

IEEE MIT Undergraduate Research Technology Conference 2018  
 Technical Paper Oral Presentation Schedule

**Saturday, October 6, 2018**  
**Stata Center 32-123**  
**Machine Learning / Artificial Intelligence (AI) Track #1**  
**Track Chair: James Byleckie**

TIME	TITLE	AUTHORS
10:30AM	<b>PA18-0028:</b> Deep Multilayered Models for Classification Based on Stochastic Optimization	Dominic Klusek (College of Staten Island)
10:40AM	<b>PA18-0033:</b> Drug-Drug Interaction Signal Detection from Drug Safety Reports	Brian Zylich, Brian McCarthy, Andrew Schade, Huy Tran, Xiao Qin (Worcester Polytechnic Institute)
10:50AM	<b>PA18-0037:</b> Using First-Order Stochastic Based Optimizers in Solving Regression Models	Brian Keegan (College of Staten Island)
11:00AM	<b>PA18-0039:</b> Low-Cost Device Prototype for Automatic Medical Diagnosis Using Deep Learning Methods	Neil Deshmukh (Moravian Academy)
11:10AM	<b>PA18-0041:</b> Comparing Deep Learning Models for Battery State Prediction based on Robot Path Plans	Anna DeVries, Jordan Moore, Samuel Miller, Christopher Lowrance (United States Military Academy)
11:20AM	<b>PA18-0047:</b> Cardiac Rehabilitation Therapy Recommendation System	Mohd Tazim Ishraque, Nikola Zjalic, Pooya Moradian Zadeh, Ziad Kobti, Philip Olla (University of Windsor)
11:30AM	<b>PA18-0069:</b> A Hygiene Monitoring System	Bhargavi Lanka, Brian Cherin, Rohan Jinturkar, Daniel McKeon, Nivedhitha Sivakumar (Rutgers University)
11:40AM	<b>PA18-0079:</b> Autoencoder Architecture for Predicting Dynamic Graphs	Ian Costley, Marisa O'Gara (State University of New York, University of Michigan)
11:50AM	<b>PA18-0092:</b> Preserving Personality through a Pivot Language: Low-Resource NMT of Ancient Languages	Annie K. Lamar, America Chambers (University of Puget Sound)
12:00PM	<b>PA18-0099:</b> Detecting Parkinson's Disease Through Handwriting and Audio Samples Using Recurrent Neural Networks and Ensembles	Erika Tan, Palash Taneja (Rutgers University, University of Waterloo)
12:10PM	<b>PA18-0102:</b> Cloud Computed Machine Learning Based Real-Time Litter Detection using Micro-UAV Surveillance	Erika Tan, Ashley Chung, Dong Young Kim, Ethan Kwok, Michael Ryan (Rutgers University)
12:20PM	<b>PA18-0105:</b> 3D Brain Tumor Segmentation: Narrow UNet CNN	Mathew Camp, Kenneth Gonzalez (Georgia Gwinnet College, University of Puerto Rico at Arecibo)

**AM TRACK #1**

IEEE MIT Undergraduate Research Technology Conference 2018  
 Technical Paper Oral Presentation Schedule

