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2018

MACHINE LEARNING IN SCIENCE AND ENGINEERING

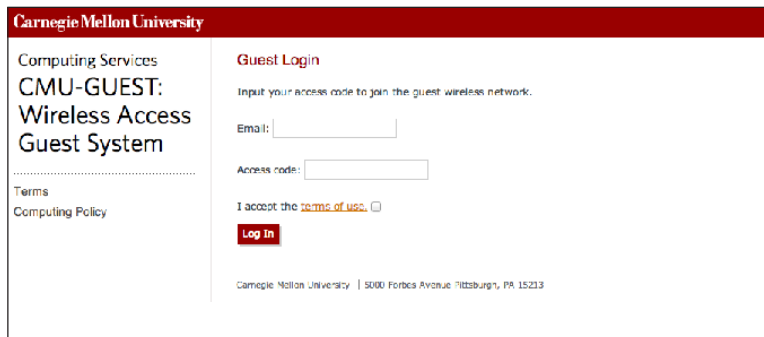
Carnegie Mellon University
Pittsburgh, PA
June 6-8

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PROGRAM AT A GLANCE

June 6

- 8:30 am: Registration
Atrium outside Rashid Auditorium, 4th Floor,
Gates Hillman Center (4902 Forbes Ave)
- 9:00 am - 12:00 pm: Short courses (optional)
Gates Hillman Center (4902 Forbes Ave)
- 11:30 am - 1:30 pm: Lunch (on your own)
- 1:00 pm: Registration
Mellon Institute Lobby, 3rd Floor,
(Bellefield Entrance) (4400 Fifth Ave)
- 1:30 pm: **Conference officially begins**
- 1:30 pm - 5:00 pm: Plenary talks
Mellon Institute (4400 Fifth Ave)
- 5:00 pm - 7:00 pm: Opening reception and poster session
Mellon Institute (4400 Fifth Ave)

June 7

- 9:00 am - 12:30 pm: Technical program (parallel sessions)
Gates Hillman Center (4902 Forbes Ave),
Doherty Hall, Wean Hall
- 12:30 pm - 1:30 pm: Lunch and poster session
Jared L. Cohon University Center (5032 Forbes Ave)
- 1:30 pm - 2:30 pm: Plenary talk
Jared L. Cohon University Center (5032 Forbes Ave)
- 2:30 pm - 6:00 pm: Technical program (parallel sessions)
Gates Hillman Center (4902 Forbes Ave),
Doherty Hall, Wean Hall

June 8

- 9:00 am - 12:30 pm: Technical program (parallel sessions)
Gates Hillman Center (4902 Forbes Ave), Wean Hall
- 12:30 pm - 1:30 pm: Lunch and poster session
Gates Hillman Center (4902 Forbes Ave)
- 1:30 pm - 2:30 pm: Plenary talk
Gates Hillman Center (4902 Forbes Ave)
- 2:30 pm - 6:00 pm: Technical program (parallel sessions)
Gates Hillman Center (4902 Forbes Ave), Wean Hall

*Event access code **V8AK8CFF**

CONFERENCE ORGANIZERS

CMU Co-organizers:

Newell Washburn (Chemistry)

Elizabeth Holm (MSE)

Rachel Mandelbaum (Physics)

Diana Marculescu (ECE)

Barnabas Poczos (Machine Learning)

Aarti Singh (Machine Learning)

Georgia Tech Co-organizers:

Dana Randall (Computer Science/Math)

Justin Romberg (ECE)

Deirdre Shoemaker (Physics)

David Sherrill (Chemistry)

TRACK CHAIRS

Track: Biomedical Engineering

CMU Chair: Newell Washburn

GT Chair: May D. Wang

Track: Chemical Engineering

CMU Chair: Zack Ulissi

GT Chair: Andrew Medford

Track: Chemistry

CMU Chair: David Yaron

GT Chair: David Sherrill

Track: Civil and Environmental Engineering

CMU Chair: Mario Berges

GT Chair: James Tsai

Track: Electrical and Computer Engineering

CMU Chair: Radu Marculescu

GT Chair: Justin Romberg

Track: Engineering and Public Policy

CMU Chair: Alex Davis

*GT Chair: Kaye Husbands Fealing
& Omar Asensio*

Track: Materials Science and Engineering

CMU Chair: Liz Holm

*GT Chair: Dave McDowell and
Surya Kalidindi*

Track: Mechanical Engineering

CMU Chair: Albert Presto

GT Chair: Tom Kurfess

Track: Physics

CMU Chair: Manfred Paulini

GT Chair: Deirdre Shoemaker

SCHEDULE OF EVENTS - JUNE 6

8:30 am:

