URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (8:30AM - 10:00AM EST)
In-Person Poster Session #1
Stata Center - Student Vest Street

Massachusetts Institute of Technology

	Poster Title	Authors	Technical Track
ID-011	Computational Modeling of DNA-Based Aptamers Targeting BRCA1 Protein in Breast and Ovarian Cancer	Sydney Banks (Canyon High School)	Technology of Computation
ID-014	B-lymphocyte antigen CD19-Targeted CAR-T Cell Therapy as a Novel Immunomodulatory Strategy for Multiple Sclerosis	Meghana Govind (Round Rock High School)	Technology of Computation
ID-019	Integrated Magnet, Electron Beam, and Ultrafast Laser Studies for Accelerator Applications	Jorge Chavez; Oscar Situ (New York City College of Technology)	Technology of Engineering
ID-024	Particle Accelerators at the Confluence of Magnets, Electron Beams, and Lasers	Oscar Situ (New York City College of Technology)	Technology of Engineering
ID-027	HeartSense: An Ensemble AI System for Cardiovascular Risk Prediction and Early Intervention through Multi-Input User Analysis	Siddharth Kedharnath (Manalapan High School)	Technology of Automation
ID-031	Guide Dog Robot for Blind and Low Vision People: Audio Source Localization for Hazard Detection	Shiven Patel (University of Massachusetts Amherst)	Technology of Humanity
ID-035	Rational Engineering of a DuoBody Antibody for Selective Targeting of the Oncogenic EGFRvIII Isoform in Glioblastoma Multiforme	Sahasra Yenumula (Cumberland High School)	Technology of Logic
ID-079	Real-time Strength Training Monitoring, Feedback and Gamification System Using Wearable IMU Sensors and Advanced Signal Processing Algorithms	Robert Kong (Phillips Academy Andover)	Technology of Computation
ID-080	EXCESSIVE DAYTIME SLEEPINESS CAUSALITY NETWORK: LEARNING BAYESIAN NETWORK STRUCTURES WITH TABU ALGORITHM	Lydia Bullock (Hamilton College); Leah Burian (The University of Massachusetts)	Technology of Computation
ID-226	AI-POWERED FALL DETECTOR FOR SENIORS	Nihar Mehta (High School)	Technology of Humanity
ID-342	Development of Pd–Graphene Microelectrode Lattices for Closed-Loop Neuromodulation and Real-Time Signal Decoding: A Sustainable Platform for Bioelectronic Medicine and Adaptive Brain-Computer Interfaces	Shivi Kumar (Mind Matters Foundation)	Technology of Sustainability
ID-357	Log Anomaly Analytics Platform (LAAP): Structure, Pinpoint, Explain, Explore	Ethan Shanbaum (Worcester Polytechnic Institute)	Technology of Automation
ID-367	Machine Learning Scripting for Literature Mining	Natalie Gaschits (Nashua Community College)	Technology of Computation
ID-375	A Novel State-Space Diagram Analysis for Entanglement Transitions Using Time-Dependent Separability Measures	Kavin Murugesan (George Washington University); Christian Polilen; Aayush Chebolu (South Brunswick High School)	Technology of Computation
ID-385	Machine Learning based Prediction for Complex Vortex Structures in 3D High-Speed Turbulent Flows	Mai Al Shaaban (Brandeis University); Annamaria Palmiero (University Of Maryland, Baltimore County)	Technology of Computation
ID-390	Comparative Policy Analysis of EPR Regulation and Implementation in New York State Municipalities	Walter Benitez; Dereck Severino (Stony Brook University)	Technology of Humanity
ID-393	Multivariate Analysis of Determinants Causing Capacity Fade in Second-Life Lithium-Ion Batteries	Daniel Nie (Amador Valley High School & BU RISE); Aanya Patel (Clovis North High School & BU RISE); Leah Wu (Walter Payton College Prep & BU RISE)	Technology of Sustainability

MIT IEEE URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (8:30AM - 10:00AM EST)
In-Person Poster Session #1
Stata Center - Student Vest Street

