NJIT
New Jersey Institute of Technology

COLLABORATIVE RESEARCH AND INNOVATION PARTNERSHIPS

2024 UNDERGRADUATE SUMMER RESEARCH AND INNOVATION SYMPOSIUM

AND

NATIONAL ACADEMY OF INVENTORS (NAI) – NJIT INNOVATION DAY

JULY 24-25, 2024

PROGRAM

2024 Undergraduate Summer Research Symposium

And

National Academy of Inventors (NAI) – NJIT Innovation Day
July 24-25, 2024
Campus Center, Ballroom A & B, and Atrium

Welcome!
Undergraduate research provides students a unique opportunity to learn necessary and important skills to research and innovate towards taking a leadership role in society. As a student-centered research institution, NJIT is committed to providing research, innovation and experiential learning opportunities to undergraduate students for enhancing their education and success.

The 2024 NJIT Undergraduate Summer Research and Innovation Symposium integrated with the National Academy of Inventors (NAI) – NJIT Innovation Day being held on July 24-25, 2024, featuring distinguished keynote talk from Dr. Amit Chakraborty, Principal Scientist, Hybrid Digital Twin & AI at Siemens Corporation. Provost John Pelesko will open the symposium with welcome remarks on July 24 and President Teik Lim will provide the welcome remarks on July 25. More than 180 undergraduate students will be presenting their summer research and innovation projects at the 2024 Summer Research Symposium. These students are from NJIT through NJIT URI programs including Provost Summer Research Fellowships, Honors Summer Research Institute, NJIT and other NSF REU sites grants, and the Heritage Institute of Technology, India. Best innovation projects will be awarded the Dr. James Stevenson Innovation Award: first, second and third prizes of $1,000, $750 and $500, respectively, along with 5 honorable mentions of $100 each.

Congratulations to all of you for successful completion of the 10-weeks long rigorous work on research and innovation projects. We are very proud of your accomplishments and engagement in research. I wish you all the best for your future endeavors and hope that you will pursue leadership roles to help our society move forward.

2024 Undergraduate Summer Research Symposium

Programs included:

Bergen Community College (BCC) - Chemical and Materials Engineering Dept Collaboration
Biomathematical Research Initiation Program
Garden State: Louis Stokes Alliance for Minority Participation (GS-LSAMP)
Heritage Institute of Technology (HIT, India) Summer Research
Honors Summer Research Institute (HSRI)
McNair Scholar Program
NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus
NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention
NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences
URI Provost Summer Research Fellowship Program
UTRI Undergraduate Translational Research Internship

2024 Undergraduate Summer Research Symposium

and

National Academy of Inventors (NAI) – NJIT Innovation Day

Agenda

July 24, 2024: Ballroom A&B, and Atrium, Student Campus Center

8.30 AM – 9.00 AM:	Registration and Breakfast
9.00 AM – 9.30 AM:	Welcome Remarks and Introductions Atam Dhawan, Senior Vice Provost for Research John Pelseko, Provost
9.30 AM – 11.00 AM:	Student Session – Ballroom Bioscience and Bioengineering: BB1
11.00 AM – 11.10 AM:	Coffee Break
11.10 AM – 12.30 PM:	Student Session – Ballroom Bioscience and Bioengineering: BB2
12.30 PM – 1.15 PM:	Lunch and Networking
1.15 PM – 2.30 PM:	Student Session – Ballroom Bioscience and Bioengineering: BB3
2.35 PM – 2.45 PM:	Coffee Break
2.45 PM – 4.00 PM:	Student Session – Ballroom Bioscience and Bioengineering: BB4 Environment and Sustainability: ES1

Parallel Student Sessions – Atrium, Campus Center (July 24, 2024 Only)

9.30 AM – 11.00 AM:	Student Session – Atrium Data Science and Management: DM1 Robotics and Machine Intelligence: RM1

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11.00 AM – 11.10 AM:	Coffee Break
11.10 AM – 12.15 PM:	Student Session – Atrium Robotics and Machine Intelligence: RM2
12.30 PM – 1.15 PM:	Lunch and Networking - Ballroom

July 25, 2024, Ballroom A&B, Student Campus Center

8.30 AM – 9.00 AM:	Registration and Breakfast
9.00 AM - 9.15 AM:	Introduction to the NAI-NJIT Workshop and Welcome Remarks Atam Dhawan, Senior Vice Provost for Research Teik Lim, President
9.15 AM – 10.45 AM:	Student Session – Ballroom Environment and Sustainability: ES2
10.45AM – 11.00 AM:	Break
11.00 AM – 11.15 AM:	NAI-NJIT Chapter Innovation Day and Induction Ceremony Introduction to Distinguished Keynote Speaker Atam Dhawan, Senior Vice Provost for Research and President, NAI-NJIT Chapter
11.15 AM – 12.00 PM:	Distinguished Keynote Presentation: Hybrid Digital Twin Dr. Amit Chakraborty, Principal Scientist, Hybrid Digital Twin & AI Siemens Corporation
12.00 PM - 12.15 AM:	New NAI-NJIT Chapter Member Induction Ceremony
12.15 PM – 1.00 PM:	Lunch and Networking
1.00 PM – 2.30 PM:	Student Session – Ballroom Material Science and Engineering: MSE1
2.30 PM – 3.00 PM:	Break and Judges Session (Reception Starts)
3.00 PM- 3.30 PM:	Dr. James Stevenson Innovation Awards Ceremony and Reception

Keynote Talk

Title: Hybrid Digital Twin

Abstract: Digital Twin is an innovative technology that has transformed industries by creating virtual replicas of products, processes, or services. It has the remarkable capability to replicate physical entities in the digital realm, providing engineers with valuable insights and feedback. This technology empowers companies to swiftly identify and resolve physical issues, design superior products, and realize value more efficiently than ever before. Moreover, Digital Twin facilitates the enhancement of business processes and performance. Recently, it has gained significant attention as a crucial component of the Metaverse. With the recent advances in AI and in particular, Physics-Informed AI and Generative AI, the concept of Hybrid Digital Twin where physics is complimented with data has become popular as a major enabler for automating engineering problems.

In this talk, we will introduce the concept and discuss the major technical underpinnings of Hybrid Digital Twins. We will also present some interesting technical problems that are benefitting from this technology.

