IEEE MIT Undergraduate Research Technology Conference 2023
Technical Paper Oral Presentation Schedule

2023 MIT IEEE URTC

IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-123)**
**AM Track #1A: Technology of Computation**
**Track Chairs: James Byleckie & Qiaoyan Yu**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 10:00AM - 11:30AM | ID-13<br>**EchoVest: Real-Time Sound Classification and Depth Perception Expressed through Transcutaneous Electrical Nerve Stimulation** | **Jesse Choe** (Naval Research Laboratory); **Siddhant Sood, Ryan W Park** (Thomas Jefferson High School for Science and Technology) |
| | ID-26<br>**A Machine Learning approach in predicting Antimicrobial Resistance (AMR) in Escherichia coli (E. coli)** | **Sailahari Mullapudi**<br>(Cambridge Centre for International Research) |
| | ID-27<br>**Propensity Score Matching for Evaluating Flashbang Effects in Counter-Strike** | **Charles V Wheaton**<br>(USMA Dept. of Mathematics) |
| | ID-33<br>**Machine Learning for Neural Decoding: Using EEG Signals to Detect Freezing of Gait in Parkinson's Patients** | **Kaelyn Johnson, Julia Cho, Ranajoy Gupta**<br>(NJ Governor's School of Engineering and Technology);<br>**Ritvik Sawhney, Daniel L Zeltser** (Rutgers University) |
| | ID-43<br>**Soldier Activity Recognition** | **Andrew Zhang** (United States Military Academy) |
| | ID-47<br>**Charged Particle Motion in Neutron Star Magnetic Fields: A Comparison Between the Boris Algorithm and the Guiding Center Approximation** | **Minghao Zou**<br>(Valley Christian High School) |
| | ID-52<br>**A computer vision approach to radial velocity extraction for exoplanet detection** | **Katelyn Gan**<br>(Sage Hill School, California) |
| | ID-70<br>**Developing a Group Performance Prediction System from In-the-wild Video Data using Machine Learning** | **Aarav Patel**<br>(Amity Regional High School) |
| | ID-56<br>**Simulating Molecular Markers in Acute Myeloid Leukemia Using Quantum Computing** | **Akshita Tiwari**<br>(Academy of Science) |

**AM TRACK #1A**

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IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-123)**
**AM Track #1B: Technology of Computation**
**Track Chairs: James Byleckie & Qiaoyan Yu**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 11:30AM - 1:00PM | ID-72<br>**Toward Faster Search and Rescue: Understanding Terrains with Reeb Graphs** | **Maxwell G Simpson**<br>(University of Richmond) |
| | ID-77<br>**3D Neural Network Model for the Transient Heating of Icy Mountains Due to Foehn Winds** | **Sophia Wang**<br>(The Brearley School) |
| | ID-83<br>**A Secure Friend Recommendation Framework for Online Social Networks using OpenAI Embeddings** | **Mohit Singh**<br>(Montclair State University) |
| | ID-94<br>**Multi-Task Breast Ultrasound Image Segmentation and Classification Using Convolutional Neural Network and Transformer** | **Joanna L Loja, Armando Mendez**<br>(Kean university) |
| | ID-100<br>**Image Super Resolution for Scanning Tunneling Microscopy and Atomic Force Microscopy** | **Rockwell T Li**<br>(Ocean Lakes High School) |
| | ID-108<br>**Wearable Wellness: Depression Screening via Fitbit Data Collected During COVID-19 Pandemic** | **Nikola Grozdani, Alexander Pietrick**<br>(Worcester Polytechnic Institute) |
| | ID-113<br>**A Fast Machine Learning Algorithm for the MaxCut Problem** | **Allison Jin**<br>(Columbia University) |
| | ID-120<br>**PaQKD: Optimizing Qubit Retention in Quantum Key Distribution using Packeting** | **Romir G Sharma** (West Windsor-Plainsboro High School South);<br>**Winston Wang** (Millburn High School) |
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**AM TRACK #1B**