Massachusetts Institute of Technology

Poster Title	Authors	Technical Track
ID-395 Reducing Cooling Energy & Greenhouse Gas Emissions for Houses Across the U.S Through PCM Enhanced Building Envelope and Natural Ventilation	Alborz Nasseri (Kansas University)	Technology of Sustainability
ID-397 Visualizing Income Inequality and Wealth Distribution Across New Jersey ZIP Codes and Townships	Ching-yu Huang (Kean University)	Technology of Humanity
ID-399 High Power Density Three-Phase DC-AC Convert Control Circuit Design with Power Over Ethernet Interface	Simon Salmon (Stony Brook University)	Technology of Engineering
ID-400 Solar Dynamic Characterization of Fine Temporal Structures in Fixed-Frequency Radio Emissions	Mayte Alvarez Trimino (Miami Dade College)	Technology of Exploration
ID-401 The Building Blocks to a 3.3 kV Converter: Validation of 3.3 kV Half-Bridge SiC Power Module	Jalen Saldivar (Stony Brook)	Technology of Engineering
ID-403 HoloDraft: Augmented Reality CAD for Real-Time 3D Model Editing and Printing	Aiden Annis (Rutgers University)	Technology of Engineering
ID-406 Techno-Economic Analysis of Conductor Selection for Thermal Switch and PCM Integrated Building Envelopes	Erol Cetinok (University of Florida)	Technology of Sustainability
ID-407 Engineering of Protease-Resistant Proteins via Computationally Guided Genetic Code Reprogramming	Gabriela Lopez; Carlos Arencibia (Miami Dade College)	Technology of Engineering
ID-408 A Modular Framework for Dynamic and Multi-nodal Optical Wireless Communication Research	Giovani DeOliveira; Dat Trinh (UMass Boston)	Technology of Engineering
ID-412 Developing a Vision-Language Model for Optical Coherence Tomography Images in Non-Invasive Cancer Diagnosis	Kyi Lei Aye (Stanford University School of Medicine)	Technology of Humanity
ID-414 Comparing Generative Models for Augmenting Extremely Small Medical Datasets: Synthesizing MRI for Brain Tumor Analysis	Youngwoo Kim; Jiwoo Kim (The Gatton Academy of Mathematics & Science)	Technology of Humanity
ID-415 Community Detection on Directed Networks through Normalized Ricci Flow	Bryan Luna; Andres Correa (College of the Holy Cross)	Technology of Networks
ID-416 Analysis of Answer Drift of AI Assistants for SQL Concepts	Kalena Imura (Wayland High School)	Technology of Automation
ID-418 AI-Powered Thermal Fingerprinting: Predicting PLA Tensile Strength Through Schlieren Imaging	Mason Corey (Kingsway Regional High School)	Technology of Engineering
ID-420 LLM-guided Feature Selection for Time Series Models in Small Data Regimes: A Case Study on Migration Flows	Phong Cao (Worcester Polytechnic Institute)	Technology of Computation
ID-436 Explainable AI for Insulin Pumps: Distilling Reinforcement Learning into Trustworthy LLM Controllers	Maya Sarkar (Mission San Jose High School)	Technology of Humanity
ID-443 Cocaine as a Secondary Substance: Effects on Rehab Completion in Opioid Users	Daniel Golmohammadi; Gabriella Jewitt (Young Scholars Program Northeastern University)	Technology of Humanity

MIT IEEE URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (8:30AM - 10:00AM EST)
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ID-444 **Comparative Assessment of AlphaFold2 and AlphaFold3 in Protein Oligomer Prediction**	**Yiqing Zang (Fort Hays State University)**	Technology of Computation
ID-446 **Detecting Irregular Aircraft Behavior from ADS-B Signals with Unsupervised Deep Learning**	**Antony Ouyang (MIT Beaver Works, UAV Group)**	Technology of Exploration
ID-451 **Optimizing Cell Line Transfection Efficiency: Protein-Modified Poly(Beta-Amino Ester)s**	**Camille Duma (Massachusetts Institute of Technology)**	Technology of Computation
ID-460 **TRADE BETWEEN LABOR-TIME AND CAPITALIST ECONOMIES**	**Zhejun Zhang (Boston College)**	Technology of Humanity
ID-462 **Medical GraphRAG: Using Non-LLMs to Develop Low-Cost Solutions for Medical Question-Answering**	**Esther Mosaku (University of Puget Sound)**	Technology of Computation
ID-464 **An Experimental Technique for Measuring Flow Rate in Microchannels**	**Remy Kaplinsky (Worcester Polytechnic Institute)**	Technology of Exploration
ID-642 **RoboGripper: A Wearable, Compliant Robotic Gripper to Aid in Daily Fine Motor Tasks**	**Alyssa Wan (Purdue University)**	Technology of Engineering

MIT IEEE URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (10:30AM - 12:00NOON EST)
In-Person Poster Session #2
Stata Center - Student Vest Street

