IEEE MIT Undergraduate Research Technology Conference 2020
Technical Paper Oral Presentation Schedule

Saturday, October 10, 2020
Hopin: Breakout Room A
Machine Learning / Artificial Intelligence (AI) Track #1
Track Chair: James Byleckie

TIME	PAPER TITLE	PRESENTERS
8:00AM	PA20-0011: **Increasing OCR Accuracy on Images with Motion Blur via GAN Derivatives**	**Kyoungwan Woo** (Phillips Exeter Academy)
8:10AM	PA20-0017: **Using Neural Networks to Reinforce Absence of Gender Bias in Dyslexia Screenings**	**William Hobbs** (University of South Carolina)
8:20AM	PA20-0020: **Stock Prediction via Machine Learning and Factor Analysis**	**Zhaowen Yun** (University of Nottingham Ningbo China)
8:40AM	PA20-0021: **Comparative Analysis of Image Processing Algorithms for Airport Security**	**Sasha Callaway**, Jeffrey Cheng, David Fu, Alexander Contratti, Harshika Gelivi (Rutgers University)
8:50AM	PA20-0027: **Small-Sized Neural Network for DetectingCOVID-19 from Chest X-rays**	**Rahul Thapa** (Villanova University)
9:00AM	PA20-0036: **ParaShop: A Mobile AR App in Assisting People with ASD to Shop**	**Mengting Xia** (The City College of New York)
9:10AM	PA20-0037: **Random Forest Regression of Markov Chains for Accessible Music Generation**	**Vivian Chen**, Jackson DeVico, Arianna Reischer, Ananya Vasireddy, Nicholas Zhang, Leo Stepanewk (Rutgers University)
9:20AM	PA20-0041: **Associating Exposures to Adverse Health Outcomes using Decision Trees**	**Aditi Purandare** (Northeastern University)
9:30AM	PA20-0046: **Object Permanence in Videos: DNN Performance vs Human Ability**	**Irene Zhou** (Massachusetts Institute of Technology)
9:40AM	PA20-0059: **Real time Attention Span Tracking in Online Education**	**Rahul Rangarajan Kannan** (Sri Venkateswara College of Engineering)

IEEE MIT Undergraduate Research Technology Conference 2020
Technical Paper Oral Presentation Schedule

Saturday, October 10, 2020
Hopin: Breakout Room B
Robotics and Controls Track
Track Chair: TBD

TIME	PAPER TITLE	PRESENTERS
8:00AM	PA20-0014: **Bio-Inspired Hexapedal Firefighting Robot**	**Kirkland Boyd** (Trinity College)
8:10AM	PA20-0066: **Design and Implementation of Hardware and Speed and Torque Control with Regenerative Braking System for an Electric Vehicle for Personal Mobility**	**Alex Pulamarin** (National Polytechnic University)
8:20AM	PA20-0073: **Safe Reconfiguration of Autonomous Driving Systems**	**Keying Wang** (Carnegie Mellon University)
8:40AM	PA20-0081: **Enabling Adaptive Robot-Environment Interaction and Context-Aware Artificial Somatosensory Reflexes through Application-Specific Sensor-Embedded Wearables**	**Syamantak Payra** (Massachusetts Institute of Technology)
8:50AM	PA20-0090: **Using Closed Feedback Loops to Evaluate Autonomous Juggling Performance**	**Hamzah Farooqi**, Tomas Collado, Tashu Gupta, Ashwindev Pazhetam, Robert Taylor (Rutgers University)
9:00AM	PA20-0097: **Hoist Load Stabilization via Torque-Based and Retraction-Speed Control Systems**	**Kristina Hughes** (The United States Military Academy)
9:10AM	PA20-0100: **Sling Load Stabilization**	**Michael Flanagan** (The United States Military Academy)
9:20AM	PA20-0123: **Design of a Printed Circuit Board (PCB) for Electrical Integration on the Agile Ground Robot (AGRO)**	**Andres Rodriguez** (The United States Military Academy)
9:30AM	PA20-0132: **Decentralized Voltage Control in Power Inverters Using Feedback Optimization**	**Nelson Enrique Tello Bautista** (National University of Colombia)
9:40AM	PA20-0134: **Electric Vehicle for Personal Mobility with Torque and Speed Control Design and Regenerative Braking**	**Alex Pulamarin** (National Polytechnic University)

AM TRACK #2

IEEE MIT Undergraduate Research Technology Conference 2020
Technical Paper Oral Presentation Schedule

Saturday, October 10, 2020
Hopin: Breakout Room C
Biological and Biomedical Engineering and Technology (BioEECS) Track,
Innovative Technologies Track
Track Chair: TBD