IEEE MIT Undergraduate Research Technology Conference 2023
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IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-123)**
**PM Track #1A: Technology of Computation**
**Track Chairs: James Byleckie & Qiaoyan Yu**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 1:30PM - 3:00PM | ID-46<br>**A Lagrangian Approach to Loss Function Optimization on Traffic Network Regularity** | **Advay Vyas, Ethan A Rebello**<br>(University of North Texas) |
| | ID-122<br>**PFAS Incineration: Known Unknowns, Reaction Simulation, and ML to Predict Product Properties** | **Duncan Soiffer**<br>(Worcester Polytechnic Institute) |
| | ID-126<br>**A Multi-Dimensional Parity-Switched Packet Protocol for Qubit Retention and Mitigating Eavesdropping in Quantum Key Distribution Algorithms** | **Ishan A Mungikar**<br>(Montgomery High School) |
| | ID-128<br>**2D-FACT: Dual-Domain Fake Image Detection Against Text-to-Image Generative Models** | **Eric Ji**<br>(University of Illinois Urbana-Champaign) |
| | ID-136<br>**SMPNet: An Algorithmic Framework for Loneliness Detection and Mitigation in Social Media** | **Jack J Yin, Sumukh Venkatesh, Raghav Aggarwal**<br>(University of Iowa) |
| | ID-320<br>**Testing RadiX-Nets: Advances in Viable Sparse Topologies** | **Kevin Dong Gun Kwak, Zachary West**<br>(Massachusetts Institute of Technology) |
| | ID-321<br>**Algebraic Conditions on One-Step Breadth-First Search** | **Emma Fu**<br>(Massachusetts Institute of Technology) |
| | ID-323<br>**Fuzzy Relational Databases via Associative Arrays** | **Kevin Min**<br>(Massachusetts Institute of Technology) |
| | ID-34 (Technology of Engineering)<br>**Increasing Sulfur Solubility for More Efficient Nuclear Waste Vitrification** | **Patricia E Leoniuk, Geoffrey E Tillisch, Alex F Harvey**<br>(NJ Governor's School of Engineering and Technology) |

IEEE MIT Undergraduate Research Technology Conference 2023
Technical Paper Oral Presentation Schedule

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IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-123)**
**PM Track #1B: Technology of Engineering**
**Track Chairs: James Byleckie & Qiaoyan Yu**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 3:00PM - 4:30PM | ID-66<br>**Exoskeleton Hand for the Management of Hypermobile Ehlers Danlos Syndrome** | **Jessica Scholz, Timothy Bun, Emily A Oman**<br>(Wentworth Institute Of Technology ) |
| | ID-74<br>**EchoSense: Acoustic Sensing for Enclosed Structure Monitoring and Recognition** | **Zhuolin Liu, Michael M Rothstein**<br>(Worcester Polytechnic Institute) |
| | ID-110<br>**A Fourier Dot Product Analog Circuit** | **Jack T Adiletta**<br>(Worcester Polytechnic Institute) |
| | ID-112<br>**A Novel Fault Tolerant Dual-Loop Control System for Autonomous Quadcopter Navigation** | **Anish Anand**<br>(Palos Verdes Peninsula High School) |
| | ID-116<br>**Outlier Detection and Removal Signal Processing for Wearable Transcutaneous Oxygen Sensor** | **Vanshika Rohera, Ciara Murphy**<br>(Worcester Polytechnic Institute) |
| | ID-117<br>**Characterization of Temperature Distribution and Design of a Battery Thermal Management System for Lithium-polymer Batteries** | **Vibhav Chaturvedi, Ajay Raj, Juliette Cheng, Jonathan McAveety** ( New Jersey Governor's School of Engineering and Technology) |
| | ID-123<br>**Aiding Stroke Survivors with 3D Printed Bottle Opener** | **Ralitsa Hovanessian, Nathan He (**Ocean Lakes High School)**;**<br>**Tyler Cason** (Old Dominion University) |
| | ID-138<br>**Pressure Sensitive Mattress Pad for Tracking Pressure Injuries in the Geriatric Population** | **Olivia Wojnilo, Joseph M Confessore**<br>(University of Rhode Island) |
| | ID-148<br>**Preliminary Design and Prototype for a 1P PocketQube Earth Observation Satellite** | **Jason R Rinehart, Kieran Shanley, Michael Sonntag, Patrick Blanchard, Trout Marnell** (Wentworth Institute of Technology) |