Massachusetts Institute of Technology

Poster Title	Authors	Technical Track
ID-474 H-LIP Integrated Reinforcement Learning via CLFs for Robust and Efficient Bipedal Locomotion	Timothy Kennedy (Stevens Institute of Technology)	Technology of Automation
ID-480 Optimized Temporary Debris Management Site Selection and Time-Based Vehicle Routing Simulation Post-Disaster	Natalie Anderson (Purdue University); Jackson Miller (University of Missouri)	Technology of Computation
ID-490 BiCQL-ML : A BI-LEVEL CONSERVATIVE Q-LEARNING FRAMEWORK FOR INVERSE REINFORCEMENT LEARNING	Junsung Park (Seoul National University)	Technology of Computation
ID-492 TAPEWORM - Tissue Attachment Pedals for Extended Wholly-Passive Operation with Resolvable Mechanism	Olivia LaFond (Carnegie Mellon University)	Technology of Engineering
ID-495 A Multivariate Investigation of Bio-Inspired Geometries on Rocket Fins	Ishaan Makam (Newport High School)	Technology of Exploration
ID-501 Ab-Initio Inhibitor Screening for Area Selective High-k Deposition in GAAFETs	Park Junghwan (Seoul National University)	Technology of Engineering
ID-504 A Modular Testbed Framework for Analyzing Wireless Network Performance in Dynamic Multi-Node Environments	Dat Trinh (University of Massachusetts Boston)	Technology of Exploration
ID-505 SHARPNESS-AWARE MINIMIZATION WITHOUT GRID SEARCH: ADAPTIVE RADIUS CONTROL WITH GRADIENT NORM RATE	Junggyu Bae (Seoul National University)	Technology of Computation
ID-508 Utilizing Transient Reflectance for Characterizing Spin Waves in 2D Van Der Waals Magnet CrSBr	Alexander Tubby (Oregon State University)	Technology of Engineering
ID-512 Systematic Noise Sensitivity and Adaptive Symmetry Detection in Automated Physics Law Discovery	Prasham Shah; Harinarayan Asoori Sriram; Ishani Bakshi; Logan Miller; Joshua Moore; Kaitlin Zhang (New Jersey Governor's School in the Sciences, Drew University)	Technology of Computation
ID-513 Managing Recreational Court Access in High-Demand Environments Utilization of Quantum Frame Analysis.	Amogh gotaprthy (Wake Tech Community College)	Technology of Engineering
ID-514 Chemical and Electrical Synaptic Transmission Modulation by Axon Resting Membrane Potential (RMP) Changes	Anne-Sarah Nichitiu (Dartmouth College)	Technology of Humanity
ID-523 Synthesis of Copper (I) Cyanide Complexes for Materials Applications Poster	Melanie Cantor (Fordham University)	Technology of Engineering
ID-531 Uniform and tunable magnetic field bias for general use in photonics and associated experimental setups	Wyatt Vick (Massachusetts Institute of Technology)	Technology of Engineering
ID-533 Heterodinuclear Metal-Organic Coordination Polymers as Photocatalysts in the Reduction of Carbon Dioxide Under Visible Light	Ismail Gilani (The Carol Martin Gatton Academy of Mathematics and Science)	Technology of Sustainability
ID-537 Quantifying Biopharma Alliance Fragility Using a Strategic Shock Risk Index (SSRI)	Rhea Zhou (Cary Academy)	Technology of Humanity
ID-538 A 3D CONVOLUATIONAL NEURAL NETWORK FOR DETECTING ALZHEIMER'S DISEASE	Trishna Niraula (Arkansas State University)	Technology of Computation

MIT IEEE URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (10:30AM - 12:00NOON EST)
In-Person Poster Session #2
Stata Center - Student Vest Street