Biographical Sketches of the Keynote Speaker

Dr. Amit Chakraborty is a **Principal Scientist** with **Siemens Technology.** He has been with Siemens since 1996. Since 2003, he has been leading a Research Group, first as a Program Manager and since 2012 as a Research Group Head. Prior to that he was a Senior Research Scientist. As a Principal Scientist, Dr. Chakraborty focuses on the development of a technology portfolio in the emerging area of **Hybrid Digital Twin** that works at the interface of Simulation, AI/Machine Learning and control, with applications in Dynamical Systems, Condition-based maintenance/ Asset optimization, and Risk Modeling. While leading the Predictive Analytics research group, he and his team primarily focused on a variety of Industrial AI applications across several Siemens business units. He successfully led several large R&D initiatives for predictive maintenance and asset optimization of complex equipment (e.g., Gas Turbines and conveyor belts for automotive manufacturing), energy optimization for High Performance Buildings, Power Flow Optimization for Electric Grids and Semantic Modeling of customer and manufacturing data. In addition, he and his team led or participated in several DARPA and DOE proposals/programs.

Dr. Chakraborty received his M.S and Ph.D. in Electrical Engineering from **Yale University** and his undergraduate from **Indian Institute of Technology, Kharagpur**. His research interests include Hybrid Digital Twin, Physics Informed Neural Networks, Dynamical systems, Reinforcement Learning, Optimization, and risk modeling. He has more than 80 US and International Patents and over 65 publications in respected journals and conferences. Dr. Chakraborty won the **Siemens Lifetime Achievement Inventor of the Year** award in 2021 and the **Edison Award** in 2022 and again in 2024.

Biographical Sketch of Dr. James Stevenson

Jim Stevenson, PhD: Jim Stevenson was a Corporate Fellow at Honeywell International from 1996 until his retirement in March of 2011. His professional work at Honeywell focused on polymer and composite materials and applications for mechanical and electronic structures and enclosures in an aerospace environment. Nine patents and 17 publications followed from this work.

Following a postdoctoral year at Columbia University, Dr. Stevenson joined the Chemical Engineering Department at Cornell University where he earned tenure in 1977. He was a founding member of the Cornell Injection Molding Project, was highly rated for his teaching, and prepared 17 publications. He earned his M.S. and Ph.D. degrees in Chemical Engineering at the University of Wisconsin, Madison and a B.S.Ch.E. from Rensselaer Polytechnic Institute.

Prior to joining Honeywell, Dr. Stevenson was Director of Research at Trexel, a start-up company near Boston commercializing microcellular foam technology. He proposed injection molding as the preferred foaming process, a result that led to nine patents. For the previous 19 years Dr. Stevenson served in technical and management positions with GenCorp, Inc. in Akron, OH. One development of the Extrusion Laboratory, which he supervised, was curved extrusion technology. While at GenCorp, Dr. Stevenson received eight patents and published 23 articles, two book chapters, and a book *Innovation in Polymer Processing: Molding*.

After retirement from Honeywell, Dr. Stevenson founded a consulting company, Stevenson PolyTech LLC, which specializes in polymer material/ process development and industrial short courses with more than 45 presentations worldwide. During his retirement, Dr. Stevenson helped to organize and funded the TechQuest competition which, now in its seventh year, awarded five innovation prizes and fellowships to NJIT undergraduates. He was also instrumental in setting up Innovation Day which celebrates the numerous technical awards won by NJIT undergraduates and hosts electronic presentations of their many innovative projects. Jim served as a member of the URI External Advisory Board and predecessor organizations since 2012. Jim and his wife Steffi also supported endowed undergraduate scholarships for NJIT students primarily from Irvington and Newark high schools. In 2017, Jim received the *Special Friend of the University* award for outstanding contributions by a non-alumnus. He also served on the Board of Directors of the Honeywell retirees association.

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URI External Advisor Board Members and Judges:

Brian Kiernan, Angel Investor, Executive VP and Chief Scientist (ret), InterDigital Communications Corp. (https://www.linkedin.com/in/brian-kiernan-a5636b11/)

Peggy McHale, Serial Entrepreneur | Board Director| Author, (https://www.linkedin.com/in/peggymchale/)

Alfredo Matos, President and CEO, A Z Matos, LLC (https://www.linkedin.com/in/alfredo-al-matos-bs-msee-mba-47abb627/)

Harry Moore, Jr., Graybeard Solutions LLC

Manish Patel, CEO, TrickyWater LLC (www.trickywater.com) (https://www.linkedin.com/in/manish-patel-innovate/)

Shashi Patel, Manager – Engineering, PSEG (https://www.linkedin.com/in/shashikant-patel-1073161b/)

Govi Rao, Co-Founder, Carbon Group Global (https://carbongroup.global/) (https://www.linkedin.com/in/govirao/)

Peter Mendonez Jr. - President & COO PearlX (https://www.linkedin.com/in/pete-mendonez-jr-26a11a13?original_referer=https%3A%2F%2Fwww.google.com%2F)

Sabbir Rangwala - President, Patience Consulting (https://www.linkedin.com/in/sabbir-rangwala)

Urvashi Bhatnagar - General Partner, The Good Science Fund (https://www.linkedin.com/in/urvashibhatnagarmba?original_referer=https%3A%2F%2Fwww.google.com%2F)