IEEE MIT Undergraduate Research Technology Conference 2023
Technical Paper Oral Presentation Schedule

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IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-141)**
**AM Track #2A: Technology of Humanity**
**Track Chairs: Sreeram Dhurjaty & Riddhiben Shah)**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 10:00AM - 11:30AM | ID-23<br>**VRGrip: Developing a grip strength training platform integrating a wireless e-textile forearm band with an adaptive 3D VR game environment** | **Lohith S Chatragadda, Aiden Fletcher**<br>(University of Rhode Island) |
| | ID-53<br>**The Fallibility of AI Content Detectors** | **Ethan P. Zhou**<br>(Massachusetts Academy of Math and Science at WPI) |
| | ID-54<br>**Building User-Centered ASL Communication Technologies for Parent-Child Interactions** | **Ashley Bao** (Amherst College);<br>**Kaleb S Newman** (Brown University ) |
| | ID-57<br>**Semi-Supervised Pulmonary Auscultation Analysis with Cross Pseudo Supervision** | **Jieruei Chang**<br>**(**Princeton High School) |
| | ID-61<br>**Hydrogel-Assisted Brain Transplantation of HOXA3-Expressing Endothelial Progenitor Cells for Brain Repair After Stroke** | **Christine Xie**<br>(Palos Verdes High School) |
| | ID-62<br>**A Quantitative Method for Comparing Shipboard MVAC and MVDC Power Transmission** | **Spencer Margosian**<br>(Glosten) |
| | ID-76<br>**A Novel Approach to Facilitate Peripheral Nerve Regeneration: An Electrospun Conduit, Hydrogel Filling, and Internal Microchannels** | **Cassandra J Miller, Shrey Agarwal, Derek Wang, Bridget R Heffernan** (New Jersey Governor's School of Engineering & Technology) |
| | ID-85<br>**Serum Bilirubin Prediction for Neonates using Segmentation-Guided Neural Networks** | **Om Shah**<br>(Lakeside School) |
| | ID-95<br>**A Novel Series Elastic Actuation Method in A Semi-soft Robotic Rehabilitation Glove** | **Amisha Sao**<br>(Polygence) |

**AM TRACK #2A**

IEEE MIT Undergraduate Research Technology Conference 2023
Technical Paper Oral Presentation Schedule

2023 MIT IEEE URTC

IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-141)**
**AM Track #2B:**
**Technology of Automation**
**Track Chairs: Sreeram Dhurjaty & Riddhiben Shah)**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 11:30AM - 1:00PM | ID-45<br>**Understanding Dynamic Human Intentions to Enhance Collaboration Performance for Human-Robot Partnerships** | **Weitian Wang**<br>(Montclair State University) |
| | ID-49<br>**Enhancing Photometric Redshift Predictions and Uncertainty Quantification using Deep Learning Methods** | **Rushat Aboti**<br>(Cambridge Center for International Research) |
| | ID-71<br>**Devising Overtraining Curriculum Learning Techniques to Enhance Autonomous Navigation Reinforcement Learning** | **Aarav Patel**<br>(Amity Regional High School) |
| | ID-87<br>**Towards Detecting Cascades of Biased Medical Claims on Twitter** | **Juan Sanchez Mercedes**<br>(Bryant University) |
| | ID-91<br>**Converting Biological Neural Networks to DAGs: Evaluation of Customized Algorithms on C. Elegans** | **Benjamin Li**<br>(River Hill High School) |
| | ID-101<br>**Comparing Traditional Computer Vision Algorithms and Deep Convolutional Neural Networks as Self Driving Algorithms for Use in Dynamic Conditions** | **Shilpi P Shah**<br>(Rutgers University) |
| | ID-106<br>**Path Synthesis of Planar Linkage Mechanisms Using Deep Generative Models** | **Abhay Bhaskar**<br>(Middlesex County Academy for SMET) |
| | ID-140<br>**Kernelytics: Multispectral Drone Imagery and Deep Learning for Early Corn Assessment** | **Max Xiong** (Rutgers Preparatory School); **Bhaumik Mehta** (West Windsor Plainsboro High School North); **Sophia Liu** (Cherry Hill High School East); **Kavya Famolari (**North Hunterdon Highschool); **Oliver Aplin** (St. Joseph's Preparatory School) |
| | ID-147<br>**Accessible Framework for Automation in Precision Agriculture Leveraging Boston Dynamics' SPOT** | **Anthony J Boyle, Rebecca Cui, William Dougherty, Ryan M Lalani, Apurva Parasher** (Rutgers University) |