TIME	PAPER TITLE	PRESENTERS
8:00AM	PA20-0016: **A Novel Controller Architecture for Intelligent Artificial Pancreas**	**Eric Costa Pimentel** (University of Illinois - Chicago)
8:10AM	PA20-0058: **An Analog Front-End For A Noninvasive Core Body Temperature Sensor**	**Eric Baccei**, Eric Macorri (Worcester Polytechnic Institute)
8:20AM	PA20-0063: **Decoding Emotions from Brain Signals Using Recurrent Neural Networks**	**Eva Zhang**, Jos Parayil, Aaliyah Sayed, Jonathan Yao, Raphaelle Hoang (Rutgers University)
8:40AM	PA20-0071: **Classifying EEG of Propofol-Induced Unconsciousness in the Presence of Burst Suppression**	**Willian De Faria** (University of Notre Dame)
8:50AM	PA20-0096: **A Photoplethysmography Wearable with Long-term Heart Rate Variability Detection Algorithm**	**Bill Chieng** (Worcester Polytechnic Institute)
9:00AM	PA20-0103: **Improving Prosthetics by Using Silicone as an Artificial Skin**	**Lasya Balachandran** (High Technology High School)
9:10AM	PA20-0124: **Detecting Differential Transcription Factor Binding Based on DNA Accessibility**	**John Lin** (Boston Latin School)
9:20AM	PA20-0013: **3D Depth Imaging for Assistive Guidance**	**Manuel Ackattupathil** (Bergen Community College)
9:30AM	PA20-0051: **Probabilistic Analysis of Confocally Imaged Synaptic Calcium Activity (PACISCA)**	**Grace Tang**, Shreya Kochar (Massachusetts Institute of Technology, Wellesley College)
9:40AM	PA20-0052: **Designing and Simulating a Smart Air Purifier to Combat HVAC-induced COVID-19 Transmission**	**Noah Bergam**, Sakshi Lende, Skyler Snow, Julianna Zhang (Rutgers University)
9:50AM	PA20-0061: **A Hybrid Approach to Noise-Reduced Pods in Urban Areas**	**Lasya Balachandran**, Arjun Agarwal, Hannah Cherry, John Kellaher, Ethne Laude (Rutgers University)

AM TRACK #3

IEEE MIT Undergraduate Research Technology Conference 2020
Technical Paper Oral Presentation Schedule

Saturday, October 10, 2020
Hopin: Breakout Room A
Machine Learning / Artificial Intelligence (AI) Track #2
Track Chair: James Byleckie

TIME	PAPER TITLE	PRESENTERS
12:30PM	PA20-0062: **Time Warping Clustering for the Forecast and Analysis of COVID-19**	**Qixuan Jin** (California Institute of Technology)
12:40PM	PA20-0068: **Hierarchical BiGraph Neural Network as Recommendation Systems**	**Dom Huh** (George Mason University)
12:50PM	PA20-0069: **Positive Unlabeled Gradient Boosting**	**Andrea Boskovic** (Smith College)
1:00PM	PA20-0072: **A Low-Cost Radar-based Domain Adaptive Breast Cancer Screening System**	**Samuel Claflin** (University of Massachusetts Lowell)
1:10PM	PA20-0089: **Utilizing Artificial Intelligence to Diagnose Autism Spectrum Disorder Based on Eye Tracking Saccades**	**Abinaya Dinesh** (Stanford University)
1:20PM	PA20-0099: **Computer-aided Ischemic Stroke Classification from EEG Data Using a Single-Tiered Spiking Neural Network Framework**	**Elon Litman** (John L. Miller Great Neck North High School)
1:30PM	PA20-0101: **Detecting Fake News on Twitter Using Machine Learning Models**	**Emma Cueva**, Grace Ee, Akshat Iyer, Alexandra Pereira, Alexander Rosman (Rutgers University)
1:40PM	PA20-0108: **Determining Top Fully-Connected Layerâ€™s Hidden Neuron Count for Transfer Learning, using Knowledge Distillation**	**Ritwick Ghosh** (Indian Institute of Engineering Science and Technology, Shibpur)
1:50PM	PA20-0114: **A-Seeker: An Efficient Audio Transcription Platform**	**Harrison Affel**, Sean Cox (Wentworth Institute of Technology)
2:00PM	PA20-0121: **A Novel Approach to Toxic Gas Detection using an IoT Device and Deep Neural Networks**	**Ibrahim Bhavnagarwala**, Adam Bhavnagarwala (Danbury High School, NJIT)
2:10PM	PA20-0128: **Assistive Diagnostic Tool for Brain Tumor Detection using Computer Vision**	**Sahithi Ankireddy** (James B. Conant High School)