2024 Undergraduate Summer Research Symposium

Wednesday, July 24, 2024	Ballroom		2024 URI Summer Research Symposium		
Name	**Time**	**Co Presenter**	**Title of Project**	**Program**	**Presentation Session**
Aaradhya Kumar	9:30 AM		Optimal Range for 3D Bioprinting Scaffold Fabrication	HSRI	Bioscience and Bioengineering
Aayush Mehta	9:33 AM		Role of Matrix Metalloproteinase-12 in Inducing Caspase-3 Regulated Apoptosis Following Repetitive Low-Level Blast Traumatic Brain Injury	HSRI	Bioscience and Bioengineering
Adam Berger	9:36 AM		CidaGel', an antimicrobial peptide hydrogel	UTRI	Bioscience and Bioengineering
Albin Mullan	9:39 AM		Quantify the Mechanical Competence of Bone Using Finite Element Analysis	HSRI	Bioscience and Bioengineering
Ange Mendez	9:42 AM		Protein corona formation and aggregation studies on targeted drug delivery nanoparticles for triple-negative breast cancer	REU - Cancer Innovation	Bioscience and Bioengineering
Anushka Dixit	9:45 AM		Optimizing Quantification of Process-Related Impurities in Monoclonal Antibodies	HSRI	Bioscience and Bioengineering
Arush Mishra	9:48 AM		Developing an Objective Software Toolkit to Assess Pupil Asymmetry	HSRI	Bioscience and Bioengineering
Arya Shahane	9:51 AM		Upstream Migration of Natural Killer Cells	HSRI	Bioscience and Bioengineering
Briana Reed	9:54 AM		Small-scale automated peptide synthesizer	REU - Cancer Innovation	Bioscience and Bioengineering
Christopher De Oliveira-Cordova	9:57 AM		Nanoplastic Effect on Endocrine System and EMT Pathway in Mice	McNair	Bioscience and Bioengineering
Claire Slort	10:00 AM		Varying amino-acid side chains to test organ selectivity in CART-mRNA based nucleic acid therapeutics	BioSMART REU	Bioscience and Bioengineering
Daniel Gendy	10:03 AM		Creating low cost microfluidic platforms	REU - Cancer Innovation	Bioscience and Bioengineering
Danna Valentina Sanchez	10:06 AM		Schooling of elasmobranchs	GS-LSAMP	Bioscience and Bioengineering
Diandra Debnath	10:09 AM		Optogenetically activating Dmrt3a neurons, a genetically conserved spinal interneuron class, for gait-specific limb use in larval zebrafish	HSRI	Bioscience and Bioengineering
Dipanjali Ray	10:12 AM		Using fMRI for undestanding Schizophrenia & Alzheimer Disease	HIT	Bioscience and Bioengineering
Eduard Stoyko	10:15 AM		T47D Exposed to EMF	REU - Cancer Innovation	Bioscience and Bioengineering
Enakeno Akpokene	10:18 AM		Platinum Nanoparticles as a Potential Treatment for Triple Negative Breast Cancer	REU - Cancer Innovation	Bioscience and Bioengineering
Gabrielle Uskach	10:21 AM		Real-time monitoring of extracellular matrix remodeling during breast cancer progression	REU - Cancer Innovation	Bioscience and Bioengineering
George Hanna	10:24 AM		Responses to Emotional Video Stimuli in TBI Patients: an fNIRS Study	URI	Bioscience and Bioengineering
Girish R Subramani	10:27 AM		Sequence-Defined Polyester Oligomers for Nucleic Acid Therapy	HSRI	Bioscience and Bioengineering
Harish Sekar	10:30 AM		Quantifying Gait Abnormalities in Children with Cerebral Palsy Through 3-D Motion Analysis Techniques	HSRI	Bioscience and Bioengineering
Harrison Rohe-Weiner	10:33 AM		Use of Self-Assembling Peptide Hydrogel for Dental Pulp Regeneration	UTRI	Bioscience and Bioengineering

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Name	Time	Co Presenter	Title of Project	Program	Presentation Session
Hatice Aygun	11:10 AM		Computer Aided Ligand Design for the Sigma-2 Receptor to Increase Anti-Neuropathic Activity	McNair	Bioscience and Bioengineering
Isabella Frangiosa	11:13 AM		Piezoelectric Fingers for Tumor Detection	REU - Cancer Innovation	Bioscience and Bioengineering
Isabella Puluse	11:16 AM		An analysis and optimization of the factors that impact anaerobic digestion and biodigester efficiency	HSRI	Bioscience and Bioengineering
Ishika Macherla	11:19 AM		Quantifying the Whole Body Center of Mass using 3D Motion Data	URI	Bioscience and Bioengineering
Jonathan Barak	11:22 AM	Melissa Baykus	Methacrylated Alginate/Gelatin Blends as Bioinks for Tissue Engineering Applications	BCC-CME	Bioscience and Bioengineering
Julie Mena	11:25 AM		A Modeling framework for simulating skin decontamination of chemical warfare agents	REU - Cancer Innovation	Bioscience and Bioengineering
Kabir Singh	11:28 AM		Novel method of male contraceptive using cyclic peptide to inhibit fertilization	HSRI	Bioscience and Bioengineering
Kaivya Dey	11:31 AM		Design and synthesis of regenerative peptides	HIT	Bioscience and Bioengineering
Kankana Karmakar	11:34 AM		Evaluation of role of macrophages in axonal growth for peripheral neuropathy	HIT	Bioscience and Bioengineering
Kareem Shahat	11:37 AM		Automation of First Selector Valve in Miniature Peptide Synthesizer	REU - Cancer Innovation	Bioscience and Bioengineering
Keya Gulati	11:40 AM		Molecular cloning of neurodevelopmental disorders associated G3BP1 mutants	HSRI	
Kristina Camia	11:43 AM		Understanding the Mechanism for Handedness Transformation in Eusocial Snapping Shrimp	HSRI	Bioscience and Bioengineering
Kyuhyuk Cha	11:46 AM		Multiplex Assay Integrated Nanobiochip-based Point-Of- Care (MAIN-POC) Device for Cancer Early Diagnosis	UTRI	Bioscience and Bioengineering
Luisa Martinez	11:49 AM		Protein corona	BCC-CME 2024	Bioscience and Bioengineering
Maggie Meschia	11:52 AM		Tracking Mechanisms of Phthalates in Mouse Ovaries	URI	Bioscience and Bioengineering
Maria Lazcano	11:55 AM		Platinum Nanoparticles for Cancer Treatment	BCC-CME 2024	Bioscience and Bioengineering
Mason Brown	11:58 AM		Uterine Cancer Image Analysis with CNNs	REU - Cancer Innovation	Bioscience and Bioengineering
Matthew Fernandes	12:01 PM		MEP Latency Dynamics in Low Cortical Excitability with Novel Paired-Pulse TMS Protocol	URI	Bioscience and Bioengineering
Maya Hassan	12:04 PM		Assessment of DNA profiling from remains exposed to different conditions	McNair	Bioscience and Bioengineering
Meera James	12:07 PM		Design of novel autoimmune antibody-binding peptides	HSRI	Bioscience and Bioengineering
Melissa Nanotkar	12:10 PM		pH-Responsive Oligomers for Targeted Nucleic Acid Therapy	HSRI	Bioscience and Bioengineering
Merna Tanous	1:15 PM		MCC950 as a Therapeutic for Inflammation in Blast-Induced Traumatic Brain Injury (bTBI)	URI	Bioscience and Bioengineering
Mimi Pham	1:18 PM		EGFr Binding Peptide Contrast Agents for Signaling EGFr-Positive Tumors	REU - Cancer Innovation	Bioscience and Bioengineering