Massachusetts Institute of Technology

Poster Title	Authors	Technical Track
ID-539 **Machine Learning for Enabling 5G and Satellite Network Coexistence in FR3 Spectrum**	**Srishti Hazra (Edison Academy Magnet School)**	Technology of Networks
ID-543 **Evaluation of Transradial Force Sensors for Myography Prosthetic Limb**	**Joycephine Li; Shiou Ching Chen (City Tech)**	Technology of Engineering
ID-548 **BiLSTM Annealing for Brain Fragility Discovery : A Brain Collapse Index of Preceding Fragility States**	**Dhruva Valluru; Ketav Karthikeyan (Wake Tech Community College)**	Technology of Humanity
ID-549 **NeuroFlex: A Cost-Effective Non-Invasive EEG-Controlled Bionic Prosthesis for Transfemoral Amputees**	**Samuel Skotnikov; Eeshaan Dev Prashanth; Chanyoung Kim (Marcus High School)**	Technology of Humanity
ID-552 **Feasibility of Albite and Sanidine as Environmental Barrier Coatings for CMAS Corrosion Prevention**	**Leyla Buyukfirat (Hisar School)**	Technology of Engineering
ID-553 **External Transceiver Platform for Ingestible Devices**	**Allison Lin (Massachusetts Institute of Technology)**	Technology of Humanity
ID-554 **Probabilistic Inference of Cosmological Density Parameters from Synthetic Hubble Expansion Data of Varying SNR Using Artificial Neural Networks**	**Zijian Jin (Southridge School)**	Technology of Computation
ID-561 **Motion Mend: A Novel Wearable that Utilizes Gait Analysis and Neuromuscular Electrical Stimulation to Optimize Muscle Injury Recovery**	**Diya Venkataragavan (Independent)**	Technology of Engineering
ID-563 **Finding the Stable States of Convex Morphable Meshes**	**Linhan Shen (Hunter College High School)**	Technology of Computation
ID-567 **Heterodyne Interferometric Characterization Nonlinearities in Optical Fibers and Integrated Photonic Circuits**	**Nicole Lee (Bridgewater State University)**	Technology of Engineering
ID-569 **Structure-Guided AI/ML Pipeline for the Design of Cyclic Peptide Inhibitors of KRAS**	**Madhavendra Thakur (Independent)**	Technology of Humanity
ID-573 **Computational Designing of DNA Origami Targeting the EpCAM Receptor in Glioma Cells**	**Adheesh Chincholi (Westwood High School, Austin, TX)**	Technology of Computation
ID-578 **Decoupling Bilayer WS2 via Selective-Layer Remote Oxidation**	**Ingyu Woo (Seoul National University)**	Technology of Engineering
ID-579 **NAVIGATING SOLAR STORMS USING VIRTUAL REALITY AND AI**	**Daniel Carandang; Sanad Fraij; Kevin De Jesus (Montclair State University)**	Technology of Computation
ID-582 **The Atomic Operator Channel: A New Framework For Robust Subspace Coding in Network Communications**	**David Ramirez (Miami Dade College)**	Technology of Networks
ID-587 **Evaluating LLMs as SQL Tutors**	**Pranav Anandh (Garnet Valley High School)**	Technology of Engineering
ID-591 **Convolutional Nearest Neighbors: Reinterpreting Convolution Through K-Nearest Neighbor Selection**	**Mingi Kang (Bowdoin College)**	Technology of Automation

MIT IEEE URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (10:30AM - 12:00NOON EST)
In-Person Poster Session #2
Stata Center - Student Vest Street

Massachusetts Institute of Technology

Poster Title	Authors	Technical Track
ID-592 **Compact Multiband SWaP Optimized Ka-Band Microstrip Patch Antenna for Planetary Rover Communications**	**Hussah Aldawish (King Fahd University of Petroleum & Minerals)**	Technology of Exploration
ID-593 **Interpretable Deep Learning Framework for the Diagnosis of Age-Related Macular Degeneration**	**Anvitaa Rudharraju (Westfield High School)**	Technology of Humanity
ID-594 **Epitaxial growth of α-quartz GeO2 for microelectronics applications**	**Gabriella Foulkes (Harvard)**	Technology of Computation
ID-596 **Chemical Graph Theory Meets Machine Learning for Property Prediction**	**Diego Hernandez Barreras (Miami Dade College)**	Technology of Computation
ID-599 **Improved Synchronization in a Flapping-Wing Micro Air Vehicle Using Absolute Encoders and Cascaded Control**	**Brianna Connors (Cooper Union)**	Technology of Engineering
ID-676 **Finding Optimal Sensor Placements For a Clubfoot Brace**	**Shayna Levin (Cooper Union)**	Technology of Engineering

MIT IEEE URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (1:00PM - 2:30PM EST)
In-Person Poster Session #3
Stata Center - Student Vest Street

