

# MLSE 2019 POSTERS

Monday, June 10, 2019 • 1:15–2:00

## Biomedical Engineering

- 1.) Shrikant Pawar (Georgia State)—“Predicting Prognosis of Cancer Patients with Interleukin Gene Expression Levels”
- 2.) Keren Zhang (Georgia Tech)—“Quantification of Synapses for *C. elegans*’s Connectome Using 3D Fluorescent Microscopy Images”
- 3.) Haejun Han (Georgia Tech)—“2.5D Computer Vision Approach to Quantify the Synaptic Connectivity of *Caenorhabditis elegans*”
- 4.) Jennifer Bone (CMU)—“Hierarchical Machine Learning and Statistical Algorithms for the Development of High-Fidelity Bio-Printed Constructs”
- 5.) Thosini Kumarika Bamunu Mudiyansele (Georgia State)—“Relevant Gene Recognition for Cancer Detection Using a Deep Fuzzy Technique”
- 6.) Hongting Zhao (Georgia Tech)—“Out-of-Focus Deblurring for Whole Slide Images”
- 7.) Breanna Lee (Georgia Tech)—“Literature Mining to Improve Cellular Cardiovascular Therapies”
- 8.) Rameshbabu Manyam (Georgia State & Emory)—“A New Scalable, Portable, and Memory-Efficient Predictive Analytics Framework for Predicting Time-to-Event Outcomes in Healthcare”
- 9.) Kathleen Bates (Georgia Tech)—“Mapping the Behavior Space of the Worm”

## Chemical Engineering

- 10.) Shengli Jiang (Wisconsin-Madison)—“Endotoxin Detection Using Liquid Crystal Droplets and Machine Learning”
- 11.) Yilin Yang (CMU)—“Modeling Surface Segregation of PdCuAu Using DFT and Neural Network”
- 12.) Dilnoza Amirkulova (Rochester)—“HOOMD-TF: Experiment Directed Simulation Application”
- 13.) Xi Chen (Brown)—“Machine Learning Simulations on Charged Electro-Catalysis Interface”

- 14.) Maghesree Chakraborty (Rochester)—“Systematic Coarse-Grained Potential Learning”
- 15.) Yifan Wang (Delaware)—“Statistical-Learning-Assisted First-Principles Modeling of Single Atom Catalysts”
- 16.) Zhe Wu (UC, Los Angeles)—“Machine Learning-Based Predictive Control of Nonlinear Processes”
- 17.) William Bradley (Georgia Tech)—“Adding Mechanistic Inputs to Data-Driven Models: An Approach to Constrain Hybrid Models”
- 18.) Tianyou Mou (Virginia Tech) Revealing—“Active Site Evolution in CO<sub>2</sub> Electroreduction via Data-Enabled Stochastic Modeling”

## Chemistry

*There are no posters for this track during this session.*

## Electrical and Computer Engineering

- 19.) Andres Felipe Alba Hernandez (Northern Illinois)—“Astronomical Sky Surveys Scheduling Using Reinforcement Learning”
- 20.) Yuwei Qin (CMU)—“Deep Neural Network: Data Detection Channel with High Degrees of Freedom”
- 21.) Tahiya Chowdhury (Rutgers)—“Change-Point Detection in Time Series Using Deep Learning”
- 22.) Amir Hossein Afsharinejad (Georgia Tech)—“Data Analytics for Resilience of Energy Infrastructure”

## Industrial Engineering and Operations Research

*There are no posters for this track during this session.*

## Materials Science and Engineering

- 23.) Srujana Rao Yarasi (CMU)—“Understanding Powder Morphology and Its Effect on Flowability through Computer Vision and Machine Learning in Additive Manufacturing”
- 24.) Abhirup Patra (Georgia Tech)—“High Throughput DFT Computations of Polymers Guided by Machine Learning Algorithms”
- 25.) Lihua Chen (Georgia Tech)—“Machine Learning Models for the Lattice Thermal Conductivity Prediction of Inorganic Materials”

