancer Drug Response”
- 2:25: Richard Moffitt (Stony Brook)—“Class Discovery in a Noisy Environment: Tumor Intrinsic Subtypes in Pancreatic Adenocarcinoma”
- 2:50: Cassie S. Mitchell (Georgia Tech)—“SemNet: Semantic Inference Networks to Mine PubMed Literature Relationships”

Chemical Engineering (*Conference Room B*)

- 2:00: Paulette Clancy (Johns Hopkins)—“How Understanding a Messy Solution Process Can Make Better Solar Cells: A Bayesian Optimization-Guided Route to Metal Halide Perovskite Design”
- 2:30: Martha Grover (Georgia Tech)—“Solving Materials’ Small Data Problem with Dynamic Experimental Databases”
- 3:00: David Sheen (NIST)—“Uncertainty Estimation in Machine Learning for Organic Chemistry”
- 3:30: Farhad Gharaghei (Georgia Tech)—“Rapid Prediction of Adsorption Isotherms in Molecule-MOFs Systems Using Machine Learning Techniques”

Chemistry

There are no talks for this track during this session.

Electrical and Computer Engineering (*Grand Ballroom, Salon 2*)

- 2:00: Yuejie Chi (CMU)—“Distributed Stochastic Optimization in Networks with Variance Reduction”
- 2:30: Fan Zhou (Baidu)—“Revisiting Synchronous Parallel Stochastic Gradient Descent”
- 3:00: Gauri Joshi (CMU)—“Error-Runtime Trade-offs in Local-Update SGD”

Industrial Engineering and Operations Research

(Grand Ballroom, Salon 5)

- 2:00: Aziz Ezzat (Texas A&M)—“Spatio-Temporal Modeling for Wind Energy Applications: A Calibrated Regime-Switching Approach”
- 2:30: Gonzalo Munoz (Polytech Montréal)—“Polyhedral Representation of Deep Neural Network Training Problems”
- 3:00: Christian Kroer (Facebook)—“AI Methods for Market Equilibria, Fair Allocation, and Auctions”

Industrial Engineering and Operations Research

(Grand Ballroom, Salon 5)

- 9:00: Juan Pablo Vielma—“Constrained Optimization in Machine Learning”
- 9:45: Vivek Farias—“Distributionally Robust Policy Optimization”
- 10:30: Break
- 11:00: Jing Dong (Columbia)—“Off-Service Placement in Inpatient Flow Management”
- 11:30: Jelena Diakonikolas (UC, Berkeley)—“Approximate Duality Gap Technique and Applications”

Materials Science and Engineering (*Conference Room D*)

- 9:00: AJ Medford (Georgia Tech)—“Design and Analysis of Machine Learning Exchange-Correlation Functionals via Rotationally Invariant Convolutional Descriptors”
- 9:45: Mingjie Liu (CMU)—“SingleNN: A modified Behler-Parinello Neural Network with a Single Neural”
- 10:15: James Chapman (Georgia Tech)—“AGNI: A Machine Learning Platform for the Rapid Prediction of Atomistic Properties”
- 10:45: Alberto Hernandez (Johns Hopkins)—“Fast and Accurate Interatomic Potentials by Genetic Programming”
- 11:15: Jenny Zhan (CMU)—“Uncertainty Measurement Method for Machine Learned Potentials”

Mechanical Engineering (*Grand Ballroom, Salon 6*)

- 9:00: Amir Barati Farimani (CMU)—“Creativity in Robots Brought by Deep Reinforcement Learning”

Physics

There are no talks for this track during this session.