Massachusetts Institute of Technology

Poster Title	Authors	Technical Track
ID-601 **Leveraging Denoising Models for Bad Pixel Correction on Bayer and Quad Bayer RAW Images**	**Jungwoo Park (Seoul National University)**	Technology of Computation
ID-602 **17β-estradiol's Neuroprotection in Astrocytes Under Ischemic Stroke Conditions by $CoCl_2$-Hypoxia Model**	**Suh-in Kim (Barnard College)**	Technology of Humanity
ID-603 **JaSIN: A Self-Regularized ReLU Variant for High-Performance Image Reconstruction via Implicit Neural Representations**	**Shahd Hekal (Bowdoin College)**	Technology of Computation
ID-604 **Drone on Wheels: A Hybrid UAV-UGV System for Precision Course Navigation**	**Jerry Li (River Hill High School); William Kollmyer (Olympia High School)**	Technology of Exploration
ID-606 **Forecasting Network Traffic and Detecting Anomalies in Local IP Networks Using Recurrent Neural Networks and Time Series Analysis**	**Eric Lee (Fair Lawn High School); Sunkalp Chandra (Columbia Univesity)**	Technology of Networks
ID-613 **Assessing Students' Mental Health Via Facial Expressions**	**Pegah Emdad (Worcester Polytechnic Institute (WPI))**	Technology of Computation
ID-617 **MAKE ROBOTS PLAN FASTER: EVALUATING SAMPLING EFFICIENCY WITH GENERATIVE MODELS**	**Xiang Liu (Stony Brook University)**	Technology of Automation
ID-618 **FROM PERSONALITY-ADAPTIVE CONVERSATIONAL AGENTS (PACA) TO AURA-F: DESIGNING AN ADAPTIVE & UNDERSTANDING FRAMEWORK FOR HUMAN–AI COLLABORATION IN MENTAL HEALTH**	**Irmak Aytekin; Yibin Wang (University of Toronto)**	Technology of Humanity
ID-620 **A Computational Model of Ultrasound-Induced Activation in Human Cortical Interneurons**	**Kai Licata (Independent)**	Technology of Automation
ID-622 **Sharing Productivity Benefits in a Labor-Time Economy**	**Salamun Nuhin; Amittai Aviram (Boston College)**	Technology of Humanity
ID-636 **Printed to Perform: The Influence of 3D Printed Infill on Wireless Signal and Load Resistance**	**Daisy Thralow (University of Vermont)**	Technology of Engineering
ID-641 **Stethoscope Technology & Its Advancements: User Experience Research with Physicians**	**Wenjing Wang (Sharon Public Schools)**	Technology of Humanity
ID-643 **Fast and Accurate Estimation of Transient On-Chip Thermal Distributions by Machine Learning Models**	**Ronni Chang (Brookline High School)**	Technology of Engineering
ID-648 **Integration of a Circular Single-Chamber Soft Pneumatic Robotic Actuators with Industrial and Custom Robotic Arm Platforms**	**Clarence Tang (The Cooper Union for the Advancement of Science and Art)**	Technology of Engineering
ID-649 **Electromyographic Control of an InMoov Robotic Arm:**	**Adithya Chidambaram**	Technology of Humanity
ID-653 **FFT Accelerator for Space Bourne Instruments**	**O'Malley Sherlock (University of Rhode Island)**	Technology of Computation
ID-654 **A SUPRAMOLECULAR IMMUNOMATERIAL WITH TUNABLE MULTIVALENT PHOSPHORYLCHOLINE TO TREAT INFLAMMATION**	**Hanzhi Zhang (DUKE UNIVERSITY)**	Technology of Engineering

URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (1:00PM - 2:30PM EST)
In-Person Poster Session #3
Stata Center - Student Vest Street