- 26.) Christopher Childs (CMU)—“Machine Learning for Cementitious Systems”
- 27.) Matthew Connolly (NIST)—“Deep Convolutional Neural Network for Reconstruction of Strain Tensors from Transmission Bragg Edge Measurements”
- 28.) Aditya Menon (CMU)—“Hierarchical Machine Learning Model for Mechanical Property Predictions of Polyurethane Elastomers from Small Datasets”

### Mechanical Engineering

- 29.) Haiguang Liao (CMU)—“A Deep Reinforcement Learning Approach for Global Routing”
- 30.) Wentai Zhang (CMU)—“Functionally-Based Conceptual Design Through Data-Driven Shape Analysis”
- 31.) Sakshi Jain (British Columbia)—“Spatiotemporal Modeling of PM2.5 Using Machine-Learning Enabled Land Use Models”
- 32.) S. Ashwin Renganathan (Georgia Tech)—“Deep Gaussian Process Enabled Emulation and Optimization for Aerospace Engineering Design”
- 33.) Ashok Goel (Georgia Tech)—“Towards Large-Scale Design Creativity”

### Physics

*There are no posters for this track during this session.*

### Public Policy

- 34.) Neil Hwang (City College of NY)—“Dynamic Community Detection for Organizational Leadership”

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## Tuesday, June 11, 2019 • 1:15–2:00

### Biomedical Engineering

- 1.) Minliang Liu (Georgia Tech)—“A Machine Learning-Based Constitutive Model for Characterizing Hyperelastic Soft Biological Tissues”
- 2.) Ashok Goel (Georgia Tech)—“VERA Goes to College: Inquiry-Based Modeling for Learning in College-Level Biology”
- 3.) Jayant Prakash (Georgia Tech)—“Machine Learning Applications to Alzheimer’s Disease Clinical Feature Prediction”

- 4.) Albert Lee (Georgia Tech)—“Machine Learning Enhanced Dynamic Meta-Analysis for Multi-Factorial Disease Prediction”
- 5.) Ryan Hoffman (Georgia Tech)—“Intelligent Mortality Reporting with FHIR”
- 6.) Yuanda Zhu (Georgia Tech)—“Identifying Causal Chain of Death Using Graph Embedding”
- 7.) Hang Wu (Georgia Tech)—“Learning Whole-Slide Image Classification via Graph Convolutional Neural Networks”

### Chemical Engineering

- 8.) Hemanth Pillai (Virginia Tech)—“Accelerating Discovery of High-Performance Electrocatalysts for Ammonia Oxidation via Machine Learning”
- 9.) Noushin Omidvar (Virginia Tech)—“Developing First-Principles Embedded-Atom Method Potentials with Bayesian Inference”
- 10.) Jianyuan Zhai (Georgia Tech)—“Machine-Learning Assisted Data-Driven Optimization”
- 11.) Shih-Han Wang (Virginia Tech)—“Development of Physics-Informed Neural Network Potentials for Molecular Simulations”
- 12.) Yingjie Chen (Rutgers)—“Data-Driven Modeling of Unit Operations in Continuous Pharmaceutical Manufacturing Line under the Industry 4.0 Framework”
- 13.) Jangwon Lee (Auburn)—“A Guided Genetic Algorithm for Variable Selection”
- 14.) Kiumars Badr (Auburn)—“Kinetic Modeling of a Novel Methanotroph-Cyanobacterium Coculture for Biogas Conversion”
- 15.) Chaitanya Sampat (Rutgers)—“Machine Learning Based Spectroscopic Framework for Prediction of Tablet Content Uniformity”
- 16.) Matthew Hilliard (Auburn)—“Alternative Optimal Solutions in Flux Balance Analysis Give Rise to Hidden Phenotypes”
- 17.) Uche Anene (Connecticut)—“Ligand Functionalization for Enhanced Selective Gas Adsorption of Hydrostable STAM-17-OEt MOF”

