IEEE MIT Undergraduate Research Technology Conference 2021
Technical Paper Oral Presentation Schedule

	Saturday, October 9, 2021 **Hopin: Session Room A** **Machine Learning / Artificial Intelligence (AI) Track #1** **Track Chair: James Byleckie**	
EST TIME	**PAPER TITLE**	**PRESENTERS**
10:30AM	**ID-7** **ConflictClassifier: An Interpretable Pipeline to Identify Contradictions in Clinical Notes**	**Sharon Jiang** (Massachusetts Institute of Technology)
10:40AM	**ID-12** **Document Classification for COVID-19 Literature with Innovative Termolator**	**Muyan Jiang** (New York University, Abu Dhabi)
10:50AM	**ID-14** **Real-Time Forecasting of US COVID-19 Mortality : A Non-Mechanistic Approach Using Machine Learning and Novel Digital Data**	**Saketh Sundar** (River Hill High School/MIT Laboratory for Computational Physiology)
11:00AM	**ID-15** **GLAS: A Global Landslide Analytics System**	**Ishaan Javali, Shrey Joshi** (Plano East Senior High School)
11:10AM	**ID-16** **Investigating Federated Learning strategies for Pneumonia Image Classification**	**Nitin Nikamanth Appiah Balaji** (SSN College of Engineering)
11:20AM	**ID-19** **AI For Bias Detection: Investigating the Existence of Racial Bias in Police Killings**	**Anaiy Somalwar** (BASIS Independent Silicon Valley)
11:30AM	**ID-28** **Computing Movie Script Similarity with Neural Word Embeddings**	**Theodore Patsis** (Athens College Psychico College)
11:40AM	**ID-33** **Recurrent Variational Open-Set Recognition**	**Amelia L Norman** (University of Virginia); **Benjamin Diamond** (Worcester Polytechnic Institute); **Sean C Jordan** (University of Maryland)
11:50AM	**ID-34** **Robustness Testing of Artificial Intelligence-Driven Hand Biometric-Based User Authentication in Mobile Devices**	**Ethan S Li; Brian Zheng; Eric M Xie** (Rutgers University); **Emily C Liew** (West Orange High School); **Anushya Shankar** (West Windsor-Plainsboro High School South
12:00PM	**ID-36** **A Distributed Decision Tree on Hadoop**	**William Jones** (SUNY New Paltz)

AM TRACK #1

IEEE MIT Undergraduate Research Technology Conference 2021
Technical Paper Oral Presentation Schedule

	Saturday, October 9, 2021 Hopin: Session Room B Innovative Technologies Track Track Chair: Gianna Torpey	
EST TIME	**PAPER TITLE**	**PRESENTERS**
10:30AM	**ID-18** **Optimizing a Microgrid**	**Phevos Paschalidis** (Boston University)
10:40AM	**ID-23** **Student Engagement Through a Web Application**	**Seth P Benson** (United States Military Academy); **Andrew C Bregman** (West Point)
10:50AM	**ID-31** **Modeling Li-ion Battery Behavior to Identify Safety Limits**	**Rhea Kripalani** (High Technology High School); **Alice Gaehring** (Seneca High School); **Dakota Neuls; Owen Rondeau** (Rutgers University)
11:00AM	**ID-40** **Quantitative Analysis of Crowdsourced Platforms for Application in Higher Education**	**Julia C Patterson; Aryan Gandhi; Joey Avallone** (Rutgers University)
11:10AM	**ID-49** **Forecasting Evictions to Determine Areas at High Risk of Housing Insecurity**	**James Houghton** (The Pingry School); **Nandini Swam**i; **Alexandra D Weber**; **Hugh Keenan** (Rutgers University)
11:20AM	**ID-50** **Constructing the Ideal Components of Crowdsourcing Platforms for Higher Education**	**Sarah E Bargfrede; Aidan Ward** (Rutgers University); **Jack Finning** (Delbarton School)
11:30AM	**ID-52** **A Novel Method for Protein-Protein Interface Analysis Using Sonification**	**Sophia E Meytin** (Walter Johnson High School)
11:40AM	**ID-58** **A Novel Wildlife Poaching Detection Solution using Spatio-temporal Data with Dynamic Time Warping**	**Anika Puri** (Horace Greeley High School)
11:50AM	**ID-59** **Hydroelectric Sensor System for Monitoring Stormwater Runoff Pollutants**	**Rishabh Jain** (Old Bridge High School); **Gabriel Z. Kigner; Aneesh Nagalkar; Samuel Ngiam; Isha Wagle** (Rutgers University)
12:00PM	**ID-66** **BEANNA: A Binary-Enabled Architecture for Neural Network Acceleration**	**Caleb Terrill; Fred Chu** (University of California, Los Angeles)