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Name	Time	Co Presenter	Title of Project	Program	Presentation Session
Mina Abdelmalak	1:21 PM		Electromagnetic Field Effects on T47D and PME Cells	McNair	Bioscience and Bioengineering
Mukund Maurya	1:24 PM		Formulation of stable and functional recombinant protein stabilized phase shift nanodroplets for ultrasound theranostics	HSRI	Bioscience and Bioengineering
Nada Mohamed	1:27 PM		Designing Sigma-2 Peptide Ligands for a Novel Cancer Therapeutic	McNair	Bioscience and Bioengineering
Nader Zahran	1:30 PM		Point-of-Care Devices for Zoonotic Disease Detection	HSRI	Bioscience and Bioengineering
Natalia Narvaez	1:33 PM		Piezoelectric Needle For Guided Tissue Targeting	REU - Cancer Innovation	Bioscience and Bioengineering
Niki Anagnostou	1:36 PM		Effects of the Ablation of the Lateral line System on Collective Fear Responses of Larval Zebrafish Danio rerio	URI	Bioscience and Bioengineering
Nora Ronan	1:39 PM		Assessment of prostate-specific antigen (PSA) by immunochromatographic tests	BioSMART REU	Bioscience and Bioengineering
Okherra Prosper	1:42 PM		Methylmercury degradation by Mycobacterium dioxanotrophicus sp.PH-06	BioSMART REU	Bioscience and Bioengineering
Olena Sen	1:45 PM		Analytical Software Technique for Determining the Natural Frequencies of Pupillary Responses in Vergence Eye Movements	HSRI	Bioscience and Bioengineering
Oliwia Gorska	1:48 PM		Establishing an assay for visual desensitization in larval zebrafish for understanding synaptic plasticity	URI	Bioscience and Bioengineering
Om Tripathi	1:51 PM		Factors Associated with Research Productivity and National Institutes of Health (NIH) Funding in Academic Rhinology	HSRI	Bioscience and Bioengineering
Pranav Anthapu	1:54 PM		Creating a Graphical User Interface to Analyze Motor-Evoked Potentials	HSRI	Bioscience and Bioengineering
Quentin Young	1:57 PM		Structural and Quantitative Analysis of Proteins using Cross-Linking and Coulometric Mass Spectrometry	BioSMART REU	Bioscience and Bioengineering
Rhea Sansguiri	2:00 PM	Simritt Rai	CDC42 Molecular Mechanism in Colorectal Tumors	HSRI	Bioscience and Bioengineering
Robert Lodge	2:03 PM		Morphological Changes in Neuroinflammation Markers After Blast Injuries	URI	Bioscience and Bioengineering
RyAnn Pryor	2:06 PM		Protein Engineering and Design for Bioremediation	BioSMART REU	Bioscience and Bioengineering
Salma Mohammed	2:09 PM		Analysis of Exoskeleton-Patient Interaction during Exoskeleton-Assisted Locomotion using 3-D Motion Capture and Computer Simulations	HSRI	Bioscience and Bioengineering
	2:30 PM		**BREAK**		
Sariah Coleman	2:45 PM		Electrochemical Sensor	REU - Cancer Innovation	Bioscience and Bioengineering
Sathvik Gopu	2:48 PM		Breast Tissue Synthesis to Improve Cancer Detection	HSRI	Bioscience and Bioengineering
Shreyas Bolla	2:51 PM		Developing IGF-1- and IGFBP-5-Loaded Collagen Scaffolds for Skeletal Muscle Regeneration	URI	Bioscience and Bioengineering
Siya Patel	2:54 PM		An Angiogenic and Myogenic Self-Assembling Peptide Hydrogel Therapeutic for Peripheral Artery Disease	URI	Bioscience and Bioengineering
Sophia Rollo	2:57 PM		Quantifying Beak and Respiratory Movement of Zebra Finches Using DeepLabCut	HSRI	Bioscience and Bioengineering