Massachusetts Institute of Technology

Poster Title	Authors	Technical Track
ID-655 Multi Kidney Disease Modeling using hiPSC-Derived Biomimetic Glomerulus-on-a-Chips	Anavi Kaul (Duke University)	Technology of Engineering
ID-656 Leveraging Machine Learning for Optimal Wind Turbine Design	Brandon Gardner (SUNY New Paltx)	Technology of Engineering
ID-657 Cybersecurity in Healthcare: The Impact of COVID-19	Aaliyah Oliveira (Bridgewater State University)	Technology of Networks
ID-665 Refining the Age and Distance to Open Cluster NGC 2194	Ashwin Krishnamurthy; Yashica Balasubramanian (NASA STEM Enhancement in Earth Science)	Technology of Exploration
ID-669 Diagnosing and Repairing LLM Proof Failures: An Error Taxonomy and APOLLO-Guided Corrections on MiniF2F	Max Levin (Hunter College High School)	Technology of Automation
ID-679 Advanced Assistive Technology Facilitates Hands-on Service Learning	Suchi Chowdhury (New York City College of Technology)	Technology of Engineering
ID-681 Data analysis for grazing incidence X-ray off-specular scattering	Alexander Palomino (Stony Brook University)	Technology of Computation
ID-689 Tree-level Cross Section of Bhabha Scattering in Schwarzschild Spacetime	Sreekar Bheemavarapu (South Brunswick High School)	Technology of Engineering
ID-694 AudioQ: A Debugging Extension For Visually Impaired Developers	Shreyas kotla (University of Texas at Austin)	Technology of Computation
ID-705 5G and Satellite Network Coexistence in the FR3 Spectrum	Aaditya Mittal; Nihal Shah (Rutgers)	Technology of Networks
ID-709 LYNX: Open Platform for In-Ear Multimodal Sensing	Hikmet Bisen (Harmony school of Endeavor); Musa Guler (Algonquin Regional Highschool)	Technology of Engineering
ID-723 Comparative Evaluation of Domain Adaptation in Vision Models for Brain Tumor Classification With Explainability	Keven Amaya Muñoz; Arko Barua; Luan Hoang (MITES)	Technology of Automation
ID-734 Rivet: A Hardware Flow Manager with Dependence Sharing	Connor Lu (UC Berkeley)	Technology of Engineering
ID-738 Evaluating Photolysis of Antibiotic Resistance Genes in Wastewater Effluent through Bacterial Transformation	Chrystopher Guevara (Regis High School)	Technology of Sustainability
ID-744 Reprogramming Macrophage Metabolism to Drive Digit Regeneration	Malleshwar Jayaraman Suresh (University of Kentucky)	Technology of Humanity
ID-752 Foundations of a Colony: Mapping New Amsterdam's Infrastructure	Michelle Yeoh; John Almary; Finley Tyner (NYU Tandon)	Technology of Engineering
ID-758 COMPUTER VISION BASED VISCOMETER OF STIRRED FLUIDS VIA CFD DATA AUGMENTATION	Jongwon Sohn (Seoul National University)	Technology of Engineering

MIT IEEE URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (1:00PM - 2:30PM EST)
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	Poster Title	Authors	Technical Track
ID-779	No Passage, No Problem: Investigating Artifact Exploitation and Reasoning in Multiple-Choice Reading Comprehension	Rohan Butani (Johns Hopkins University)	Technology of Automation
ID-782	A Composable, Accelerated Data Structure for Linear Algebra in Julia	Maxwell Onyango (Massachusetts Institute of Technology)	Technology of Computation
ID-766	Detecting Illegal Logging Using Deep Learning and Statistical Modeling on Sentinel-1 SAR Imagery	Arush Shangari (Beaver Works Summer Institute)	Technology of Exploration
ID-380	The Analysis of Factors Impacting Consumer Decision in Buying Products from a Certain Brand	Vyom Kumar (CCIR)	Technology of Humanity
ID-440	A Novel Electrochemical Biosensor for Real-Time Dopamine Monitoring in Neurodegenerative Diseases	Kavin Murugesan (George Washington University); Christian Polilen (South Brunswick High School)	Technology of Humanity

MIT IEEE URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (8:30AM - 10:00AM EST)