## Chemistry

- 18.) Lixue Cheng (Cal Tech)—“Transferability in Machine Learning for Electronic Structure via the Molecular Orbital Basis”
- 19.) Rainier Barrett (Rochester)—“Online Machine Learning in Molecular Dynamics Simulations with HOOMD-Blue and TensorFlow”
- 20.) Aditya Sonpal (Buffalo, SUNY)—“Machine Learning Models for Hansen Solubility Parameters and Their Application in Predicting Solvent-Polymer Interactions”
- 21.) Gaurav Vishwakarma (Buffalo, SUNY)—“Tailoring Genetic Algorithm for Data-Driven Research in Chemistry”
- 22.) Jacob Townsend (Tennessee)—“Data-Driven Acceleration of the Coupled-Cluster Eigensolver”
- 23.) Derek Metcalf (Georgia Tech)—“Approaches for Machine Learning of Ab Initio Intermolecular Properties”
- 24.) Raman Dutt (Shiv Nadar)—“Application of Capsule Networks in Pharmacophore-Based Virtual High-Throughput Screening”
- 25.) Zach Glick (Georgia Tech)—“Improving Self-Consistent Field Guess Electron Densities with Neural Networks”
- 26.) Qi Yu (Emory)—“Machine-Learning Many-Body Potential Energy Model for Hydrated Proton: Tests of Structures, Binding Energies, Vibrational Spectra from Gas Phase Clusters to Aqueous System”
- 27.) Xiangyun Lei (Georgia Tech)—“Design and Analysis of Machine Learning Exchange-Correlation Functionals via Rotationally Invariant Convolutional Descriptors”
- 28.) Apurba Nandi (Emory)—“Permutationally Invariant Polynomial Approach Breaks 10-Atom Barrier”

## Electrical and Computer Engineering

*There are no posters for this track during this session.*

## Industrial Engineering and Operations Research

*There are no posters for this track during this session.*

## Materials Science and Engineering

- 29.) Shruti Venkatram (Georgia Tech)—“Prediction of Solvents and Non-Solvents for Polymers Using Machine Learning Techniques”
- 30.) Sezen Yucel (Georgia Tech)—“Automated Analysis of Particle Morphology of Cellulose Nanocrystals”
- 31.) Tess Hellebrekers (CMU)—“Soft Robot Gripper with Integrated Sensing Skin for Predicting Grasp Success and Stability”
- 32.) Siwen Wang (Virginia Tech)—“Predicting High-Entropy Alloys for Catalysis via Ab-Initio Machine Learning”
- 33.) Chiho Kim (Georgia Tech)—“Machine Learning Assisted Prediction of Polymer Glass Transition Temperatures”
- 34.) Almambet Iskakov (Georgia Tech)—“Systematic Segmentation, Evaluation, and Characterization of Experimentally Acquired Microstructure Images”
- 35.) Tim Rose (CMU)—“Evolutionary Niching in the GAtor Genetic Algorithm for Molecular Crystal Structure Prediction”
- 36.) Gozde Tutuncuoglu (Georgia Tech)—“Crystal Phase Prediction of GaAs Nanowires with Machine Learning”
- 37.) Natalia Syzochenko (Dartmouth & Tech U Dublin)—“Predictive Modeling of Critical Temperatures in Superconducting Materials”

## Mechanical Engineering

*There are no posters for this track during this session*

## Physics

*There are no posters for this track during this session.*

## Public Policy

- 38.) Kristen Allen (CMU)—“Using Post-Level Sentiment Features for Suicide Risk Prediction on Reddit”
- 39.) Sooji Ha (Georgia Tech)—“Detecting Behavioral Failures in Emerging Electric Vehicle Infrastructure Using Supervised Text Classification Algorithms”
- 40.) Theresa Gebert (CMU)—“The Efficacy of Shallow Learning Models in Modeling Adverse Pregnancy Events in the Numom2b Study”