AM TRACK #2

IEEE MIT Undergraduate Research Technology Conference 2021
Technical Paper Oral Presentation Schedule

Saturday, October 9, 2021 Hopin: Breakout Room C Robotics and Controls Track, Space Application and Technologies Track Track Chair: Karen Liberman		
EST TIME	**PAPER TITLE**	**PRESENTERS**
10:30AM	ID-6 **Development of an autonomously navigating robot capable of conversing and scanning body temperature to help screen for COVID-19**	**Ryan Kim** (Choate Rosemary Hall)
10:40AM	ID-61 **An Efficient and Reliable Multi-Robot Navigation Platform with Collision Avoidance**	**David J Crafts; Jake Sousa** (Wentworth Institute of Technology)
10:50AM	ID-1 **Modeling the Effects of J_2 Perturbation on Orbital Debris and Satellite Motion**	**Kristina M Hughes** (United States Military Academy)
11:00AM	ID-8 **Unscented Filtering of Angles-Only Measurements of Orbital Debris**	**Ethan Rabb** (United States Military Academy)
11:10AM	ID-26 **Mechanical Design of a ROVER prototype for Exploration tasks on Mars: Structural and Transient Dynamics simulation analysis**	**Johan J. Nuñez-Quispe** (Universidad Nacional de Ingeniería)
11:20AM	ID-45 **Low-Friction Demonstrator for Magnetic Actuation of Spacecraft**	**Guadalupe Bernal** (Cornell University)
11:30AM	ID-62 **The Applications of Subsurface Assemblies on Thermoelectric Generators for Lunar Processes**	**Eliazar Q Montemayor III; Teresa Doley; Kane Timlin** (Montgomery College); **Matthew Lewton** (Purdue University Student)
11:40AM	ID-120 **SALT: Spacecraft Air Leak Technology**	**Stephanie Wan, Alyssa Wan, Hannah Robinson** (Windham High School)
11:50AM		
12:00PM		
12:10PM		

AM TRACK #3

IEEE MIT Undergraduate Research Technology Conference 2021
Technical Paper Oral Presentation Schedule

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<tr><td colspan="3" align="center">

Saturday, October 9, 2021
Hopin: Breakout Room A
Machine Learning / Artificial Intelligence (AI) Track #2
Track Chair: James Byleckie

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<tr><th>EST TIME</th><th>PAPER TITLE</th><th>PRESENTERS</th></tr>
<tr>
<td>1:00PM</td>
<td>**ID-37**
Assessing Paper Texture Similarity in Matisse Lithographs Using a Triplet Neural Network</td>
<td>**Karen M Aguilar; Shelby Powers** (Western Washington University)</td>
</tr>
<tr>
<td>1:10PM</td>
<td>**ID-38**
Energy and Cost Considerations for GPU Accelerated AI Inference Workloads</td>
<td>**Tergel Molom-Ochir** (University of Massachusetts Amherst);
Rohan P Shenoy (Amherst Regional High School)</td>
</tr>
<tr>
<td>1:20PM</td>
<td>**ID-41**
Regression Based Machine Learning to Generate and Validate a Metric for Food Insecurity</td>
<td>**Matthew Balestier; Myra Cui; Riya Nandakumar; Anaika Tyagi; Cristian A Vintimilla** (Rutgers University)</td>
</tr>
<tr>
<td>1:30PM</td>
<td>**ID-43**
Emotion-Based Style Transfer On Visual Art Using Gram Matrices</td>
<td>**Nidhi Jadhav; Daniel H Bossett; Leilani Johnson; David Heimowitz; Helen Zheng; Arti Singh** (Rutgers University)</td>
</tr>
<tr>
<td>1:40PM</td>
<td>**ID-46**
Using Deep Learning for Urban Pedestrian Counting</td>
<td>**Edward W Deleu; Stefan Elez; Ansh Gadodia; Kyra Macvaugh; Grace Zhao** (Rutgers University)</td>
</tr>
<tr>
<td>1:50PM</td>
<td>**ID-51**
Effects of Pressure on Acoustic Hand Biometric Authentication</td>
<td>**Angela A Claveria; Raina E Maldonado; Akshay Mistry; Siddharth Parikh; Kevin Y Song; Srinidhi Venkatesh** (Rutgers University)</td>
</tr>
<tr>
<td>2:00PM</td>
<td>**ID-55**
Using Fused Neural Networks for a Multi-Sensory Approach to Human Emotion Classification</td>
<td>**Kevin Yang** (Union County Magnet High School); **Timothy Ninan; Jack T O'Donnell; Saniya Srivastava; Vasumathi Venkat; Haley Kahn** (Rutgers University)</td>
</tr>
<tr>
<td>2:10PM</td>
<td>**ID-57**
Human Context Recognition: A Controllable GAN Approach</td>
<td>**Harrison Y Kim** (Northeastern University)</td>
</tr>
<tr>
<td>2:20PM</td>
<td>**ID-63**
A Novel Method for Automated Identification and Prediction of Invasive Species Using Deep Learning</td>
<td>**Nathan Elias** (Liberal Arts and Science Academy)</td>
</tr>
<tr>
<td>2:30PM</td>
<td>**ID-67**
Sentiment Analysis on the News to Improve Mental Health</td>
<td>**Saurav Kumar** (Stanford University);
Rushil Jayant (Homestead High School)</td>
</tr>
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PM TRACK #1

