IEEE MIT Undergraduate Research Technology Conference 2022

Poster Presentation Sessions Schedule

Sunday, October 2, 2022 (8:30AM - 10:00AM)
In-Person at Stata Center - Student Vest Street
Virtual at Stata Center 32-123

Poster Title	Authors	Technical Track
ID-21: Investigating glioblastoma resistance to chemotherapy with single-cell CRISPR base-editing	**Mackenzie Sky** (Purchase College, SUNY)	BioEECS and Applied Physics
ID-88: CEC as a Protein Hydrogel for Wet Adhesives	**Jessica L Wong** (New York University)	BioEECS and Applied Physics
ID-100: Acceleration of drug discovery by increasing precision of ATOM Modeling Pipeline with machine learning innovations	**Shohini Sarkar** (Mission San Jose High School)	BioEECS and Applied Physics
ID-103: Developing freehand 3D ultrasound imaging for kidney and kidney stones	**Claire Kung, Vasileios Megas** (Union College)	BioEECS and Applied Physics
ID-109: Discovery of Potential Alzheimer's Disease Therapeutics Using Graph Convolutional Networks	**Sameer Gabbita** (Thomas Jefferson High School)	BioEECS and Applied Physics
ID-115: The Antibacterial Effectiveness of Silver Nanoparticles Made Using Citrate Reduction	**Venya Gunjal** (Wheeler High School)	BioEECS and Applied Physics
ID-134: Genetic Screen for Age Reversal in Neurons is Validated with Fibroblasts	**Carol Magalhaes** (Church Lab)	BioEECS and Applied Physics
ID-149: Development of a RoboSock Wearable Robotic Device for Ankle Rehabilitation Post-Stroke	**Fouzia Raza, Saba Zerefa, Cyrus Asgari, Jayson Lin** (Harvard Undergraduate Robotics Club)	BioEECS and Applied Physics
ID-157: Analysis of Visual Responses in the Lateral Geniculate Nucleus Measured with Functional Ultrasound Imaging	**Alraian Abdelrahim** (University of Rochester)	BioEECS and Applied Physics
ID-17: Novel Structural Reorientation in Phosphorene for Innovative Flexible Electronics	**Nathan Zhao** (University of Delaware)	Circuits, Materials, and Nanotechnologies
ID-20: The Effect of Imperfections and Interface Orientation on Failure Criteria in 2D Materials	**Suraj M Reddy** (University of Delaware)	Circuits, Materials, and Nanotechnologies
ID-95: Photothermal Spectroscopy for Characterization of Phase Transitions in Smart Materials at Submicron Scale	**Yiwen Zhang** (Boston University)	Circuits, Materials, and Nanotechnologies
ID-96: Integrating Metal-Organic Frameworks in a Novel, Flow-Through Electrochemical Platform for Perfluorooctanoic Acid Detection	**Maryom Rahman** (New Jersey Institute of Technology)	Circuits, Materials, and Nanotechnologies
ID-118: 3D-printing compatible low loss negative curvature fiber design for Terahertz regime	**Venus Fu** (Roger Williams University)	Circuits, Materials, and Nanotechnologies
ID-120: “Centriolic” Topologies for Hollow Core Elliptical Negative Curvature Fibers	**Santiago Armas** (Roger Williams University)	Circuits, Materials, and Nanotechnologies
ID-123: DEVELOPMENT OF ULTRAFAST ERBIUM FIBER LASERS BASED ON HOME-MADE 2D SATURABLE ABSORBERS	**Hunter CJ Phillips, Russell Quinn** (Roger Williams University)	Circuits, Materials, and Nanotechnologies
ID-129: NEGATIVE CURVATURE TOPOLOGIES FOR ACOUSTIC METAMATERIAL FIBER DESIGNS	**Viannely A Francisco** (Roger Williams University)	Circuits, Materials, and Nanotechnologies