<b>Saturday, October 6, 2018</b> <b>Stata Center 32-141</b> <b>Theoretical Computer Science and Mathematics Track, Computer Systems Track,</b> <b>Human-Computer Interaction and Graphics Track</b> <b>Track Chair: George Giakos</b>		
TIME	TITLE	AUTHORS
10:30AM	PA18-0059: Non-malleable Digital Lockers	Peter Fenteany (University of Connecticut)
10:40AM	PA18-0149: Visually Representing the Landscape of Mathematical Structures	Katherine Gravel, Hayden Jananthan, Jeremy Kepner (MIT, Vanderbilt University)
10:50AM	PA18-0010: HandyMann: An App based Smart Troubleshooting Assistant For A Deluge Valve Maintenance Problem	Sreehari VK, Parth Prajapati (Pandit Deendayal Petroleum University)
11:00AM	PA18-0025: Data Mining in Sports: The Relationship between Anthropometric Characteristics of Collegiate Female Rowers and Pacing Strategies on a 2000-meter Ergometer Test	Peizhu Qian (Simmons University)
11:10AM	PA18-0061: Wearable Fabric-Based Heaters	Anjali Akula, Carrie Luan, Abhishek Pandya, Kyle Lui, Christopher Dinh (Rutgers University)
11:20AM	PA18-0116: MedTime - Medication Adherence Improvement	Riad Touma, Scott Borges, Isaac Rico, Sofia Lee, Chen-Hsiang Yu (Wentworth Institute of Technology)
11:30AM	PA18-0132 : Revisiting Graphical Perception of Common Data Visualizations Using Bayesian Modeling	Jiehui Luo, Karen Bonilla (Thayer School of Engineering at Dartmouth, Babson College)
11:40AM	PA18-0135: Principles for Applying Augmented Reality in Manufacturing	Alexandra Rohrer, Rose Hendrix (The University of Washington)
11:50AM	PA18-0081: Knockoff Drive: A Portable Data Storage System	Nicholas Clark, Thomas Evangelista, John Scarfo, Garrett Stonis, Chen-Hsiang Yu (Wentworth Institute of Technology)
12:00PM	PA18-0095: Networking 3D Printers with Printfarmer	Christopher Thierauf (Wentworth Institute of Technology)
12:10PM		
12:20PM		

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 Technical Paper Oral Presentation Schedule

<b>Saturday, October 6, 2018</b> <b>Stata Center 32-155</b> <b>Biological and Biomedical Engineering and Technology (BioEECS) Track</b> <b>Circuits, Materials, and Nanotechnologies Track</b> <b>Track Chair: Hari Chauhan</b>		
TIME	TITLE	AUTHORS
10:30AM	PA18-0062: Fabrication and Characterization of Polymeric Aortic Vessels	Anna Effenberger, Anusha Aggarwal, Vidhya Dhar, Jade Greenberg, Tyler Lee (Rutgers University)
10:40AM	PA18-0080: Measuring Blood Pressure by Webcam	Talles Marcelo Goncalves de Andrade Barbosa (PUC Goes)
10:50AM	PA18-0087: Computational Tools in The Rehabilitation of People With Down Syndrome	Talles Marcelo Goncalves de Andrade Barbosa (PUC GOIAS)
11:00AM	PA18-0088: Emotion Analysis Tool to Support People with Down Syndrome	Talles Marcelo Goncalves de Andrade Barbosa (PUC GOIAS)
11:10AM	PA18-0107: Sensory Substitution in Stroke Patients with a Novel Vibrotactile System	Roberto Bolli, Joe Davidson, Hermano Krebs (MIT)
11:20AM	PA18-0126: An App-Controlled Brace for Stabilization of the Shoulder	Taylor Pratt, Francesca Matira, Emily Jodoin, Kyle Levasseur, Ali Kiapour, Chen-Hsiang Yu (Wentworth Institute of Technology)
11:30AM	PA18-0137: A Dual-Purpose Piezoelectric Multi-Beam Energy Harvesting and Frequency Measurement Device for Rotational Applications	Reza Rashidi, Nicholas Summerville, Maryam Nasri (State University of New York, Alfred State College)
11:40AM	PA18-0026: Green Synthesis and Characterization of PEG-coated, Magnetic Iron Oxide Nanoparticles (PEG-IONPs) for Drug Delivery Applications	Pete Gabriel Ledesma, Ronaniel Almeda, Mark Louis Vidallon, Jonel Saludes, Ronilo Aponte (University of the Philippines, Monash University, University of San Agustin, Iloilo National High School)
11:50AM	PA18-0053: Improvement of Perovskite Solar Cell Efficiency through PLA Additive Induced Boundary Passivation	Thomas Chen, Aum Upadhyay, Byron Phan, Neelay Trivedi (Stony Brook University)
12:00PM	PA18-0083: Synthesis and Characterization of Simplified Nuclear Waste Glasses Containing Molybdenum	Ryan Henry, Max Dickman, Tina Li, Anju Felix (NJGSET)
12:10PM		
12:20PM		