IEEE MIT Undergraduate Research Technology Conference 2020
Technical Paper Oral Presentation Schedule

Saturday, October 10, 2020
Hopin: Breakout Room B
Security and Communications Track, Computer Systems Track, Human-Computer Interaction and Graphics Track, Theoretical Computer Science and Mathematics Track
Track Chair: TBD

TIME	PAPER TITLE	PRESENTERS
12:30PM	PA20-0012: **MobSF: Mobile Health Related Android Applications Through The Lens of Open Source Static Analysis**	**Grace LaMalva** (St. John's University)
12:40PM	PA20-0120: **Aquaculture: A Cost-Effective Automated Aquaponic Gardening System**	**Justin Cooper**, Macone Connor (Wentworth Institute of Technology)
12:50PM	PA20-0032: **Share &Care: A Senior-Friendly Family Interaction Application**	**Jin Chen** (The City College of New York CUNY)
1:00PM	PA20-0049: **Integrating Natural Language Processing & Computer Vision into an Interactive Learning Platform**	**Rithesh Rajasekar,** Benson Liu, Aditya Shukla, Lucy Xu (Rutgers Honors College)
1:10PM	PA20-0098: **Programming an Educational Chatbot to Support Virtual Learning**	**Rachel Ai**, Disha Kohli, Lee Maina, Evelyn Manelski (Rutgers School of Engineering)
1:20PM	PA20-0115: **Exploration of SVD for Image Compression and Time Series Processing**	**Jesse Redford** (University of North Carolina)
1:30PM	PA20-0009: **System Design for Remote Pulse Examination**	**Tung Pham** (Wentworth Institute of Technology)
1:40PM	PA20-0077: **MusCare: A Mobile Design for Muscle Monitoring**	**Chrishopher Dombele** (Wentworth Institute of Technology)
1:50PM	PA20-0104: **Mobile Microclimate System for Architectural Fieldwork**	**Qian Ying Zeng** (Wentworth Institute of Technology)
2:00PM	FIRST LEGO League: **Team Blue Box - Project Research**	Anthony Wan, Anna Sun, Gauri Valiyodiyil, Sree Krothapalli, Robert Albu, Sasha Luchanok, Jocelyn Mcgarry, Govind Valiyodiyil
2:10PM	FIRST LEGO League: **Team ICE Box - Project Research**	Matthew Dona, Stafen Barbu, Aditya Biju

IEEE MIT Undergraduate Research Technology Conference 2020
Technical Paper Oral Presentation Schedule

Saturday, October 10, 2020
Hopin: Breakout Room C
Circuits, Materials, and Nanotechnologies Track, Innovative Technologies Track
Track Chair: TBD

TIME	PAPER TITLE	PRESENTERS
12:30PM	PA20-0008: **Aluminum-Calcium Composite Conductors: The Future of America's Power Grid**	**Jennifer Lew** (Palos Verdes Peninsula High School)
12:40PM	PA20-0064: **A Tight-Binding Model for Gallium Oxide: The Newest Ultra Wide-Bandgap Semiconductor**	**Yifan (Frank) Zhang**, Bill Liu (Cornell University)
12:50PM	PA20-0087: **An Analog Front-End for a Photoplethysmography Patch to Monitor Respiratory Rate**	**Mona Elokda** (Worcester Polytechnic Institute)
1:00PM	PA20-0092: **Electrical Power System Design and Test for Maine's First CubeSat (MESAT1)**	**Joseph Patton** (University of Maine)
1:10PM	PA20-0116: **Analysis of Lithium-Ion Battery Failure and PyBaMMâ€™s Viability in Simulating Them**	**Alexander Cho**, Daniel Vail, Patrick Wang, Greyson Sapio (Rutgers University)
1:20PM	PA20-0149: **A Low Cost Power Efficient Wireless Soil Moisture Sensor Network for Forest Ecosystem Monitoring**	**Thayer Whitney** (University of Maine)
1:30PM	PA20-0112: **Thermal Simulation of a CPU Based on Model Order Reduction**	**Kayla Ruttan** (Clarkson University)
1:40PM	PA20-0118: **Partial Discharge Detection By Classification of Tesla-Coil Music**	**Kai Shraiberg** (Wentworth Institute of Technology)
1:50PM	PA20-0129: **Low Cost Vaping Detectors to Mitigate Teenage Vaping**	**Aarushi Pant** (Westborough High School)