Registration - Atrium outside Rashid Auditorium,
4th Floor, Gates Hillman Center

Morning Session:

Machine Learning Short Courses - Gates Hillman Center

9:00 am - 11:30 am

Machine Learning Bootcamp

Gates Hillman Center 4401 (Rashid Auditorium)

Prof. Jeff Schneider (CMU), Prof. Aarti Singh (CMU),

Dr. Kirthevasan Kandasamy (CMU)

9:00 am - 10:00 am

Large-Scale Machine Learning with TensorFlow

Gates Hillman Center 4303

Rasmi Elasmr (Google)

9:00 am - 11:30 am

Machine Learning in Materials Research

Gates Hillman Center 4405

Dr. Gilad Kusne (NIST), Dr. Daniel Samarov (NIST)

11:30 am - 1:30 pm:

Lunch (on your own)

1:00 pm:

Registration - Mellon Institute Lobby,
3rd Floor (Bellefield Entrance)

1:30 pm:

Conference Officially Begins - Mellon Institute Auditorium

Dana Randall, Newell Washburn - *Introduction*

Guy Berry - *"History of Mellon Institute"*

Nick Nystrom - *PSC*

SCHEDULE OF EVENTS - JUNE 6 (cont.)

1:30 pm - 5:00 pm:

Plenary Talks - Mellon Institute Auditorium

Max Hutchinson - *"One does not simply apply off the shelf machine learning tools to materials discovery"*

Erica Fuchs - *"Not all technologies are equal: Disentangling the labor implications of emerging technologies"*

Break

Michael Schmidt - *"Applying automated modeling and AI for scientific discovery"*

Kaye Husbands Fealing - *"Assessing Scientific Outcomes from Federal Funding of Food Safety Research Using Unstructured Data Techniques"*

5:00 pm - 7:00 pm:

Reception & Poster Session - Mellon Institute Library

SCHEDULE OF EVENTS - JUNE 7

8:00 am:

**Registration - Atrium outside Rashid Auditorium,
4th Floor, Gates Hillman Center**

9:00 am - 12:30 pm:

Technical program (parallel sessions)

BME / Healthcare Informatics Programs

9:00 am - 12:30 pm Gates Hillman Center 4401

Session Topic: Machine Learning in Health- and Bio- Informatics

Aidong Zhang (NSF)

Srinivas Aluru (Georgia Tech) - *"Parallel Machine Learning Approaches for Reverse Engineering Genome-Scale Networks"*

Jeremy Weiss (CMU) - *"Machine Learning and Survival Analysis to Forecast Clinical Risk from Electronic Health Records"*

Break

Session Topic: Bioinformatics

Mark Borodovsky (Georgia Tech)

Gregory Cooper (University of Pittsburgh)

Steve Qin (Emory University)

Chemical Engineering Program

8:30 am - 12:30 pm Doherty Hall 2315

Session Topic: Surface Science & Catalysis

Andrew Medford (Georgia Tech) - *"Catalysis Informatics: Utilizing machine-learning and data science to extract knowledge from catalytic data"*

Zack Ulissi (CMU) - *"Practical Applications of Machine Learning to Catalyst Design and Discovery"*

Richard West (Northeastern University) - *"Unsupervised Machine Learning for Data-Driven Representation of Reactions"*

Hongliang Xin (Virginia Polytechnic Institute) - *"Machine Learning for Understanding Nonadiabatic Surface Chemistry and Accelerating Catalyst Discovery"*

Break

Dion Vlachos (University of Delaware) - *"Predictive Modeling of Complex Chemical Reactions: Correlated Data, Uncertainty Quantification, and Machine Learning"*

Andreas Heyden (University of South Carolina) - *"Identifying the active site of the water-gas shift reaction over platinum-based catalysts"*

Bryan Goldsmith (University of Michigan) - *"Finding descriptors in materials data using subgroup discovery and compressed sensing"*

Srinivas Rangarajan (Lehigh University) - *"Harnessing systems and informatics approaches in mechanistic analysis of catalytic chemistries"*

Chemistry Program

No presentations during this session

Civil Engineering Program

11:00 am - 12:00 pm Gates Hillman Center 4211

Sam Coogan (Georgia Tech) - *"Low-Rank Structure in Traffic Flow"*

Sean Qian (CMU) - *"Estimating multi-year 24/7 origin-destination demand using high-granular multi-source traffic data"*

SCHEDULE OF EVENTS - JUNE 7 (cont.)

