

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

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

| EST 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) |
| 8:30AM | PA20-0021: Comparative Analysis of Image Processing Algorithms for Airport Security | Sasha Callaway, Jeffrey Cheng, David Fu, Alexander Contratti, Harshika Gelivi (Rutgers University) |
| 8:40AM | PA20-0027: Small-Sized Neural Network for Detecting COVID-19 from Chest X-rays | Rahul Thapa (Villanova University) |
| 8:50AM | PA20-0036: ParaShop: A Mobile AR App in Assisting People with ASD to Shop | Mengting Xia (The City College of New York) |
| 9:00AM | 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) |
| 9:10AM | PA20-0041: Associating Exposures to Adverse Health Outcomes using Decision Trees | Aditi Purandare, Heidi Yap (Northeastern University) |
| 9:20AM | PA20-0046: Object Permanence in Videos: DNN Performance vs Human Ability | Irene Zhou (Massachusetts Institute of Technology) |
| 9:30AM | PA20-0059: Real time Attention Span Tracking in Online Education | Rahul Rangarajan Kannan (Sri Venkateswara College of Engineering) |

AM TRACK #1

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 Technical Paper Oral Presentation Schedule

| Saturday, October 10, 2020 Hopin: Session Room B Robotics and Controls Track Track Chair: Neil Deshmukh | | |
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| EST 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) |
| 8:30AM | 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) |
| 8:40AM | PA20-0090: Using Closed Feedback Loops to Evaluate Autonomous Juggling Performance | Hamzah Farooqi, Tomas Collado, Tashu Gupta, Ashwindev Pazhetam, Robert Taylor (Rutgers University) |
| 8:50AM | PA20-0097: Hoist Load Stabilization via Torque-Based and Retraction-Speed Control Systems | Kristina Hughes (The United States Military Academy) |
| 9:00AM | PA20-0100: Sling Load Stabilization | Michael Flanagan (The United States Military Academy) |
| 9:10AM | 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) |
| 9:20AM | PA20-0132: Decentralized Voltage Control in Power Inverters Using Feedback Optimization | Nelson Enrique Tello Bautista (National University of Colombia) |
| 9:30AM | 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: Penny Tan (Ram Dhurjaty) | | |
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| EST 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 Baccej, 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, Raphaele Hoang (Rutgers University) |
| 8:30AM | PA20-0071: Classifying EEG of Propofol-Induced Unconsciousness in the Presence of Burst Suppression | Willian De Faria (University of Notre Dame) |
| 8:40AM | PA20-0096: A Photoplethysmography Wearable with Long-term Heart Rate Variability Detection Algorithm | Fivos Kavassalis (Worcester Polytechnic Institute) |
| 8:50AM | PA20-0103: Improving Prosthetics by Using Silicone as an Artificial Skin | Lasya Balachandran (High Technology High School) |
| 9:00AM | PA20-0124: Detecting Differential Transcription Factor Binding Based on DNA Accessibility | John Lin (Boston Latin School) |
| 9:10AM | PA20-0013: 3D Depth Imaging for Assistive Guidance | Manuel Ackattupathil, Eli Levenshus (Bergen Community College) |
| 9:20AM | PA20-0051: Probabilistic Analysis of Confocally Imaged Synaptic Calcium Activity (PACISCA) | Grace Tang, Shreya Kochar (Massachusetts Institute of Technology, Wellesley College) |
| 9:30AM | PA20-0052: Designing and Simulating a Smart Air Purifier to Combat HVAC-induced COVID-19 Transmission | Noah Bergam, Sakshi Lende, Skyler Snow, Julianna Zhang, Lily Chen (Rutgers University) |
| 9:40AM | PA20-0061: A Hybrid Approach to Noise-Reduced Pods in Urban Areas | Lasya Balachandran, Arjun Agarwal, Hannah Cherry, John Kellaheer, Ethne Laude (Rutgers University) |

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

| EST 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 Layer'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) |

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| 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: Ivy Wang | | |
|---|--|---|
| EST 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 Abu, Sasha Luchanok, Jocelyn McGarry, Govind Valiyodiyil |
| 2:10PM | FIRST LEGO League: Team ICE Box - Project Research | Matthew Dona, Stafen Barbu, Aditya Biju |

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

| EST 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 PyBaMM'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) |
| 2:00PM | PA20-0127: Solar Fish Drying System | Joseph Cordeiro (Wentworth Institute of Technology) |
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