IEEE MIT Undergraduate Research Technology Conference 2023
Technical Paper Oral Presentation Schedule

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IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-141)**
**PM Track #2A:**
**Technology of Humanity, Technology of Automation**
**Track Chairs: Sreeram Dhurjaty & Riddhiben Shah)**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 1:30PM - 3:00PM | ID-114 (Technology of Humanity)<br>**Analyzing the Discourse in the UN for Crisis Response in Post-Colonial Africa** | **Alvan C Arulandu** (Harvard University);<br>**Brian L Zhou** (Thomas Jefferson High School for Science and Technology) |
| | ID-130 (Technology of Humanity)<br>**A Graph-Theoretic Approach for Creating Non-Gerrymandered Congressional Voting Maps** | **Ethan A Rebello, Jayanth N Pandit, Zachary Li**<br>(University of North Texas) |
| | ID-137 (Technology of Humanity)<br>**De Novo Molecular Generation Using Deep Learning for Prioritizing Synthesizability** | **Shashwath K Inamdar**<br>(Secaucus High School) |
| | ID-166 (Technology of Humanity)<br>**Detection and Suppression of Parkinson's Disease Tremors** | **Unnati Seshadri**<br>(James Logan High School/Cambridge Centre for International Research) |
| | ID-9 (Technology of Automation)<br>**Classifying Schizophrenia Disorder through EEG Signal Analysis and Machine Learning** | **Nivashini Nattudurai**<br>(James Logan High School) |
| | ID-12 (Technology of Automation)<br>**High Speed Neural Network Tsunami Wave Simulator with Multiple Adjustable Parameters** | **Pramya Surapaneni**<br>(High Technology High School) |
| | ID-14 (Technology of Automation)<br>**Convolutional Neural Networks: Brain Computer Simulations for Potential Non-Invasive Schizophrenia and Psychiatric Treatment as alternative to medication** | **Anes Kim**<br>(University of Illinois Urbana Champaign) |
| | ID-16 (Technology of Automation)<br>**Orthographic Syllable Pair Encoding for Language modelling tasks in Indic Languages** | **Manodnya K H**<br>(PES University) |
| | ID-25 (Technology of Automation)<br>**Chain-of-Thoughts Prompting with Language Models for Accurate Math Problem-Solving** | **Sze Ching Evelyn Fung**<br>(Diocesan Girls' School) |

IEEE MIT Undergraduate Research Technology Conference 2023
Technical Paper Oral Presentation Schedule