Electrical and Computer Engineering Program (1)

9:00 am - 12:30 pm Gates Hillman Center 4303

Session Topic: New Computational Platforms for Learning

Tushar Krishna (Georgia Tech) - *"An Open Source Framework for Generating Modular DNN Accelerators supporting Flexible Dataflow"*

Saibal Mukhopadhyay (Georgia Tech) - *"Energy-efficient Machine Learning at the Edge: A Hardware Perspective"*

Break

Ryan Kim (CMU) - *"Machine Learning-Inspired Manycore Chip Design: Interconnect Architecture to Power Management"*

Diana Marculescu (CMU) - *"Hardware-Aware Machine Learning: Modeling and Optimization"*

Electrical and Computer Engineering Program (2)

9:00 am - 12:30 pm Gates Hillman Center 4405

Session Topic: ML for IoT, Healthcare, and Sustainability

Marilyn Wolf (Georgia Tech) - *"Caring Analytics for Long-Term Care of People with Special Needs"*

Niraj Jha (Princeton University) - *"Smart Healthcare"*

Break

Tarek Abdelhazer (UIUC)

Radu Marculescu (CMU) - *"Social Sensing"*

Engineering and Public Policy Program

9:00 am - 12:30 pm Gates Hillman Center 8102

Omar Asensio (Georgia Tech) - *"Real-time intelligence in electric vehicle charging infrastructure"*

Sinnott Murphy (CMU) - *"Modeling power plant transition probabilities using nonhomogeneous conditional Markov models"*

Lynn Kaack (CMU) - *"Vehicle counting with deep convolutional neural networks for sustainable freight transportation"*

Break

Jake Abernethy (Georgia Tech) - *"On the search for lead pipes in Flint"*

Rachel Cummings (Georgia Tech) - *"Data privacy and public policy"*

Dean Alderucci (CMU) - *"Natural language processing of patents"*

Materials Science and Engineering Program

9:00 am - 12:00 pm Gates Hillman Center 6115

James Warren (NIST) - *"US Materials Genome Project"*

Surya Kalidindi (Georgia Tech) - *"Data Analytics for Mining Process-Structure-Property Linkages for Hierarchical Materials"*

Ichiro Takeuchi (Maryland) - *"Combinatorial Experimentation and Machine Learning for Materials Discovery"*

Break

Patrick Riley (Google) - *"High-throughput screening of metal oxides"*

Jay Whitacre (CMU) - *"An autonomous test stand driven by ML-informed decision making for co-optimized electrochemically functional materials systems: conceptual framework and progress to date"*

Newell Washburn (CMU) - *"Machine Learning from Small Data: Hierarchical Approaches for Superplasticizer Design"*

Mechanical Engineering Program

No presentations during this session

Physics Program

9:00 am - 12:30 pm Wean Hall 7316

Session Topic: Machine Learning in Large Physics Experiments

Hunter Gabbard (LIGO)

Michael Wood-Vasey (University of Pittsburgh)

Rachel Mandelbaum (CMU) - *"Deep learning applications to astronomical imaging"*

Break

Sergei Gleyzer (University of Florida) - *"Machine Learning at the Large Hadron Collider"*

Mauro Verzetti (University of Rochester) - *"Machine learning techniques for jet flavour identification at CMS"*

Michael Andrews (CMU) - *"End-to-end Deep Learning Applications for Event Classification in CMS"*

SCHEDULE OF EVENTS - JUNE 7 (cont.)

11:00 am:

Registration - Outside Rangos Ballroom, 2nd Floor
Jared L. Cohon University Center

12:30 pm - 1:30 pm:

Lunch and Poster Session - Rangos Ballroom, Jared L. Cohon University Center

1:30 pm - 2:30 pm:

Plenary Talk - Rangos Ballroom, Jared L. Cohon University Center

Patrick Riley - *"The Promise and Perils of Machine Learning for Science"*

2:30 pm - 6:00 pm:

Technical program (parallel sessions)

BME / Healthcare Informatics Programs

2:30 pm - 6:00 pm Gates Hillman Center 4401

Session Topic: Neuroinformatics

Steve Chase (CMU) - *"Using machine learning to understand biological learning"*

Eva Dyer (Georgia Tech)