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Name	Time	Co Presenter	Title of Project	Program	Presentation Session
Sophia Starzynski	3:00 PM		Investigation Cerebral Blood Flow as a parameter to be used in Vestibular Testing	URI	Bioscience and Bioengineering
Stephanie Ng	3:03 PM		The comparison of PAA and electrospun polyaniline nanofibers in the creation of pain biosensors	HSRI	Bioscience and Bioengineering
Steven Habeb	3:06 PM		The Effect of Perfluorooctanesulfonic Acid (PFOS) on Ovarian Follicles	HSRI	Bioscience and Bioengineering
Tanvi Mathur	3:09 PM		Effects of Phthalates on Hormones in the Female Reproductive System	BioSMART REU	Bioscience and Bioengineering
Taylor Pape	3:12 PM		The effect of Neuromodulation on the Stability of Neuronal Activity: A Computational Modeling Approach	HSRI	Bioscience and Bioengineering
Theon Harry	3:15 PM		Peptide Reactor	REU - Cancer Innovation	Bioscience and Bioengineering
Tramina Phan	3:18 PM		Exploring the Synthesis of Sequence-Defined Mixed Alpha-Amino and Beta-Amino Esters and Evaluating Their Effectiveness and Toxicity In Cells	HSRI	Bioscience and Bioengineering
Vidhi Patel	3:21 PM		Role of Stromal Cells for Breast Cancer Invasion in an Engineered Tumor Model	HSRI	Bioscience and Bioengineering
Wafiza Julkipli	3:24 PM		Influence of Ultrasound-Responsive Xenon Microbubbles on Blood Brain Barrier Repair following Traumatic Brain Injury	HSRI	Bioscience and Bioengineering
Willy Caba	3:27 PM		In vivo and In vitro Evaluation of Fluorescent Peptide Biodegradation	URI	Bioscience and Bioengineering
Yash Parikh	3:30 PM		Exploring the Role of Stiffness on Myofiber Maturation and Alignment	URI	Bioscience and Bioengineering
Yassa Beshai	3:33 PM		Development of a fully enclosed point of care electrochemical micro fluidic biosensor	UTRI	Bioscience and Bioengineering
Alan Tong	3:36 PM		Laboratory Evaluation of BBSO Cameras for High-Resolution Solar Observation Application	ISWS - REU	Environment and Sustainability
Artin Khaleghi	3:39 PM		Investigation of Mini-filament Eruptions and Their Relationship with Small Scale Magnetic Flux Ropes in Solar Wind	ISWS - REU	Environment and Sustainability
Aryan Mudaliar	3:42 PM		The impact of environmental pH changes on Mauthner cell development in Astyanax mexicanus	HSRI	Environment and Sustainability
Thursday , July 25, 2024			**2024 URI Summer Research Symposium**		
Name	**Time**	**CO Presenter**	**Title of Project**	**Program**	**Presentation Session**
Audrey Kormann	9:15 AM		Carbon Dioxide Nanobubbles to Enhance Biodegradation in Food Waste Digesters	HSRI	Environment and Sustainability
Caleb Polillio	9:18 AM		Design and Construction of a Solar-Assisted, Self Starting MAGLEV Vertical-Axis Wind Turbine	URI	Environment and Sustainability
Caroline Vierheilig	9:21 AM		Characterizing Baseline Energy Use for NJIT Campus Buildings: Leveraging High-Resolution Energy Data	HSRI	Environment and Sustainability
Chocie Landvik	9:24 AM		Development of a system to filter PFAs out of water	BioSMART REU	Environment and Sustainability
Christopher Lombardi	9:27 AM		Oscillations and Magnetic Activity of Solar-type Stars	ISWS - REU	Environment and Sustainability
Dhanya Sureshbabu	9:30 AM		Nature vs. Nurture: The Study of Environmental Influences on Astyanax Development	HSRI	Environment and Sustainability

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Name	Time	Co Presenter	Title of Project	Program	Presentation Session
Elaf Mahmoud	9:33 AM		Cloud Surveying for Fabry-Perot Aeronomy with OLAF (Optical Logger of Atmospheric Features)	ISWS - REU	Environment and Sustainability
Elliot Schweitzer	9:36 AM		Predicting Solar Eruptions and Tracking Magnetic Features through Machine Learning	ISWS - REU	Environment and Sustainability
James Hopkins	9:39 AM		Predicting Solar Activity and EUV Through Machine Learning	ISWS - REU	Environment and Sustainability
Joseph Visone	9:42 AM		Magnetic Field Extrapolation in Solar Flares	ISWS - REU	Environment and Sustainability
KesUranNu Baylor	9:45 AM		Analysis of Coronal Mass Ejections Using OVRO-LWA Radio Imaging	ISWS - REU	Environment and Sustainability
Kevin Paredes	9:48 AM		Developing Electrochemical Platform Technology for Use as a Sensor for On-field Applications	UTRI	Environment and Sustainability
Khushi Faldu	9:51 AM		Using Fluorescence Absorption and Emission to Identify the Relationship between PFOS, SQ-1, and BSA	BioSMART REU	Environment and Sustainability
Kristopher Mantilla	9:54 AM		Characterization of Soften Shale due to Storage of Green Hydrogen	GS-LSAMP	Environment and Sustainability
Lara Tunca	9:57 AM		Ion-Neutral Heating Observed with Fabry-Perot Interferometers and SuperDARN	ISWS - REU	Environment and Sustainability
Mariam Naseer	10:00 AM		2D MoS2-based electronic sensor for rapid and efficient detection of lead ions in water	URI	Environment and Sustainability
Nwanebu Laura Udochukwu	10:03 AM		An Ultrasound-Based Chemical Kinetic Model for Unraveling the Mechanism of Decomposing Per- and Polyfluoroalkyl Substances (PFAS)	HSRI	Environment and Sustainability
Oluwanifemi Fuwa	10:06 AM		High-efficient inactivation of airborne viruses using a microwave-enabled air filtration system	UTRI	Environment and Sustainability
Pei Liao	10:09 AM		Development of an ArcGIS Hub for Community Engagement and Collaboration to Enhance Flood Resilience in Peterson Township in Passaic River Basin	URI	Environment and Sustainability
Robert Bush	10:12 AM		Origin of Coronal Extreme Ultraviolet (EUV) Wave Generation	ISWS - REU	Environment and Sustainability
Sara Lyman	10:15 AM		An incoherent scatter radar investigation of polar-cap F-region plasma structuring and dynamics	ISWS - REU	Environment and Sustainability
Shyamkumar Rana	10:18 AM		Fate and Transport:Microplastics in Stormwater	McNair	Environment and Sustainability
Siddardh Budamagunta	10:21 AM		Feature Identification of Solar Prominences	ISWS - REU	Environment and Sustainability
Sudiksha Sahu	10:24 AM		Optimal Spatial Resolution for Indoor Environmental Quality Measurements	URI	Environment and Sustainability
Thomas Messiha	10:27 AM		Argon-Nanobubble Enhanced Ultrasound As a Potent Modality to Destroy PFAS (“forever chemicals”)	UTRI	Environment and Sustainability
Vijainee	10:30 AM		Flexible solar cell for indoor light energy recovery and reuse.	HIT	Environment and Sustainability
Yash Kumar Jain	10:33 AM		ANALYZING SPATIOTEMPORAL VARIATIONS OF HARMFUL ALGAL BLOOMS IN NEW JERSEY LAKES USING ARTIFICIAL INTELLIGENCE TECHNIQUES AND STATISTICAL TESTS	URI	Environment and Sustainability
Yorquiria Maldonado Mejia	10:36 AM		Quantification of Softening of Shale due to Storage of Green Hydrogen	McNair	Environment and Sustainability
			BREAK		