Public Policy (*Grand Ballroom, Salon 6*)

- 10:00: Omar Asensio (Georgia Tech)—“Housing Prediction with Civic Data”
- 10:30: Neil Hwang (City College of New York)—“Dynamic Community Detection for Organizational Leadership”
- 11:00: Rohit Singh (CMU)—“Improving Indoor Mobility Induced Outages for THz Communications Using Online Learning Methods”

Chemical Engineering Continued (*Conference Room B*)

- 10:00: Sungho Shinn (Wisconsin-Madison)—“Optimization Algorithms for Dynamic Latent Variable Problems”
- 10:30: Bhushan Gopaluni (Univ. of British Columbia)—“A Deep Learning Based Modular Approach for Modeling and Prediction in Multiphase Batch Processes”
- 11:00: Peter He (Auburn)—“An IoT-enabled Smart Manufacturing Testbed to Explore the Role of Human Learning in the Machine Learning World”
- 11:30: Joseph Kwon (Texas A&M)—“An Operator Theoretic Framework for Data-Driven Identification and Control of Hydraulic Fracturing”

Chemistry (*Grand Ballroom, Salon 1*)

- 9:00: Johannes Hachmann (Buffalo, SUNY)—“Advancing Machine Learning Methodology for Chemistry”
- 9:30: Noa Marom (CMU)—“Machine Learning Descriptors for Singlet Fission”
- 10:00: Kipton Barros (Los Alamos National Lab)—“Active Learning for Molecular Dynamics Potentials”
- 10:30: Konstantinos Vogiatzis (UT, Knoxville)—“Persistent Homology for Chemical Applications: A Story of Birth and Death”
- 11:00: Sameer Varma (Univ. of South Florida)—“Machine Learning Methods to Evaluate Correlations and Causalities in Allosteric Signaling in Proteins”
- 11:30: Rampi Ramprasad (Georgia Tech)—“Polymer Genome: An Informatics Platform for Rational Polymer Design”

Electrical and Computer Engineering (*Grand Ballroom, Salon 2*)

- 9:00: Parikshit Ram (IBM Research AI)—“A Formal Framework for AutoML with ADMM”
- 9:30: Polo Chau (Georgia Tech)—“Human-Centered AI: Scalable, Interactive Tools for Interpretation and Attribution”
- 10:00: Maryam Shanechi (USC)—“Neural Decoding and Control of Mood to Treat Neuropsychiatric Disorder”
- 10:30: Yuwei Qin (CMU)—“Deep Neural Network: Data Detection Channel with High Degrees of Freedom”

Materials Science and Engineering (*Conference Room D*)

- 2:00: Stefano Curtarolo (Duke)—“Seeking for High Melting Point Disordered Carbides”
- 2:45: Lee Griffin (Georgia Tech)—“Multivariate Machine Learning Enabled Study of Relaxor Ferroelectric Solid Solutions”
- 3:00: Dennis Trujillo (UConn)—“Applications of Deep Learning to Coherent Diffractive Imaging”
- 3:15: Tess Hellebrekers (CMU)—“Soft Robot Gripper with Integrated Sensing Skin for Predicting Grasp Success and Stability”

Mechanical Engineering (*Grand Ballroom, Salon 6*)

- 2:00: Nathan Kutz (U. of Washington)—“Data-Driven Methods for the Discovery of Governing Equations”
- 2:30: Li Angran—“Reaction Diffusion System Prediction Based on Convolutional Neural Network”
- 3:00: Amir Barati Farimani (CMU)—“Learning Spatio-Temporal Convective Transport Using GAN”

Physics (*Grand Ballroom, Salon 1*)

- 2:00: Nick Nystrom (Pittsburgh Supercomputing Center) & Paola Buitrago (Pittsburgh Supercomputing Center)—“Pioneering and Democratizing Scalable HPC+AI for Scientific Discovery”
- 2:45: Stephan Hoyer (Google)—“Machine Learning for Coarse Graining of Partial Differential Equations”

Public Policy

There are no talks for this track during this session.