Daniel Clymer (CMU) - *"Convolutional Neural Networks to Improve Radiologist Workflow on 3D Medical Images: Application to Shoulder Labral Tears"*

Break

Session Topic: Bioinformatics and Health Informatics

Peng Qiu (Georgia Tech) - *"Understanding cellular heterogeneity using single-cell data"*

Ankit Agrawal (Northwestern) - *"Big Data Analytics for Deriving Predictive Healthcare Insights from Electronic Healthcare Records"*

May Dongmei Wang (Georgia Tech) - *"Integrated Deep Learning of Genomics, Imaging, and EHR Data in ADNI Diagnosis"*

Chemical Engineering Program

2:30 pm - 6:00 pm Doherty Hall 2315

Session Topic: Systems Engineering

Fani Boukouvala (Georgia Tech) - *"Best surrogate approximations for data-driven optimization"*

Bhusan Golupani (University of British Columbia) - *"Deep Neural Networks for Supervised and Unsupervised Learning of Process Faults"*

Lorenz Biegler (CMU) - *"Data-driven optimization with Truth Models"*

Break

Venkat Venkatasubramanian (Columbia University) - *"Machine Learning in Process Systems Engineering: Opportunities and Challenges"*

Luke Achenie (VA Polytechnic Institute) - *"ODEs as Machine Learners?"*

Victor Zavala (University of Wisconsin-Madison) - *"Machine Learning Algorithms for Liquid Crystals-Based Sensors"*

Heather Mayes (University of Michigan) - *"Providing the Foundation for Chemical Engineers to Become Data Scientists"*

Chemistry Program

No presentations during this session

Civil Engineering Program

2:30 pm - 6:00 pm Gates Hillman Center 4211

Lucio Soibelman (University of Southern California) - *"A Talk on Data Management Research with Emphasis on Smart Buildings"*

José Vázquez-Canteli (University of Texas, Austin) - *"Deep Reinforcement Learning for Urban Energy Management"*

Burcu Akinci (CMU) - *"Creation and Update of Building Information Models from 3D Imaging Technologies and Existing Data Sources to Support Facility Operations and Management"*

Break

Mani Golparvar-Fard (University of Illinois, Urbana-Champaign) - *"Visual Data and Predictive Analytics for Proactive Project Controls on Construction Sites"*

Mario Berges (CMU)

Henning Lange (CMU) - *"Variational State Estimation for Time Series encountered in the Building Domain"*

SCHEDULE OF EVENTS - JUNE 7 (cont.)

Electrical and Computer Engineering Program (1)

2:30 pm - 6:00 pm Gates Hillman Center 4303

Session Topic: Machine Learning for Autonomy and Robotics

Byron Boots (Georgia Tech) - *"Learning Perception and Control for Agile Off-Road Autonomous Driving"*

David Held (CMU) - *"Robot Learning through Motion and Interaction"*

Break

Zsolt Kira (Georgia Tech) - *"Towards Goal-Directed and Lifelong Learning for Robot Perception"*

Lujo Bauer (CMU) - *"Physical-world attacks on ML +"*

Electrical and Computer Engineering Program (2)

2:30 pm - 6:00 pm Gates Hillman Center 4405

Session Topic: Machine Learning in Social Media/Networks

Negar Kiyavash (UIUC)

Kathleen Carley (CMU) - *"Bots Brokering Beliefs and Business"*

Break

Giulia Fanti (CMU) - *"Anonymity in Bitcoin's Peer-to-Peer Network"*

Siheng Shen (Uber) - *"Data science with graphs: A signal processing perspective"*

Engineering and Public Policy Program

2:30 pm - 6:00 pm Gates Hillman Center 8102

Dena Asta (Ohio State) - *"Applications of Geometry to Network Inference"*

Alexandra Chouldechova (CMU Stats) - *"Fairness and disparate impact in data-driven decision making"*

Cristobal De la Maza (CMU) - *"A graph-based model to discover preference structure from choice data"*

Break

Fei Fang (CMU) - *"Integrating Machine Learning with Game Theory for Societal Challenges"*

Octavio Mesner (CMU) - *"A nonparametric approach to variable selection applied to an observational clinical dataset"*

Alex Davis (CMU) - *"Policy track wrap-up"*

Materials Science and Engineering Program

2:30 pm - 6:00 pm Gates Hillman Center 6115

Dane Morgan (University of Wisconsin) - *"Machine Learning Applications in Materials Data and Imaging"*