2024 Undergraduate Summer Research Symposium

	11:00 AM		**NAI-NJIT Chapter Innovation Day & Induction Ceremony Introduction**		
	11:15 AM		**Distinguished Keynote Presentation**		
	12:00 PM		**New NAI-NJIT Chapter Member Induction Ceremony**		
	12:15 PM		**Lunch & Networking**		
Name	**Time**	**Co Presenter**	**Title of Project**	**Program**	**Presentation Session**
Adrien Durasno	1:00 PM		Advancing Offshore Wind Energy Integration through Battery Storage: A New Jersey Initiative	McNair	Material Science and Engineering
Aidan Johnson	1:03 PM		Mucilage Extract from Chia Seeds as a Novel Stabilizer of Drug Nanosuspensions for Bioavailability Enhancement	URI	Material Science and Engineering
Annie Shen	1:06 PM		Electron transfer reactions of transition-metal complexes for solar energy conversion and storage	BioSMART REU	Material Science and Engineering
Arwa Ouali	1:09 PM		Utilizing Ultrasounds to Decompose Microplastics	URI	Material Science and Engineering
Austin Chen	1:12 PM		Validating Ground Heat Transfer Models for a Net-Zero House with Basement	URI	Material Science and Engineering
Brandon Sanchez	1:15 PM		Degradation of Plastics	BioSMART REU	Material Science and Engineering
Burhan Shah	1:18 PM		Simulating the effects of Beta Sheet Peptides on Membrane Permeability	URI	Material Science and Engineering
Chloe Djedji	1:21 PM		Glass transition temperature of PLGA particles and its effect on drug delivery applications	BCC-CME	Material Science and Engineering
Ebru Dagdelen	1:24 PM		Understanding Fluid Flux in Porous Media through Topological Data Analysis	URI	Material Science and Engineering
Gania Lafontant	1:27 PM		The Future of Nanobubbles in Toothbrushes.	GS-LSAMP	Material Science and Engineering
Geordy Jomon	1:30 PM		Compressibility of Fluids in Nanopores Based on Classical DFT	URI	Material Science and Engineering
Jaiman Parekh	1:33 PM		Using a Quadrupolar Magnetic Field to initiate a Coronal Mass Ejection	HSRI	Material Science and Engineering
Juana Perez Sanchez	1:36 PM		Degradation of Plastics Via Microdroplet Digestion	GS-LSAMP	Material Science and Engineering
Kara Thompson	1:39 PM		Engineering a Multi-Chemistry Mixed Metal Oxide (MCMO) for Chemical Looping Combustion (CLC)	URI	Material Science and Engineering
Lisandro Martinez	1:42 PM		Fabrication of 2D Transition Metal Dichalcogenides Based Electronic Nanosensors	BCC-CME	Material Science and Engineering
Mark Nyevgen	1:45 PM		Characterization of Mullins Recovery in Filled Rubbers	URI	Material Science and Engineering
Miguel Beauchamp	1:48 PM		characterizing RRAM devices	GS-LSAMP	Material Science and Engineering
Neil Ahlawat	1:51 PM		Rapid Ignition of Reactive Material Powder	HSRI	Material Science and Engineering

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Name	Time	Co Presenter	Title of Project	Program	Presentation Session
Noor Haque	1:54 PM		Application and Design of Novel Scaffold Anchoring Devices	URI	Material Science and Engineering
Nyssa Nixon	1:57 PM		The Combined Effect of Non-Steroidal Anti-Inflammatory Drugs and Growth Factors on Axonal Growth	URI	Material Science and Engineering
Omar Al-Zaman	2:00 PM		Synthesis of Red-Absorbing Photosensitizers for Artificial Photosynthesis	URI	Material Science and Engineering
Yousef Mortaja	2:03 PM		Amyloid Toxicity: Structure and Size of Toxic Amyloid Aggregates	URI	Material Science and Engineering
	2:06 PM		**BREAK**		
	3:00 PM		**Dr. James Stevenson Innovation Awards Ceremony**		
Wednesday, July 24, 2024	**Atrium**				
Akash Raj	9:30 AM		Prompt Optimisation AI chatbot	HIT	Data Science and Management
Albright Owusu	9:33 AM	Pharell Kenda	Mathematical Modeling and Data Analysis in Computational Psychiatry	Biomath Research	Data Science and Management
Alex Patchedjiev	9:36 AM		Geographical Data Visualization and Analysis for Roman Street Shrines	HSRI	Data Science and Management
Alp Hance	9:39 AM		Zero-Shot Audio Classification Without Audio Training	URI	Data Science and Management
Arianna Alves	9:42 AM	Melna Abraham	Audiobook/Podcast Interface Study	HSRI	Data Science and Management
Catherine Huggins	9:45 AM	Christopher Agesen	Dynamical Systems in Computational Psychiatry	Biomathematical Research	Data Science and Management
Elijah Nutt	9:48 AM		Examining Relationships between Mood and Music Listening Habits	HSRI	Data Science and Management
Grace Revoredo	9:51 AM		Are human interaction biases employed when using cross-species communication signals?	HSRI	Data Science and Management
Gurdeep Singh	9:54 AM		Automation and Data Processing for Sorption-Ultrasonics Experiments	BCC-CME	Data Science and Management
Jonas Tirona	9:57 AM		Increasing Web Accessibility of New Jersey Institute of Technology's Learning Management System	HSRI	Data Science and Management
Keith Anderson	10:00 AM		Fast computation of differential geometry operators on discrete surfaces with applications to interfacial flows and computer graphics	URI	Data Science and Management
Krishi Shah	10:03 AM		Zero-Shot Generalization Analysis	URI	Data Science and Management
Noe Echavarria	10:06 AM		Smart Eyewear for Patient Registration	URI	Data Science and Management
Riddhiman Santra	10:09 AM		Optimization of Bus Transit System	HIT	Data Science and Management
Ryan Woodrow	10:12 AM		Digital Twins and Smart Home Architecture	UTRI	Data Science and Management
Aakash Karlekar	10:15 AM		Applying Parallelism to Optimize the Backpropagation Algorithm	HSRI	Robotics and Machine Intelligence