IEEE MIT Undergraduate Research Technology Conference 2018  
 Technical Paper Oral Presentation Schedule

**Saturday, October 6, 2018**  
**Stata Center 32-123**  
**Machine Learning / Artificial Intelligence (AI) Track #2**  
**Track Chair: James Byleckie**

TIME	TITLE	AUTHORS
1:30PM	<b>PA18-0110:</b> Comparative Analysis of Machine Learning Algorithms through Credit Card Fraud Detection	Sonia Purohit, Steven Chen, Rishi Banerjee, Mehal Kashyap, Gabriela Bourla (New Jersey Governor's School of Engineering & Technology)
1:40PM	<b>PA18-0113:</b> Exploring Alternative CNN for Digit and Letter Recognition	Sebastian von Thaden, Samuel Hampton (McDaniel College)
1:50PM	<b>PA18-0117:</b> Multi-Level Thresholding Grayscale Image Segmentation Implemented with Genetic Algorithm	Jinsoo Choi, HyeSoo (Heh-Soo) Choi, Min Chen (SUNY New Paltz)
2:00PM	<b>PA18-0123:</b> Projectile Catching with Reinforcement Learning: Empirical Analysis using Discretized Simulations	Bryon Kucharski, Adsm Ziel, Michael Hickey, Collin Travers (Wentworth Institute of Technology)
2:10PM	<b>PA18-0127:</b> Handling Missing Values in Multivariate Time Series Classification	Julia Friend, Alec Hauck, Sruthi Kurada, Tom Hartvigsen (Oberlin College, Valparaiso University, Worcester Polytechnic Institute)
2:20PM	<b>PA18-0130:</b> Optimization of Four-Way Controlled Intersections with Autonomous and Human-Driven Vehicles	Nikhil Kolachalama, Roshni Dhanasekar, Sheikh Mahmud, Elizabeth Mishkevich, Ava Tan (Rutgers University)
2:30PM	<b>PA18-0131:</b> A Convolutional Neural Network Architecture for Decoding Visual Stimuli with EEGs	Kyle Zeller, Daniel Schlegel, Omari Fabor (State University of New York at Oswego)
2:40PM	<b>PA18-0141:</b> Uncertainty Propagation in Deep Neural Networks Using Extended Kalman Filtering	Jessica Titensky, Hayden Jananthan, Jeremy Kepner (MIT, Vanderbilt University)
2:50PM	<b>PA18-0148:</b> Training Pruning-Based and Structurally Sparse Neural Networks	Simon Alford, Ryan Robinett, Lauren Milechin, Jeremy Kepner (MIT)
3:00PM	<b>PA18-0150:</b> Counting Neural Networks	Peter Mizes, Jeremy Kepner (MIT)
3:10PM	<b>PA18-0153:</b> Neural Network Topologies for Sparse Training	Ryan Robinett, Jeremy Kepner (MIT)
3:20PM		

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 Technical Paper Oral Presentation Schedule

**Saturday, October 6, 2018**  
**Stata Center 32-141**  
**Robotics and Controls Track, Security and Communications Track**  
**Track Chair: Sreeram Dhurjaty**