3:30–4:00: Break

4:00–5:30: Parallel Sessions

Biomedical Engineering (*Conference Room C*)

- 4:00: Parisa Rashidi (Univ. of Florida)—“Augmented Decision Making Using Pervasive and Intelligent Monitoring of Critically Ill Patients”
- 4:25: Rameshbabu Manyam (Georgia State)—“A New Scalable, Portable, and Memory-Efficient Predictive Analytics Framework for Predicting Time-to-Event Outcomes in Healthcare”
- 4:50: Jayant Prakash (Georgia Tech)—“Machine Learning Applications to Alzheimer’s Disease Clinical Feature Prediction”

Chemical Engineering (*Conference Room B*)

- 4:00: Yilin Yang (CMU)—“Modeling Surface Segregation of fcc(111) PdCuAu Using DFT and Neural Network”
- 4:30: Salman Khan (UC, Santa Barbara)—“Grafting Catalysts to Amorphous Supports: Machine Learning Tools for ab initio Population Balance Models”

Chemistry

There are no talks for this track during this session.

Electrical and Computer Engineering (*Grand Ballroom, Salon 2*)

- 4:00: Thinh Doan (Georgia Tech)—“Distributed Learning on Multi-Agent Systems under Communication Constraints”
- 4:30: Tahiya Chowdhury (Rutgers)—“Change-Point Detection in Time Series Using Deep Learning”
- 5:00: Amir H. Afsharinejad (Georgia Tech)—“Data Analytics for Resilience of Energy Infrastructure”

Industrial Engineering and Operations Research

(Grand Ballroom, Salon 5)

- 4:00: Hiba Baroud (Vanderbilt)—“Hierarchical Bayesian Kernel Methods to Quantify Infrastructure and Community Resilience”
- 4:30: Nathan Kallus (Cornell)—“Smooth Contextual Bandits: Bridging the Parametric and Nonparametric Regret Regimes”

Materials Science and Engineering (*Conference Room D*)

- 4:00: Newell Washburn (CMU)—“Machine Learning from Small Datasets on Complex Material Systems”
- 4:30: Rohit Batra (Georgia Tech)—“Multi-Fidelity Information-Fusion Methods for Machine Learning in Materials Science”
- 5:00: Arun Mannodi Kanakkitodi (Argonne National Lab)—“Machine-Learned Impurity Level Prediction in Semiconductors”

Mechanical Engineering (*Grand Ballroom, Salon 6*)

- 4:00: Kevin Dai (CMU)—“Stochastic Growth-Initialized Neural Networks”

Physics

There are no talks for this track during this session.

Public Policy

There are no talks for this track during this session.

6:00–7:00: Reception (*Klaus Building, Atrium*)

Tuesday, June 11

7:30: Registration (*Second Floor Lobby*)

8:00–9:00: Continental Breakfast (*Grand Ballroom, Salons 3 & 4*)

9:00–12:00: Parallel Sessions

Biomedical Engineering (*Conference Room C*)

- 9:00: Gregory C. Gibson (Georgia Tech)—“Machine Learning to Improve Polygenic Risk Assessment”
- 9:25: Joel S. Sokol (Georgia Tech)—“Using Machine Learning to Support Organ Transplant Decision-Making”
- 9:50: Gari Clifford (Emory)—“Scalable Mobile Eye Tracking for Assessing Cognitive Impairment”
- 10:15: Break
- 10:30: Jana Kainerstorfer (CMU)—“Pulse Waveform Analysis in Diffuse Correlation Spectroscopy for Intracranial Pressure Estimation”

Biomedical Engineering Continued (*Conference Room C*)

- 10:55: Amy Orsborn (U. of Washington)—“Interfacing with Learning Networks: Machine Learning in Closed-Loop Brain-Machine Interfaces”
- 11:20: Steven Chase (CMU)—“A Stabilized Brain-Computer Interface Based on Neural Manifold Alignment”

Chemical Engineering (*Conference Room B*)

- 9:00: Yannis Kevrekidis (Johns Hopkins)—“No Equations, No Variables, No Parameters: Data, Machine Learning and the Modeling of Complex Systems”
- 9:30: John Kitchin (CMU)—“Differentiable Programming in Chemical Engineering”