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Name	Time	Co Presenter	Title of Project	Program	Presentation Session
Alfredo Rojas	10:18 AM		Photorealistic Virtual Environments and Visual Clutter	URI	Robotics and Machine Intelligence
Angelina Marie	10:21 AM		3D Environment Optimization for VR	URI	Robotics and Machine Intelligence
Aryiadna Yesmanchyk	10:24 AM		Generating and Validating 3D Magnetograms for SOHO/MDI using A Machine Learning Method	UTRI	Robotics and Machine Intelligence
Ciara Adams	10:27 AM		Assessing Vergence Speed from Virtual Reality System and Vergence Facility as a Potential Biomarker for Concussion	HSRI	Robotics and Machine Intelligence
Darren Bonifacio	10:30 AM		Personality Classification Using Natural Language Processing	HSRI	Robotics and Machine Intelligence
Dev Doshi	10:33 AM		Using AI Prediction & Genetic Analysis of the Protocadherin Gene Cluster to Improve Diagnosis Yields of Pathogenic Variant Carriers in Diverse US Populations	HSRI	Robotics and Machine Intelligence
Jainam shah	10:36 AM		Assisting the Navy in predicting ship delay using a downstream machine learning pipeline.	HSRI	Robotics and Machine Intelligence
Jane Kalla	10:39 AM		What is the impact of visual clutter on emotion recognition in video conferencing?	HSRI	Robotics and Machine Intelligence
	11:00 AM		**BREAK**		
John Mohring	11:10 AM		Immersive Design: Amplifying User Learning with Gamification in VR	HSRI	Robotics and Machine Intelligence
Jordan Bruce	11:13 AM	Yasmeen Javadi	Foundation Models/Deep learning frameworks for Simulation problems	UTRI	Robotics and Machine Intelligence
Joshuan Barba	11:16 AM		Virtual Reality Gesture Learning	URI	Robotics and Machine Intelligence
Koushiki Das	11:19 AM		Solving Fast Fair Bandit with Switching Cost Using Reinforcement Learning	HIT	Robotics and Machine Intelligence
Lindsay Burke	11:22 AM		Navigating by Nature: Harnessing Birdsong for Spatial Perception	HSRI	Robotics and Machine Intelligence
Luke Shen	11:25 AM		Robot Self Assembly based off Slime Mold Growth	HSRI	Robotics and Machine Intelligence
Maharshi Vyas	11:28 AM		A Statistical Analysis of Student Voice Trends in NJIT's The Vector	HSRI	Robotics and Machine Intelligence
Mark Hanna	11:31 AM		Usability Study of Multi-User Virtual Reality Ontology Object Manipulation (VROOM)	URI	Robotics and Machine Intelligence
Marwan Kashkoush	11:34 AM		Exploring the Clustering of Small Scale Flux Ropes near the Heliospheric Current Sheet Using the Improved Detection Algorithm	HSRI	Robotics and Machine Intelligence
Nathan Campiche	11:37 AM		Navigating the Uncanny Valley: Optimizing VR Training Character Design	URI	Robotics and Machine Intelligence
Rohan Shah	11:40 AM		Quantifying Global Learning: A Data-Driven Analysis and Visualization of the Study Abroad Experience	HSRI	Robotics and Machine Intelligence
Saketh Golla	11:43 AM		Machine Learning Models to Predict Cholera Infection in an Ottoman Asylum	HSRI	Robotics and Machine Intelligence
Srinesh Selvaraj	11:46 AM		Increasing the Scale of Ontology Visualizations in a Virtual Reality System	HSRI	Robotics and Machine Intelligence
Zinelabidine Regragui	11:49 AM		Comparison of the dynamics of exoskeletal-assisted locomotion in an FDA-approved lower extremity device: Controlled experiments and development of a subject-specific virtual simulator	URI	Robotics and Machine Intelligence

Schedule of Presentations

Research Presentation Area

Bioscience and Bioengineering

Name: **Aaradhya Kumar** **Department**: Department of Chemical and Materials Engineering **Project Title**: Optimal Range for 3D Bioprinting Scaffold Fabrication **Faculty Advisor**: Dr. Murat Guvendiren **URI Program**: HSRI (Honors Summer Research Institute)	**Name**: **Aayush Mehta** **Department**: Department of Biomedical Engineering **Project Title**: Role of Matrix Metalloproteinase-12 in Inducing Caspase-3 Regulated Apoptosis Following Repetitive Low-Level Blast Traumatic Brain Injury **Faculty Advisor**: Dr. Ying Li **URI Program**: HSRI (Honors Summer Research Institute)
Name: **Adam Berger** **Department**: Biomedical Engineering **Project Title**: 'CidaGel', an Antimicrobial Peptide Hydrogel **Faculty Advisor**: Dr. Vivek Kumar, Dr. Corey Heffernan **URI Program**: Undergraduate Translational Research Internship (UTRI)	**Name**: **Albin Mullan** **Department**: Biomedical Engineering **Project Title**: Quantifying the Mechanical Competence of the Proximal Femur Using Finite Element Analysis **Faculty Advisor**: Dr. Saikat Pal **URI Program**: HSRI (Honors Summer Research Institute)
Name: Ange Mendez **Department**: Department of Chemical Engineering **Project Title**: Protein Corona Formation and Aggregation Studies on Targeted Drug Delivery Nanoparticles for Triple-Negative Breast Cancer **Faculty Advisor**: Dr. Kathleen McEnnis **URI program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention	**Name**: Anushka Dixit **Department**: Department of Chemistry and Environmental Science **Project Title**: Optimizing the Quantification of Process-Related Impurities in Monoclonal Antibodies **Faculty Advisor**: Dr. Hao Chen **URI Program**: HSRI (Honors Summer Research Institute)