Virtual Poster Session #1

Stata Center 32-124

Massachusetts Institute of Technology

Poster Title	Authors	Technical Track
ID-047 Remote Instrumentation and Data Acquisition	Jaymil Parikh (University of Illinois at Urbana-Champaign)	Technology of Automation
ID-358 MICROSPHERE-ENABLED MODULAR ENGINEERING OF DIAMETER REGULATED POLYCAPROLACTONE POROUS MODELS FOR DRUG DELIVERY	Keira Yu (Livingston High School)	Technology of Humanity
ID-376 Genomic Correlates of Sex-Specific Mutational Signatures in Pediatric Brain Tumors	Erin Yoo (Columbia University)	Technology of Humanity
ID-378 In Silico Design of a CD70/CD3 Bispecific T-Cell Engager (BiTE) for Targeted Immunotherapy in T-Cell Malignancies	Krishangi Oberoi (Abbey Park High School)	Technology of Computation
ID-388 Retweet Network Link Prediction via Multi-GNN Ensemble Learning with Structural Heuristics	Michael Zhou (University of Washington)	Technology of Networks
ID-404 Reassessing Volatility Proxies for Financial Forecasting: An Empirical Study of ATR vs. Standard Deviation and IQR in Predictive ETF Trading with Deep Learning	Akshay Murthy; Jonathan Yan (Boston University)	Technology of Humanity
ID-409 Probing Emergent Misalignment in Large Language Models via Latent Feature Analysis with Crosscoders	Aryaman Sarda (St Paul's School)	Technology of Logic
ID-417 Point-of-care Detection of Tick-Borne Diseases Using a Multiplexed Paper-based Sensor	Chana Fink (Di Carlo Lab UCLA)	Technology of Humanity
ID-419 Plantara: A Deep Ensemble Framework for Real-Time Stress Quantification & Adaptive Intervention via Multi-Modal Approaches in Solanum Lycopersicum	Samay Prabhu (Manalapan High School)	Technology of Sustainability
ID-422 Enhancing Failure Detection in Semiconductor Manufacturing using Balanced Random Forest Model	Daksh Gandhi (Suncity School, Gurugram)	Technology of Computation
ID-426 Ovarian follicle stem cell extensions wrap the developing germline	Lasya Voonna (Columbia University)	Technology of Exploration
ID-441 A Comparative Analysis of LSTM and XGBoost ML Models for Short-term Rainfall Forecasting	Daksh Mamnani (ASSIP)	Technology of Computation
ID-455 Evaluation of Anatomical Site Selection for Transcutaneous Oxygen Measurement	Mehmet Akbulut (Acton Boxborough Regional High School)	Technology of Engineering
ID-458 Dual Mode Soft Gripper with Tunable Stiffness Achieving Large Scale Robust Grasping Tasks	King Lok Wang (Culver Academies)	Technology of Engineering
ID-459 Optimal Prompting for Multi-Modal Human-AI Information Creations	Jad Dargam (Florida State University)	Technology of Automation
ID-467 0TH ORDER SOLUTIONS OF THE WAVEFUNCTIONS FOR THE QUANTUM ELLIPTICAL BOX AND MICROSTRIP ANTENNA	Nishtha Tikalal (University of Central Florida)	Technology of Engineering
ID-471 Drone-Based Rice Leaf Disease Detection for Farmers	Anaya Jain (Vizuara)	Technology of Automation
ID-496 Portable fNIRS for Rapidly Determining the Efficacy of SSRI Antidepressants in Patients with Major Depressive Disorder	Swara Ahire; Matilda Starbuck; Nikhil Krishnaswamy; Yash Bhuv (Stanford Institutes of Medicine Research (SIMR), Stanford School of Medicine)	Technology of Engineering

URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (10:30AM - 12:00NOON EST)

Virtual Poster Session #2

Stata Center 32-124

Massachusetts Institute of Technology

	Poster Title	Authors	Technical Track
ID-515	Optimizing Aerogel-Based Materials for Enhanced Thermal Protection in Spacecraft Reentry Conditions	Amogh Vinaykumar (Flower Mound High School)	Technology of Exploration
ID-519	For a Sustainable Future: Leveraging Novel Machine Learning Techniques and Simulations to Forecast and Reduce Vehicle Brand Emissions in the U.S.	Satyajith Kesanapally (Mission San Jose High School)	Technology of Sustainability
ID-520	Analysis of Prostate Deformation in MRI During Androgen-Deprivation Therapy for Prostate Cancer	Rhea Rupareliya (University of California at Los Angeles)	Technology of Humanity
ID-535	Effects of Varying Frequencies of Red Noise on the Bioluminescent Quorum Sensing of Vibrio fischeri	John Chang (High Technology High School)	Technology of Sustainability
ID-542	Enhancing multi-label wildfire classification on edge computing device using synthetic data augmentation	Kevin Lee (Sunny Hills High School); Alice Shin (Battlefield High School); Aaron Son (Chantilly High School); Michael Hsieh (Legacy Magnet Academy)	Technology of Computation
ID-544	ShooterScan: Real-Time Detection for Stopping School Intruders	Om Guin (Georgia Institute of Technology); Pranav Sambhu (Georgia Institute of Technology)	Technology of Networks
ID-555	TBPDN: Tiny Bad Pixel Detection Network	Geonha Lee (seoul national university)	Technology of Computation
ID-572	Enhancing Coding Performance of Small LLMs	Aarav Khatri (Robbinsville High School)	Technology of Automation
ID-575	Examining Impacts of Spaceflight-Induced Cell Cycle Dysregulation on Skin Health and Wound Healing in Mice with Metabolic Profiling of Igf2	Yash Bhuva (Fremont High School); Azimullah Rifai (Poolesville High School)	Technology of Exploration
ID-576	The History of Classics in California Community Colleges: A Study of Curricular Shifts, 1992-2024	Aurora Robathan-Wu; Alli Saona Reyes; Anya Gadkari (University of California Santa Barbara)	Technology of Humanity
ID-588	TRACKING AND STORING EXPLAINABILITY DRIFT IN READMISSION MODELS USING SHAP AND BLOCKCHAIN	Shivank Kancharla (University of North Carolina Chapel Hill); Adesh Srivastava (Georgia Institute of Technology)	Technology of Humanity
ID-607	The Entropic Emergence of Time: A Rate-Based Cosmic Framework	Sneh Vats (Holy Mission senior secondary school)	Technology of Exploration
ID-623	Temporal Deep Learning with UNet-Diff for Forest Change Detection in Honduras Using Sentinel-2	Jinglin Wang (American International School of Budapest)	Technology of Sustainability
ID-628	PyMOCAT-MC: A Python Implementation of the MIT Orbital Capacity Assessment Toolbox Monte Carlo Module	Rushil Kukreja (Thomas Jefferson High School for Science and Technology)	Technology of Computation
ID-639	Analysis of LLM Adaptability to Holistic and Analytic Cognitive Styles Using Torrance's Components of Creative Thinking	Charvi Kanna (Montville Township High School); Herui Li (South Forsyth High School)	Technology of Computation
ID-650	Alice in Space: Developmental Testing and Integration of a CV-QKD Transmitter Engineering Model	Priyanshu Kumar (Indian Institute of Space Science and Technology)	Technology of Computation
ID-652	Predicting High-Pressure Stabilities of Hydride Superconductors with Computational Modeling	Satyajith Kesanapally (Mission San Jose High School); Ashwin Raghav (American High School); Vinayak Damarla (Palo Alto High School)	Technology of Engineering
ID-664	Hydration Automation: A Frugal Irrigation IoT System	Siddhi Kabadi (Santa Clara University)	Technology of Networks