Jennifer Carter (CWRU) - *"Mapping Multivariate Influence of Alloying Elements on Creep Behavior for New Martensitic Steels"*

Prasanna Balachandran (University of Virginia)- *"Guiding the search for novel functional materials using machine learning"*

Break

Zi-Kui Liu (Penn State) - *"Machine Learning in CALPHAD Modeling for Materials Design and Manufacturing"*

Tim Mueller (Johns Hopkins University) - *"The effective use of data in materials research"*

Laura Bartolo (Northwestern University) - *"CHiMaD Data Efforts as part of the Materials Information Infrastructure"*

Mechanical Engineering Program

No presentations during this session

Physics Program

2:30 pm - 6:00 pm Wean Hall 7316

Session Topic: Machine Learning in Large Physics Experiments

Michael Richman (IceCube)

Alex Malz (NYU) - *"How to advance cosmology with the data products of machine learning"*

Stef Garasto (Imperial College London) - *"Short Poster Presentation"*

Break

Bennett Marsh (UC Santa Barbara) - *"Monitoring Tools for the Muon System in the Compact Muon Solenoid Detector"*

Lucio Anderlini (INFN Firenze) - *"Advanced machine-learning solutions in LHCb operations and data analysis"*

Kamil Deja (Warsaw University of Technology) - *"Using Machine Learning Methods for Improving Data Quality in the ALICE Experiment"*

Simon Wilson (Trinity College Dublin) - *"Scalable Bayesian source separation applied to the Cosmic Microwave Background"*

SCHEDULE OF EVENTS - JUNE 8

8:00 am:

Registration - Atrium outside Rashid Auditorium,
4th Floor, Gates Hillman Center

9:00 am - 12:30 pm:

Technical program (parallel sessions)

BME / Healthcare Informatics Programs

9:00 am - 12:30 pm Gates Hillman Center 4401

Session Topic: Neuroinformatics

Rob Kass (CMU) - *“Torus Graphs for Multivariate Phase Coupling Analysis”*

Chethan Pandarinh (GT/Emory) - *“LFADS: Inferring precise estimates of neural population state and dynamics using sequential auto-encoders”*

Will Bishop (CMU) - *“Stabilized Brain-Computer Interface through Neural Manifold Alignment”*

Break

Session Topic: Healthcare Informatics

David Goldsman (Georgia Tech) - *“Using Machine Learning and Simulation to Compare Increased Risk Kidney Transplant Survival to Waiting for a Non-Increased Risk Organ for Hepatitis C Negative Recipients”*

Melissa Knothe-Tate (UNSW) - *“Towards Cellular Epidemiology of Degenerative Disease Using Geographic Information Systems, Multi-beam Electron Microscopy, and Machine Learning”*

Munmun De Choudhury (Georgia Tech)

Chemical Engineering Program

No presentations during this session

Chemistry Program

9:00 am - 12:30 pm Gates Hillman Center 4405

Session Topic: Predicting Molecular Properties

Kieron Burke (UC Irvine) - *“Using machine learning to create new density functional approximations”*

Johannes Hachmann (University at Buffalo) - *“Advancing Molecular Property Predictions and Design with Machine Learning”*

Noa Marom (CMU) - *“Molecular Crystal Structure Prediction with Gator and Genarris”*

Break

Le Song (Georgia Tech) - *“Deep Graph Embedding for Molecular Property Prediction and Optimization”*

Deyu Lu (Brookhaven College) - *“Application of Machine Learning in X-ray Absorption Spectroscopy”*

Olexandr Isayev (UNC) - *“Neural Networks Learning Quantum Chemistry”*

Civil Engineering Program

9:00 am - 12:30 pm Gates Hillman Center 4211

Charles Farrar (Los Alamos National Laboratory) - *“Unsupervised Learning Approaches to Structural Health Monitoring Data Normalization”*

Milad Memarzadeh (UC Berkeley) - *“Quantifying resilience of infrastructure systems to extreme events”*

Ankit Agarwal (Northwestern University) - *“Deep Transfer Learning Based Pavement and Structural Health Monitoring”*

Break

Mohammad Jahanshahi (Purdue University) - *“Deep Convolutional Neural Network and Naïve Bayes Data Fusion for Crack Detection in Inspection Videos”*

Jingxiao Liu (CMU) - *“A Damage Localization and Quantification Algorithm for Indirect Structural Health Monitoring of Bridges Using Multi-Task Learning”*

Xingzheng Lu (Tsinghua University) - *“Improving the accuracy of near-real-time seismic loss estimation using post-earthquake remote sensing images and logistic classification method”*

Electrical and Computer Engineering Program

No presentations during this session

Engineering and Public Policy Program

No presentations during this session

SCHEDULE OF EVENTS - JUNE 8 (cont.)