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IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-141)**
**PM Track #2B (Virtual):**
**Technology of Humanity, Technology of Logic**
**Track Chairs: Sreeram Dhurjaty & Riddhiben Shah)**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 3:00PM - 4:30PM | ID-50 (VIRTUAL)<br>**A Novel Web App based on a Computational Linguistic Approach To Deliver Primary Sentiment Stimuli for Music-Induced Analgesia in 30 Languages** | **Ryka C. Chopra**<br>(Mission San Jose High School) |
| | ID-81 (VIRTUAL)<br>**A Novel CNN-Informer Model for Electrocardiogram Time Series Forecasting** | **Jiya Patil**<br>(Foothill High School) |
| | ID-84 (VIRTUAL)<br>**Insights into the Impact of Age and Sex on Mutational Signatures in Pediatric Brain Tumors** | **Erin C Yoo**<br>(Lowndes High School) |
| | ID-89 (VIRTUAL)<br>**Quantitative Feasibility of Predictive Machine-Learning Optimization Algorithms for Refugee Routing** | **Luke H Jeon**<br>(Chatsworth Charter High School) |
| | ID-134 (VIRTUAL)<br>**Assessment and Quantification of Virtual Reality Induced Sickness in Relation to Age and Gender: A Multi-Modal Approach** | **Abhiram N Reddy**<br>(Allen High School) |
| | ID-146 (VIRTUAL)<br>**Conceptual Mechatronic Design of Ankle-foot Exoskeleton System for Assisted Rehabilitation of Pediatric Patients with Spastic Cerebral Palsy** | **Carol Sandoval**<br>(Universidad Ricardo Palma) |
| | ID-146 (VIRTUAL) - Technology of Logic<br>**Results on Vanishing Polynomials and Polynomial Root Counting with Relevant Technological Applications** | **Justin Zhang**<br>(Bergen County Academies) |
| | ID-19 (VIRTUAL - No Recording)<br>**MAC-You-Vision: A Progressive Training Application for Patients with Age-Related Macular Degeneration** | **Max Sehaumpai**<br>(The City College of New York) |
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IEEE MIT Undergraduate Research Technology Conference 2023
Technical Paper Oral Presentation Schedule

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IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-155)**
**AM Track #3A:**
**Technology of Networks, Technology of Sustainability**
**Track Chairs: Rui Ma & Ziyao Ma**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 10:00AM - 11:30AM | ID-22 (Technology of Network)<br>**Securing Quantum Computers: Safeguarding Against Eavesdropping and Side-Channel Attacks** | **Pranav Gani**<br>(East Hamilton High School) |
| | ID-103 (Technology of Network)<br>**Development of a Low-Cost Vibration Sensor for Structural Health Monitoring: A Case Study on the Golden Gate Bridge** | **Jonathan S Lee**<br>(Archbishop Mitty High School) |
| | ID-127 (Technology of Network)<br>**SeBRUS: Mitigating Data Poisoning Attacks on Crowdsourced Datasets with Blockchain** | **Anusha Iyer, Chloe H Lee, Trisha V Reddy, Rebekah Wang**<br>(Rutgers University) |
| | ID-150 (Technology of Network)<br>**Enhancing DoS Attack Recovery in MQTT Brokers for IoT Systems through Efficient Scheduling Algorithms** | **Pranav Sitaraman**<br>(Edison Academy Magnet School) |
| | ID-171 (Technology of Network)<br>**Enabling Computational Democratization: A Proof-of-Stake Bounty System for User-Proposed Problems and Solutions** | **Nishka Arora, Sarah Hashash, Kimia Hassibi**<br>(California Institute of Technology) |
| | ID-322 (Technology of Network)<br>**From Bits to Insights: Exploring Network Traffic, Traffic Matrices, and Heavy-Tailed Data,** | **Christopher J Howard**<br>(Massachusetts Institute of Technology) |
| | ID-48 (Technology of Sustainability)<br>**Solvent Free Copper Extraction** | **Derek Lovejoy**<br>(Umass Lowell) |
| | ID-86 (Technology of Sustainability)<br>**Mechanics of a Drone-Based System for Algal Bloom Detection Utilizing Deep Learning and LLMs** | **Andrea N Balcacer**<br>(Kean University) |
| | ID-96 (Technology of Sustainability)<br>**A Novel Machine Learning Approach for Flood Prediction with Local Interpretable Explanations** | **Joseph Tso** (Woodson High School);<br>**Hailey Pan** (George Mason University) |

**AM TRACK #3A**

IEEE MIT Undergraduate Research Technology Conference 2023
Technical Paper Oral Presentation Schedule

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IEEE Advancing Technology for Humanity