MIT IEEE URTC 2025

IEEE Advancing Technology for Humanity

Sunday, October 12, 2025 (1:00PM - 2:30PM EST)

Virtual Poster Session #3

Stata Center 32-124

Massachusetts Institute of Technology

Poster Title	Authors	Technical Track
ID-670 **Recovery of Anode Material from Spent Lithium-Ion Batteries: A Novel Approach to Battery Recycling**	Maritza Sanchez (CT State Community College - Gateway)	Technology of Sustainability
ID-672 **Serum cytokines during acute respiratory infection and relationship to age**	Aanya Gupta (Basis Independent Silicon Valley)	Technology of Humanity
ID-677 **Evaluating the Bechdel Test: An Analysis of Gendered Dialogue in Film through Natural Language Processing**	Prianca Sharan; Philip Spradlin; Brooke Ye (Boston University RISE)	Technology of Automation
ID-692 **Use of Machine Learning Models in Determining Mental Health Illness Severity**	Vrishin Chenreddy (ASSIP)	Technology of Humanity
ID-710 **Effect of space radiation on the antimicrobial efficacy of fluoride toothpaste against Enterococcus faecalis**	Sapna Patel (Mainland Regional High School)	Technology of Exploration
ID-712 **GRAIN: Graph Refinement via Adaptive and Intelligent Narrowing**	Shubham Patel (George Mason University); Aryan Raj (George Mason University)	Technology of Automation
ID-713 **Predicting and Analyzing Homelessness in the USA Using Machine Learning**	Srikar Kakarla (Hightstown High School)	Technology of Humanity
ID-715 **Mind Thyroid Matters: Sentiment, Support, and Misinformation in Hashimoto's Online Communities**	Anish Chauhan (Mission San Jose High School)	Technology of Humanity
ID-717 **A Novel Solution to Data Imbalance, Applied in Stock Market Crash Prediction**	Julia Xu (Great Neck South High School)	Technology of Humanity
ID-729 **Enhancing Small Object Detection for Satellite-Based Search and Rescue Missions**	Gauri Todur (Santa Clara High School; MIT Beaver Works Summer Institute)	Technology of Exploration
ID-741 **Designing Small-Molecule Therapeutics for α-Synuclein Aggregation in Parkinson's Disease Using Machine Learning and Replica Exchange Molecular Dynamics**	Alex Zhang (Centerville High School)	Technology of Engineering
ID-756 **Optimized Deep Learning and Hybrid Lion-Firefly Algorithm for Detecting Spoiled Fruits and Reducing Food Waste**	Sally Han	Technology of Sustainability
ID-771 **EMPATHIA: Beyond-Accuracy Human-AI Collaboration for Refugee Integration**	Mohamed Rayan Barhdadi (Texas A&M University)	Technology of Humanity
ID-629 **Effectiveness of AI Assistants for Learning Support Vector Machine Classification Methods**	Mihika Ranjan (Novi High School)	Technology of Computation
ID-478 **Better Drone-Based Vehicle Detection With EO/IR Multimodal Fusion**	Maxwell Felter (United States Military Academy)	Technology of Automation