Materials Science and Engineering Program

8:30 am - 12:30 pm Gates Hillman Center 6115

Elizabeth Holm (CMU)

Ankit Agrawal (Northwestern University) - *"Materials Informatics and Big Data: Realization of 4th Paradigm of Science in Materials Science"*

Gilad Kusne (NIST) - *"Autonomous Materials Research Systems: Phase Mapping"*

Olexandr Isayev (UNC) - *"Cheminformatics-Inspired Materials Discovery Platform"*

Break

Turab Lookman (LANL) - *"Accelerated search for materials with targeted properties"*

Anjana Talapra (TAMU) - *"Towards an Autonomous Efficient Materials Discovery Framework: An Example of Optimal Experiment Design Under Model Uncertainty"*

Brian DeCost (NIST) - *"Active clustering for accelerated phase diagram acquisition for metal-insulator transition materials"*

Mechanical Engineering Program

9:00 am - 11:30 am Gates Hillman Center 4303

Albert Presto (CMU) - *"Application of random forests for spatial modeling of air pollutant concentrations from distributed monitoring networks"*

Carl Malings (CMU) - *"Comparison of Machine Learning Calibration Techniques for Low-Cost Air Quality Monitoring"*

Barnabas Poczos (CMU) - *"Machine Learning for experiment design"*

Break

Newell Washburn (CMU) - *"Machine Learning from Small Data: Modeling Response Surfaces in 3D Printing"*

Physics Program

9:00 am - 12:30 pm Wean Hall 7316

Session Topic: Emerging Physics from Data

Gautham Narayan (Space Telescope Science Institute) - *"Using Machine Learning to Identify Things That Go Bump in the Night"*

Daniel Tamayo (University of Toronto) - *"Predicting the Fate of Planetary Systems Using Supervised Learning"*

William Heller (Oak Ridge National Laboratory)

Break

Gabriel Perdue (Fermilab) - *"Overview of ML applications in non-LHC particle physics experiments"*

Raphael Frieze (für Exp. Kernphysik Karlsruhe) - *"Mass regression with deep neural networks"*

Zhenbin Wu (University of Illinois at Chicago) - *"Implementing Machine Learning Algorithms on FPGAs"*

12:30 pm - 1:30 pm:

Lunch and Poster Session - Atrium outside Rashid Auditorium, 4th Floor, Gates Hillman Center

1:30 pm - 2:30 pm:

Plenary Talk - Rashid Auditorium, 4th Floor, Gates Hillman Center

Andrew Moore - *"Don't Go It Alone: why someone who uses machine learning alone, or classical statistical methods alone, will suffer mightily"*

2:30 pm - 6:00 pm:

Technical program (parallel sessions)

BME / Healthcare Informatics Programs

2:30 pm - 5:30 pm Gates Hillman Center 4401

Session Topic: Systems Biology

Russell Schwartz (CMU) - *"Learning models of clonal evolution from cancer genomic data"*

Mark Styczynski (Georgia Tech) - *"Machine Learning in Systems-Scale Metabolic Analysis and Modeling"*

Matt Ruffalo (CMU) - *"Network-Guided Prediction of Aromatase Inhibitor Response in Breast Cancer"*

SCHEDULE OF EVENTS - JUNE 8 (cont.)

Break

Session Topic: Healthcare Informatics

- Dimitrios Iakovakis (Aristotle University of Thessaloniki, Greece) - *"TypeOfMood: Analysis of keystroke dynamics in mobile touchscreen for depression detection"*
- Asim Smailagic (CMU) - *"Machine Learning and Virtual Coaches"*

Chemical Engineering Program

No presentations during this session

Chemistry Program

2:30 pm - 5:30 pm Gates Hillman Center 4405

Session Topic: Molecular Design

- Geoff Hutchison (University of Pittsburgh) - *"Rapid Discovery of Molecular Materials - Combining Machine Learning and Evolutionary Algorithms"*
- Joshua Schrier (Haverford College) - *"Data-Driven Approaches to Predicting Reaction Outcomes in Solid State Chemistry"*
- Dmitry Zubarev (IBM) - *"Bridging Gaps Between Computational and Experimental Aspects of the Fourth Paradigm"*