**Saturday, October 7, 2023 (Stata Center 32-155)**
**AM Track #3B (HYBRID):**
**Technology of Sustainability, Automation, Computation**
**Track Chairs: Rui Ma & Ziyao Ma**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 11:30AM - 1:00PM | ID-98 (Technology of Sustainability)<br>**Turning Food Waste Into Bioactive Glass: A Simulation** | **Sera Wong, Anika Reddy Chapalapalli, Maxwell V Duerr, Adrian H Reyes, Tessa Weaver**<br>(NJ Governor's School of Engineering And Technology) |
| | ID-109 (Technology of Sustainability)<br>**Towards Data-Driven Methods for Decarbonizing Reverse Osmosis Desalination** | **Om Sanan**<br>(Scarsdale High School) |
| | ID-118 (Technology of Sustainability)<br>**Autonomous Roof Solar Potential Estimation Using UAV Photogrammetry** | **Nicholas Meng**<br>(The Pingry School) |
| | ID-141 (HYBRID) - Technology of Sustainability<br>**Conversion of Polypropylene Plastic Waste to Luminescent Carbon Dots** | **Victoria R Christianson (VIRTUAL), Maxim Veksler, Kai Song, Sofia Zhang,**<br>(NJ Governor's School of Engineering and Technology);<br>**Daphne J Rodas** (Rutgers University) |
| | ID-30 (VIRTUAL) - Technology of Sustainability<br>**Towards Sustainable Development: A Novel Integrated Machine Learning Model for Holistic Environmental Health Monitoring** | **Sarthak R Engala, Aditya Nallapuraju**<br>(University of North Texas) |
| | ID-29 (VIRTUAL) - Technology of Automation<br>**Classifying Pothole Severity with Convolutional Neural Networks** | **Sahil Bhatia**<br>(Research Triangle High School) |
| | ID-35 (VIRTUAL) - Technology of Automation<br>**Ultrasound segmentation using deep learning: training on musculoskeletal phantom data and testing on clinical data** | **Yi Li**<br>(Boston College) |
| | ID-64 (VIRTUAL) - Technology of Automation<br>**Transforming Architectural Visualizations for Generative xR Renderings using Fine-tuned AI Models** | **Carina Kim**<br>(University of California Berkeley) |
| | ID-37 (VIRTUAL) - Technology of Computation<br>**Predicting Dosage of Immunosuppressant Drugs After Kidney Transplantation Using Machine Learning** | **Anirudh Mazumder**<br>(University of North Texas) |