IEEE MIT Undergraduate Research Technology Conference 2021
Technical Paper Oral Presentation Schedule

<table>
<tr><td colspan="3" align="center">Saturday, October 9, 2021
Hopin: Breakout Room B
BioEECS Track; Computer Systems, Theoretical Computer Science & Math Track
Circuits, Materials, & NanotechTrack
Track Chair: Jones Yu</td></tr>
<tr><th>EST TIME</th><th>PAPER TITLE</th><th>PRESENTERS</th></tr>
<tr><td>1:00PM</td><td>ID-21
Enhancing the Bionic Eye: A Real-time Image Optimization Framework to Encode Color and Spatial Information Into Retinal Prostheses</td><td>William Huang
(Palos Verdes Peninsula High School)</td></tr>
<tr><td>1:10PM</td><td>ID-35
The Eagle Hand: Innovations in 3D Printing Prosthetic Hands</td><td>Reilly N Desai; Vijay Sreenivasan; Karis A Lewis
(Rutgers University - New Brunswick)</td></tr>
<tr><td>1:20PM</td><td>ID-64
Engineering a Functional and Affordable 3D Printed Prosthetic Hand</td><td>Aarav Patel; Elizabete Grigalinovica-Leja; Nikhil Arayath (Rutgers University); Naysa Douglas (Willingboro High School); Lana Duke (Florence Township Memorial High School)</td></tr>
<tr><td>1:30PM</td><td>ID-25
A Simple Microfluidics Design for Rapid Quantification of E. Coli in Contaminated Water</td><td>Sreya Vangara
(Massachusetts Institute of Technology)</td></tr>
<tr><td>1:40PM</td><td>ID-20
Enhanced Mobile Microclimate System</td><td>QianYing Zeng
(Wentworth Institute of Technology)</td></tr>
<tr><td>1:50PM</td><td>ID-39
Mobile Question System for TCM Data Collection</td><td>Yen Le
(Wentworth Institute of Technology)</td></tr>
<tr><td>2:00PM</td><td>ID-44
A Study of Illumination Filtering and Movement Detection in Video Streaming Processing</td><td>Mai Phuong Nguyen
(University of North Carolina at Charlotte)</td></tr>
<tr><td>2:10PM</td><td>ID-60
NoteTogether: Distributed Note Taking with Blockchain</td><td>James D Kerr
(Wentworth Institute of Technology)</td></tr>
<tr><td>2:20PM</td><td>ID-22
ECG Data Analysis with MSE and Machine Learning</td><td>Abhigya Pote Shrestha
(Wentworth Institute of Technology)</td></tr>
<tr><td>2:30PM</td><td>ID-42
Enhancing Pulse Measurement with IoT Technologies for TCM</td><td>Tung Pham
(Wentworth Institute of Technology)</td></tr>
<tr><td>2:40PM</td><td></td><td></td></tr>
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PM TRACK #2

IEEE MIT Undergraduate Research Technology Conference 2021
Technical Paper Oral Presentation Schedule

Saturday, October 9, 2021
Hopin: Breakout Room C
FIRST FLL Project Innovation
Track Chair: Soon Wan

EST TIME	PAPER TITLE	PRESENTERS
1:00PM		
1:10PM		
1:20PM		
1:30PM		
1:40PM		
1:50PM		
2:00PM	**FIRST LEGO League:** **Team Blue Box - Project Research**	Jocelyn Mcgarry, Govind Valiyodiyil, Sasha Luchanok, Matthew Dona, Stafen Barbu, Aditya Biju, Layla Conwey
2:10PM	**FIRST LEGO League:** **Team ICE Box - Project Research**	Haashini Gounder, Harsha Gounder, Rayhan Riaz, Tarek Benzerrouk, Hassiba Benzerrouk, Kiaan Mehta, Aryan Sharma
2:20PM		
2:30PM		
2:40PM		