Break

- Carlos Borca (Georgia Tech) - *"CrystalLattE: Automated Computation of Benchmark-Level Lattice Energies of Molecular Crystals"*
- David Sheen (NIST) - *"Chemometric analysis of hydrocarbon reference materials for certification as aircraft fuels"*
- David Yaron (CMU) - *"A Quantum Chemical Layer for Deep Learning of Electronic Properties"*

Civil Engineering Program

No presentations during this session

Electrical and Computer Engineering Program

No presentations during this session

Engineering and Public Policy Program

No presentations during this session

Materials Science and Engineering Program

2:30 pm - 4:30 pm Gates Hillman Center 6115

- Saransh Singh (CMU) - *"Machine Learning of Electron Diffraction Patterns"*
- Valentin Stanev (Maryland) - *"Unsupervised Phase Mapping of X-ray Diffraction Data by Nonnegative Matrix Factorization Integrated with Custom Clustering"*

Mechanical Engineering Program

2:30 pm - 5:00 pm Gates Hillman Center 4303

Session Topic: Design and Manufacturing

- Wafa Louhichi (Georgia Tech) - *"Automatization of the Surface Finish Quality Inspection of Metal Parts Using Convolutional Neural Networks"*
- Burak Kara (CMU) - *"3D Shape Abstraction and Style Transfer Using Deep Learning"*
- Zhiyang Yu (ETH Zurich) - *"Machine learning based regression model for multi-material artificial spinal disc"*

Break

- Burak Kara (CMU) - *"High Degree of Freedom Hand Pose Tracking Using Limited Strain Sensing and Optical Training"*

Physics Program

2:30 pm - 5:20 pm Wean Hall 7316

Session Topic: Computational Physics & Theory

- Karan Jani (LIGO)
- James Dean (University of Pittsburgh)
- Matthew Ho (CMU) - *"Improving Mass Measurements of Galaxy Clusters through Applications of Machine Learning"*

Break

- Michelle Ntampaka (Harvard University) - *"Short Poster Presentation"*
- Etienne Bachelet (Las Cumbres Observatory) - *"Exoplanet detection with Machine Learning"*

LOCAL RESTAURANTS

Ali Baba - Middle Eastern
404 S. Craig St., Pittsburgh, PA 15213

Crepes Parisiennes - Creperies, French
207 S. Craig St., Pittsburgh, PA 15213
9am-5pm

Lulu's Noodles - Chinese
400 S. Craig St., Pittsburgh, PA 15213

Lucca - Italian, Seafood
317 S. Craig St., Pittsburgh, PA 15213

Orient Express - Chinese
4609 Forbes Ave., Pittsburgh, PA 15213

P&G Pamela's Diner - Breakfast & Brunch *Pittsburgh Famous!*
3703 Forbes Ave., Pittsburgh, PA 15213
7:30am-4pm

The Porch at Schenley - American, Indoor & Outdoor Seating
221 Schenley Dr., Pittsburgh, PA 15213

Primanti Bros. - Sandwiches, American *Pittsburgh Famous!*
3803 Forbes Ave., Pittsburgh, PA 15213

Union Grill - American
413 S. Craig St., Pittsburgh, PA 15213

Yuva India Kitchen + Bar - Indian
412 S. Craig St., Pittsburgh, PA 15213

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- 01 Alumni House
- 2A Baker Hall (Dietrich/H&SS)
- 2B Porter Hall
- 3 Bakery Square
- 4 Brainer House
- 5 College of Fine Arts (CFA)
- 6 Cyert Hall
- 7 Doherty Hall
- 8 Facilities Management Services Building
- 9A Gates Center for Computer Science (SCS)
- 9B Hillman Center for Future-Generation Technologies (SCS)
- 10 Hamburg Hall (Heinz)
- 11 Hammerschlag Hall
- 12 Hunt Library
- 13 Integrated Innovation Institute (III)
- 14 Jared L. Cohan University Center
- 15 Margaret Morrison Carnegie Hall
- 16 Mellon Institute (MCS)
- 17 National Robotics Engineering Center* (NREC)
- 18 Newell-Simon Hall (SCS)
- 19 Pittsburgh Technology Center* (ETC)
- 20 PPG 6
- 21 Posner Center
- 22 Posner Hall (Tepper)
- 23 Purnell Center for the Arts
- 24 Rand Building
- 25 Roberts Engineering Hall
- 26 Robert Mehrabian Collaborative Innovation Center
- 27 Scaife Hall (Engineering)
- 28 Sherman and Joyce Bowie Scott Hall
- 29 Skibo Gymnasium
- 30 Smith Hall
- 31 Software Engineering Institute (SEI)
- 32 Solar Decathlon House
- 33 FMS Roads & Grounds
- 34 Future Site of Tata Consultancy Services Building (TCS)
- 35 Future Site of David A. Tepper Quadrangle
- 36 Warner Hall (Office of Admission)
- 37 Wean Hall
- 38 Whitfield Hall (HR)
- 39 WQED Building
- 40 300 South Craig (Police)
- 41 311 South Craig
- 42 407 South Craig
- 43 417 South Craig
- 44 4516 Henry (UTDC)
- 45 4609 Henry (Dietrich/H&SS Grad Labs)
- 46 4615 Forbes (GATF)
- 47 4616 Henry (IINI)
- 48 Future Site of 4721 Fifth Avenue
- 49 6555 Penn*
- 50 Future Site of ANSYS Simulation Building