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ID-87: An experimental testbed for performance analysis of ultra-dense environments with multiple access points and multiple user devices	**Victoria Planchart, Lenny Martinez** (UMass Boston)	Computer Systems, Theoretical Computer Science and Mathematics
ID-116: TSUBASA-PLUS: Correlation Matrix Computation on Sliding Windows	**Yunlong Xu, Peizhen Yang** (University of Rochester)	Computer Systems, Theoretical Computer Science and Mathematics
ID-124: Underwater Acoustic Communication System and Hardware Implementation	**Jennifer Saeteros, Seungyeon Lee, Batoul El Sayed Mohamad, Minyoung Kim, Jamy Salas** (City University of New York (CUNY))	Computer Systems, Theoretical Computer Science and Mathematics
ID-126: Join Size Estimation Over Union of Join Paths	**Yurong Liu, Yunlong Xu** (University of Rochester)	Computer Systems, Theoretical Computer Science and Mathematics
ID-136: THE IMPACT OF HOUSEHOLD INCOME ON COVID-19 DEATHS	**Tzu-Han Lin** (Kean University)	Computer Systems, Theoretical Computer Science and Mathematics
ID-141: The Impact of the Covid-19 Pandemic on Trade	**Xavier Amparo** (Kean University)	Computer Systems, Theoretical Computer Science and Mathematics
ID-104: Integral imaging based 3D light field sensing and depth estimation	**Nathan J Green, Xin Shen** (University of Hartford)	Innovation Research
ID-107: UNDERSTANDING FALSE CLAIMS AGAINST RENEWABLE ENERGY PROJECTS	**Kaya M Sittinger** (The Ohio State University)	Innovation Research
ID-113: FlowVIZ: An Application for Flow Visualization	**Yiru Liu** (Acton Boxborough Regional High School)	Innovation Research
ID-101: Virtual at 9:00AM Tonometry Based Wearable Device for Non-invasive Continuous Blood Pressure Monitoring in Pulsatile and Nonpulsatile Patients	**Duanxie Shen** (University of Michigan)	Biological and Biomedical Engineering (BioEECS)
ID-145: Virtual at 9:10AM Engineering and characterization of drug delivery agent SGV-Thermoresponsive Assembled Protein	**Frances Lee** (New York University)	Biological and Biomedical Engineering (BioEECS)
ID-147: Virtual at 9:20AM Development of a Targeted Drug Delivery System for the Treatment of Covid-19	**Sahil Sood** (Lambert High School)	Biological and Biomedical Engineering (BioEECS)
ID-158: Virtual at 9:30AM Molecular Simulations on Atmospheric Water Harvesting using Metal Organic Frameworks as Adsorbents	**Joanna Ibrahim, Alice Shi** (New York University)	Circuits, Materials, and Nanotechnologies
ID-117: Virtual at 9:40AM A live scoreboard for surfing: tracking critical surf maneuvers with wearable technology	**Daniel S Rubin** (Westmont College)	Computer Systems, Theoretical Computer Science and Mathematics
ID-125: Virtual at 9:50AM Finding Pearson Correlation between stocks	**Alexander Tai** (Freehold Regional High School)	Computer Systems, Theoretical Computer Science and Mathematics
ID-142: Virtual at 10:00AM Securing Cost-Efficient Open-Source Medical Syringe Pump Systems	**Wei Lu** (Keene State College/USNH)	Security and Communications

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Poster Presentation Sessions Schedule