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**Saturday, October 7, 2023 (Stata Center 32-155)**
**PM Track #3A (HYBRID):**
**Technology of Engineering, Networks, Computation**
**Track Chairs: Farzane Yahyanejad & Shaileshachandra Pandey**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 1:30PM - 3:00PM | ID-121 (HYBRID) - Technology of Engineering<br>**Application of Nanoimprint Lithography to Conducting Polymers for Infrared Photonics** | **Riya Sikand (VIRTUAL), Matthew Oliveira, Yuki N Wykoff, Nanda Guntupalli, David Man**<br>(Rutgers University) |
| | ID-82 (HYBRID) - Technology of Networks<br>**A Modern Real-Time Audio Encryption System Featuring Chaos Maps and Wavelet Transforms** | **Riya R Pawar (VIRTUAL), Evan Merkov (VIRTUAL), Eshaan Debnath (VIRTUAL), Rohan Bhatia (VIRTUAL), Kavya Venkatesan (In-Person)**<br>(Rutgers University) |
| | ID-15 (VIRTUAL) - Technology of Computation<br>**Kulkarni-Ahona Corollary for the Newton-Gauss Theorem** | **Pranav Kulkarni**<br>(Los Angeles Pierce College) |
| | ID-42 (VIRTUAL) - Technology of Computation<br>**Multimodal Ensemble Models for Parkinson's Disease Diagnosis Using Log-Mel Spectrograms and Acoustic Features** | **Tesfai D Samuel**<br>(C. Milton Wright High School) |
| | ID-44 (VIRTUAL) - Technology of Computation<br>**The first use of positive and unlabeled machine learning to identify fast radio burst repeater candidates** | **Arjun Sharma**<br>(The Shri Ram School, Moulsari) |
| | ID-99 (VIRTUAL) - Technology of Computation<br>**A Comparative Analysis of Hybrid Quantum Neural Networks in Binary Credit Defaulting Tasks** | **Aditya Sengar, Aarya Vijayaraghavan**<br>(Thomas Jefferson High School for Science and Technology) |
| | ID-129 (VIRTUAL) - Technology of Computation<br>**A Fundamental Analysis of Stock Returns using Machine Learning Algorithms** | **Andy Qin**<br>(Plano West Senior High School) |
| | ID-28 (VIRTUAL) - Technology of Computation<br>**Hybrid Quantum-Classical Machine Learning for Dementia Detection** | **Ryan Kim**<br>(Thomas Jefferson High School for Science and Technology) |
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**Saturday, October 7, 2023 (Stata Center 32-155)**
**PM Track #3B (VIRTUAL):**
**Technology of Engineering, Networks**
**Track Chairs: Farzane Yahyanejad & Shaileshachandra Pandey**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 3:00PM - 4:30PM | ID-21 (VIRTUAL) - Technology of Engineering<br>**Monitoring, Characterization, and Modeling of Stomatal Dynamic Behavior Under Climate Change** | **Gokulraj Kumarassamy, Kaitlyn S Amanullah, Brianna J Campbel, Natalia R Wolinski** (Rutgers School of Engineering) |
| | ID-59 (VIRTUAL) - Technology of Engineering<br>**Proportional-Integrative-Derivative Based Dynamic Controller for Soft Robots** | Anirudh Mazumder (University of North Texas) |
| | ID-107 (VIRTUAL) - Technology of Engineering<br>**Probing the Anisotropic Thermal Conductivity in Lithium-Ion Polymer Batteries** | **Agastya Kalagarla, Farhaan M Shroff, Elizabeth Van Der Schaar, Kevin B Liu** (Governor's School of Engineering and Technology (GSET)) |
| | ID-145 (VIRTUAL) - Technology of Engineering<br>**Soft Robotic Nurse Arm Test-Cases: A comparative Analysis of Laminar and Granular Jammed Skeletons** | **Aysu Ismayilova** (ELTE - Eötvös Loránd University); **Nihad Habizada** (Baku Higher Oil School) |
| | ID-38 (VIRTUAL) - Technology of Networks<br>**Blockchain-Powered Supply Chain Management for Kidney Organ Preservation** | **Kapil Panda**<br>(University of North Texas) |
| | ID-63 (VIRTUAL) - Technology of Networks<br>**Evaluation of Entanglement-Based Quantum Key Distribution for Genome Data Transmission** | **Hyunjo Kim**<br>(Radley College) |
| | ID-93 (VIRTUAL) - Technology of Networks<br>**How Private Is Your Browsing? Detecting GDPR Violations Through Robust Natural Language Processing and Thorough Static Program Analysis Technique** | **Gary Song**<br>(University of California, LA) |
| | ID-102 (VIRTUAL) - Technology of Networks<br>**Integrating Audio-Visual Features for Multimodal Deepfake Detection** | **Sneha Muppalla**<br>(Cupertino High School) |
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IEEE Advancing Technology for Humanity

**Sunday, October 8, 2023 (Stata Center 32-123)**
**Technical Paper and Virtual Posters**
**Track Chairs: James Byleckie & Qiaoyan Yu**

Massachusetts Institute of Technology

| EST TIME | PAPER TITLE | PRESENTERS |
|---|---|---|
| 8:00AM - 10:00AM | ID-149 PAPER - Technology of Humanity<br>**Reducing Noise Pollution with an Adaptive Barrier** | **Olivia J Mei, Thomas Liu, Thomas Wen**<br>(NJ Governor's School of Engineering and Technology; Rutgers University) |
| | ID-135 PAPER (VIRTUAL) - Technology of Automation<br>**CardiAWARE: A Novel ECG-based Deep Neural Network Algorithm for Early Detection of Cardiac Conditions** | **Eashan Kosaraju**<br>(Case Western Reserve University) |
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