POINTS OF INTEREST

- 51 Art Park
- 52 Entropy+
- 53 Kraus Campo
- 54 Legacy Plaza
- 55 Peace Garden
- 56 Pausch Bridge
- 57 The Fence
- 58 University Bookstore
- 59 Walking to the Sky

RESIDENTIAL

- 60 Boss House
- 61 Clyde Apartments (Highlander)
- 62 Clyde House
- 63 Doherty Apartments
- 64 Donner House
- 65 Fairfax Apartments
- 66 Fraternity/Sorority Quadrangle
- 67 Hammerschlag House
- 68 Henderson House
- 69 Margaret Morrison Apartments/Plaza
- 70 Margaret Morrison Fraternity/Sorority Houses
- 71 McGill House
- 72 Morewood Gardens (Housing Offices)
- 73 Mudge House
- 74 Neville Apartments
- 75 Resnik House/Tartans Pavilion
- 76 Roselawn Houses
- 77 Scobell House
- 78 Shady Oak Apartments
- 79 Shirley Apartments
- 80 Spirit House
- 81 Stever House
- 82 The Residence on Fifth
- 83 Webster Hall
- 84 Welch House
- 85 West Wing
- 86 Woodlawn Apartments
- 87 1094 Devon

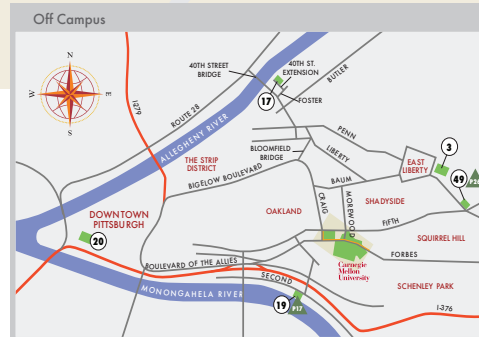
PARKING

- P1 Alumni House***
- P2 Brainer House
- P3 Children's School
- P4 Clyde Street Lot
- P5 Dithridge Street Garage**
- P6 Doherty Apartments***
- P7 East Campus Garage**|***
- P8 Fine Arts
- P9 Donner
- P10 Gates Garage**|***
- P11 GATF
- P12 Greek Quad
- P13 Robert Mehrabian Collaborative Innovation Center Drive
- P14 Henry Street
- P15 Integrated Innovation Institute
- P16 Morewood****|****
- P17 Pittsburgh Technology Center* (ETC)
- P18 Porter-Hammerschlag-Wean
- P19 Robert Mehrabian Collaborative Innovation Center Garage**|****
- P20 South Neville Parking
- P21 Warner
- P22 West Campus
- P23 Whitfield Hall
- P24 Zebina Way**
- P25 4700 Fifth Avenue
- P26 6555 Penn*
- P27 300 South Craig

Campus Map

Carnegie Mellon University

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- Academic/Administrative Buildings
- ◆ Residential Buildings
- ▲ Parking
- ★ Points of Interest
- ℹ Information Desk
- ♿ Accessible Parking
- 🚌 Bus Stop
- 🚶 Walkways
- 👮 University Police
- 🍴 Dining
- 🏥 Health Services

- * Off campus, see inset
- ** Open to visitors 9 a.m.-5 p.m. Monday - Friday
- *** Open to visitors after 5 p.m. and weekends
- **** Parking meters

Additional on-street parking available on city streets. Primary circulation routes and access parking areas are shown.

Revised August 2016