TIME	TITLE	AUTHORS
1:30PM	<b>PA18-0005:</b> Invariant Filter Based Preintegration for Addressing the Visual Observability Problem	Yehonathan Litman, Ya Wang, Libo Wu (Stony Brook University)
1:40PM	<b>PA18-0020:</b> Augmenting Computer Vision with IMU from Mobile Phone for Robust Robot Following of Human Leader	Benjamin Baumgartner, Christopher Lowrance (United States Military Academy)
1:50PM	<b>PA18-0040:</b> Application of Convolutional Neural Network Image Classification for a Path-Following Robot	William Born, Christopher Lowrance (United States Military Academy)
2:00PM	<b>PA18-0089:</b> Controlled Light Environment and Elevator Wagon for a Machine-Vision Sugarcane Sorting System	Garrett Memoli, Joseph Davidson, Moises Alencastre_Miranda, Hermano Krebs (MIT)
2:10PM	<b>PA18-0108:</b> Electronic Ornithopter Systems: Manual Navigation and Autonomous Hovering in Micro Air Vehicles	Akila Saravanan, Nina Gerszberg, Kyra Mortensen, Calvin Weaver, Lev Stambler (Rutgers University)
2:20PM	<b>PA18-0063:</b> Automated Sensor Technology for the Operation of Smart Homes	Sara Strenger, David Lin, Jahnavi Bavuluri, Antonio Bu Sha (Rutgers University)
2:30PM	<b>PA18-0093:</b> A HoneyNet Environment for Analyzing Malicious Actors	Daniel Gisolfi, Michael Gutierrez, Tyler Rimaldi, Casimer DeCusatis, Alan Laboureur (Marist College)
2:40PM	<b>PA18-0097:</b> WireLost: Ad-Hoc Wireless Tracking System	Nicholas Orr Orr, Brendan Sileo, Mira Yun (Wentworth Institute of Technology)
2:50PM	<b>PA18-0111:</b> Automated 28 GHz Channel Measurements in Multipath Environments	Tim Laracy, Eli Kravitz (University of Vermont)
3:00PM	<b>PA18-0112:</b> Adaptive Wireless Feedback Protocol for Underwater Vehicles via Software-Defined Acoustic Modems	James Gallicchio, Grace Zhang, Kathryn Zhou, Ray Chen, Caroline Abel (Rutgers University)
3:10PM	<b>PA18-0118:</b> LiGET: Transferring files via Li-Fi	Brett Grossman, Benjamin Creem, Mira Yun (Wentworth Institute of Technology)
3:20PM		

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<b>Saturday, October 6, 2018</b> <b>Stata Center 32-155</b> <b>Innovative Technologies</b> <b>Track Chair: Jason Hui</b>		
TIME	TITLE	AUTHORS
1:30PM	<b>PA18-0075:</b> Designing a Habitable Artificial Satellite for Private, Recreational Use	Rohil Sheth, Lia Formica, Andrew Nazzari, Natalie Reptak, Claire Yan (NJ GSET, Rutgers University)
1:40PM	<b>PA18-0114:</b> Neck Brace Design for Patients with Dropped Head Syndrome	Bothabo Ngwenya, Hermano Krebs, Joseph Davidson (MIT)
1:50PM	<b>PA18-0120:</b> Application of Lean Manufacturing Principles in Optimizing Factory Production	Rohan Sharma, Morriel Kasher, Lucy Zhang, Nisha Mani (Rutgers University)
2:00PM	PA18-0125: A Method for In-flight Adjustment of Wing Dihedral with Folding Wings and Tail	Devon Cinque, Daniel Park, Daniel Tang, Andrew Heim, William Owens (Rutgers University)
2:10PM	<b>PA18-0129:</b> DynoBrace: Stability Control of Ankle Joint Using a Mobile App Controlled Smart Brace Device	Kendra A. Norbaka, Allison A. Rishmany, Joseph J. O'hara, Chen-Hsiang Yu, Ali Kiapour (Wentworth Institute of Technology)
2:20PM	<b>PA18-0143:</b> Neuromorphic Cognitive Detection and Neural Network-Based Motion Pattern Classification	George Giakos, Anthony Beninati, Gloria Bauman, Nicolas Douard, Zoe Giakos (Manhattan College, Florida International University)
2:30PM	<b>PA18-0070:</b> Development and Characterization of Plastic Composites	Branden Spitzer, Shannon Culbert, Cathleen Luo, Alison Park (NJ GSET)
2:40PM	FIRST LEGO League - Blue Box	Alyssa Wan, Anna Sychevsky, Hannah Robinson, Anthony Wan, Jessamine Hui, Krystian Lic, Jonah Carter
2:50PM	FIRST LEGO League - ICE Box	Bob Hamwey, Kyle Ru, Gordon Chik, Ryan Burbo, Connor Xu, Ryan Bulkey
3:00PM	FIRST LEGO League - Tool Box	Abbie Petrini, Shyani Patel, Denis Ryanovol, Katelyn Ru, Jake Petrini, Sasha Luchanok
3:10PM		
3:20PM		