Sunday, October 2, 2022 (1:30PM - 3:00PM)
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Poster Title	Authors	Technical Track
ID-111: Improving Transfer Learning for Modern Machine Learning Models for Medical Imaging	**Sameer Gabbita, Arnav Jain** (Thomas Jefferson High School)	Machine Learning / Artificial Intelligence (AI)
ID-131: On Demand Epileptic Seizure Prediction Using Neuromorphic Computing Artificial Intelligence With Additional Potential for Optogenetic Response	**Saanvi Mehta** (Mainland Regional High School)	Machine Learning / Artificial Intelligence (AI)
ID-133: Predicting Genetic Predisposition To Isoniazid-Induced Hepatic Steatosis via a Computational Analysis of Genetic Biomarkers	**Shikha Kathrani** (Dougherty Valley High School)	Machine Learning / Artificial Intelligence (AI)
ID-148: Development of GUI for Deep Learning Classifiers using CAM Algorithms and Augmented OCT Images for Early Detection of Dental Caries	**Devin Mortenson** (California State University)	Machine Learning / Artificial Intelligence (AI)
ID-155: Multimodal Deep Learning for Firearm Detection	**Prajwal Saokar** (Georgia Institute of Technology)	Machine Learning / Artificial Intelligence (AI)
ID-150: Comparative Analysis of Cornell University Building Power Demand	**Andrea Miramontes Serrano** (Cornell University)	Robotics and Controls
ID-89: The Structure is the Story: How Network Analysis can Improve Propaganda Identification	**Sebastian Preising** (Columbia University)	Security and Communications
ID-99: Using multicast for reliable low-latency communication over mmWave mesh networks.	**Dimitrios Mastrogiannis** (New York University)	Security and Communications
ID-106: Networkless Wireless Sensing for Bridge Health Monitoring	**Bryce J Afonso** (UMass Dartmouth)	Security and Communications
ID-146: Turning the Block in NYC and Still Getting 5G Coverage? mmWave Around-Corner Measurements for Dense Urban Deployment	**Shivan Mukherjee** (Columbia University); **Aahan Mehta** (Stuyvesant High School)	Security and Communications
ID-121: Identification of Monkeypox in Skin Lesion Images Using Transfer Learning Architectures	**Ireh Hong, Tal Ledeniov , Niyathi Srinivasan** (MIT Lincoln Laboratory, MIT Laboratory of Computational Physiology)	Machine Learning / Artificial Intelligence (AI)
ID-128: Interpretability and Generalization of CNNs in Sparse Signal Denoising	**Yulia Grajewska** (New York University Abu Dhabi)	Machine Learning / Artificial Intelligence (AI)

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ID-112: Virtual at 1:10PM Predicting Culex Mosquito Habitat and Breeding Patterns in Washington D.C. Using Machine Learning Models	**Iona Z Xia** (Monta Vista High School)	Machine Learning / Artificial Intelligence (AI)
ID-154: Virtual at 1:20PM NaDBenchmarks 2: A Web Platform for Benchmark Datasets for Machine Learning tasks related to Natural Disasters	**Stela Ciko** (University of Rochester)	Machine Learning / Artificial Intelligence (AI)
ID-121: Virtual at 1:30PM Identification of Monkeypox in Skin Lesion Images Using Transfer Learning Architectures	**Krishnaveni Parvataneni, Kshitij Teotia** (MIT Lincoln labs)	Machine Learning / Artificial Intelligence (AI)
ID-128: Virtual at 1:40PM Interpretability and Generalization of CNNs in Sparse Signal Denoising	**Rameen Mahmood** (NewYork University Abu Dhabi)	Machine Learning / Artificial Intelligence (AI)
ID-85: Virtual at 1:50PM Procedural Generation of Grain Orientations from EBSD Images of Stainless Steel with the Wave Function Collapse Algorithm	**Grace Magny-Fokam** (CMIT South High School)	Innovation Research
ID-86: Virtual at 2:00PM Breakthroughs in Honey Bee Health, Continuous-Release Mist Diffusion of Thymol-Based Essential Oils in Varroa Control, Part II: The Field Study	**Kaitlyn N Culbert** (Toms River High School North)	Innovation Research
ID-83: Virtual at 2:10PM Domain-Agnostic Self-Supervised Contrastive Learning for Computational Histopathology	**Stella Su** (Henry M Gunn High School)	Machine Learning / Artificial Intelligence (AI)
ID-137: Virtual at 2:20PM Decoding COVID-19 Vaccine Hesitancy Using Multiple Regression Analysis with Socioeconomic Values	**Wei Lu** (Keene State College/USNH)	Machine Learning / Artificial Intelligence (AI)
ID-138: Virtual at 2:30PM A Novel Approach for Diagnosis of Clonal Hematopoiesis of Indeterminate Potential Using Deep Neural Networks	**Sangeon Ryu** (Yale University)	Machine Learning / Artificial Intelligence (AI)
ID-143: Virtual at 2:40PM An Inversion Algorithm of Ice Thickness and InSAR data for the State of Friction at the Base of the Greenland Ice Sheet	**Aryan Jain** (Amador Valley High School)	Machine Learning / Artificial Intelligence (AI)
ID-151: Virtual at 2:50PM Employing Deep Learning and Remote Sensing Data to Estimate Power Plant Greenhouse Gas Emissions	**Aryan Jain** (Amador Valley High School)	Machine Learning / Artificial Intelligence (AI)