2024 Undergraduate Summer Research Symposium

Name: Arush Mishra **Department**: Department of Biomedical Engineering **Project Title**: Developing an Objective Software Toolkit to Assess Pupil Asymmetry **Faculty Advisor**: Tara L. Alvarez **URI Program**: HSRI (Honors Summer Research Institute)	**Name**: Arya Shahane **Department**: Department of Biomedical Engineering **Project Title**: Upstream Migration of Natural Killer Cells Targeted Drug Delivery: Investigating Protein Corona Behavior **Faculty Advisor**: Dr. Alexander Buffone **URI Program**: HSRI (Honors Summer Research Institute)
Name: Briana Reed **Department**: Biological Sciences **Project Title**: Small-scale automated peptide synthesizer **Faculty Advisor**: Dr. Nellone Reid **URI Program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention	**Name**: Christopher De Oliveira-Cordova **Department**: Chemistry & Environmental Science, Department of Biological Sciences **Project Title**: Nanoplastic Effect on Endocrine System and EMT Pathway in Mice **Faculty Advisor**: Dr. Genoa Warner **URI Program**: McNair Summer Research Program
Name: Claire Slort **Department**: Chemistry and Environmental Science **Project Title**: Varying amino-acid side chains to test organ selectivity in CART-mRNA based nucleic acid therapeutics **Faculty Advisor**: Dr. Del Castillo **URI Program**: NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus	**Name**: Daniel Gendy **Department**: Department of Biology **Project Title**: Creating low cost microfluidic platforms **Faculty Advisor**: Dr. Amir Miri, Dr. Nellone Reid **URI Program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention
Name: Danna Valentina Sanchez H **Department**: Department of Biological Sciences **Project Title**: Schooling of elasmobranchs **Faculty Advisor**: Dr. Brooke Flammang **URI Program**: Garden State: Louis Stokes Alliance for Minority Participation (GS-LSAMP)	**Name**: Diandra Debnath **Department**: Department of Biological Sciences **Project Title**: Optogenetically activating Dmrt3a neurons, a genetically conserved spinal interneuron class, for gait-specific limb use in larval zebrafish **Faculty Advisor**: Dr. Kristen Severi **URI Program**: HSRI (Honors Summer Research Institute)
Name: Dipanjali Ray **Department**: Biomedical Engineering **Project Title**: Using fMRI for understanding Schizophrenia & Alzheimer Disease **Faculty Advisor**: Dr. Sukesh Das **URI Program**: Heritage Institute of Technology (HIT) Summer Research Program	**Name**: Eduard Stoyko **Department**: Department of Chemical and Materials Engineering, Department of Biomedical Engineering **Project Title**: T47D Exposed to EMF **Faculty Advisor**: Dr. Nellone Reid, Dr. Amir Miri, Dr. Sagnik Basuray **URI Program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention
Name: Enakeno Akpokene **Department**: Biomedical Engineering, Chemical and Materials Engineering **Project Title**: Platinum Nanoparticles as a Potential Treatment for Triple Negative Breast Cancer **Faculty Advisor**: Dr. Kathleen McEnnis **URI Program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention	**Name**: Gabrielle Uskach **Department**: Chemistry and Environmental Science, Biomedical Engineering **Project Title**: Real-time Monitoring of Extracellular Matrix Remodeling During Breast Cancer Progression **Faculty Advisor**: Dr. Amir K Miri **URI Program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention
Name: George Hanna **Department**: Biomedical Engineering **Project Title:** Responses to Emotional Video Stimuli in TBI Patients: an fNIRS Study **Faculty Advisor**: Dr. Bharat Biswal **URI Program**: URI Provost Summer Research Fellowship Program	**Name**: Girish Subramani **Department**: Chemistry and Environmental Science **Project Title**: Sequence-Defined Polyester Oligomers for Nucleic Acid Therapy **Faculty Advisor**: Trevor J. Del Castillo **URI Program**: HSRI (Honors Summer Research Institute)

2024 Undergraduate Summer Research Symposium

Name: Harish Sekar **Department**: Biomedical Engineering **Project Title**: Quantifying Gait Abnormalities in Children with Cerebral Palsy through 3-D Motion Analysis Techniques **Faculty Advisor**: Dr. Saikat Pal **URI Program**: HSRI (Honors Summer Research Institute)	**Name**: Harrison Rohe-Weiner **Department**: Biomedical Engineering **Project Title**: Use of Self-Assembling Peptide Hydrogel for Dental Pulp Regeneration **Faculty Advisor**: Dr. Vivek Kumar **URI Program**: UTRI Undergraduate Translational Research Internship
Name: Hatice Aygun **Department**: Chemical & Materials Engineering, Biomedical Engineering **Project Title**: Computer-Aided Ligand Design for the Sigma-2 Receptor to Increase Anti-Neuropathic Pain Activity **Faculty Advisor**: Dr. Nellone Reid, Dr. Vivek Kumar **URI Program**: McNair Summer Research Program	**Name**: Isabella Frangiosa **Department**: Mechanical and Materials Engineering, **Project Title**: Piezoelectric Fingers for Tumor Detection **Faculty Advisor**: Dr. Lin Dong **URI Program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention
Name: Isabella Puluse **Department**: Civil & Environmental Engineering **Project Title**: An Analysis and Optimization of the Factors That Impact Anaerobic Digestion and Biodigester Efficiency **Faculty Advisor**: Dr. Jay Meegoda **URI Program**: HSRI (Honors Summer Research Institute)	**Name**: Ishika Macherla **Department**: Biomedical Engineering **Project Title**: Quantifying The Whole-Body Center Of Mass From 3D Motion Data **Faculty Advisor**: Dr. Saikat Pal **URI Program**: URI Provost Summer Research Fellowship Program
Name: Jonathan Barak & Melissa Baykus **Department**: Chemical and Materials Engineering **Project Title**: Methacrylated Alginate/Gelatin Blends as Bioinks for Tissue Engineering Applications **Faculty Advisor**: Dr. Murat Guvendiren **URI Program**: Bergen Community College (BCC) - Chemical and Materials Engineering Dept Collaboration	**Name**: Julie Mena **Department**: Chemical Engineering **Project Title**: A Modeling Framework for Simulating Skin Decontamination of Chemical Warfare Agents **Faculty Advisor**: Dr. Laurent Simon **URI Program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention
Name: Kabir Singh **Department**: Biomedical Engineering **Project Title**: Novel method of male contraceptive using cyclic peptide to inhibit fertilization **Faculty Advisor**: Dr. Corey Heffernan, Dr. Vivek Kumar **URI Program**: HSRI (Honors Summer Research Institute)	**Name**: Kaivya Dey **Department**: Biomedical Engineering **Project Title**: Design and synthesis of regenerative peptides **Faculty Advisor**: Dr. Vivek A. Kumar **URI Program**: Heritage Institute of Technology (HIT) Summer Research Program
Name: Kankana Karmakar **Department**: Biomedical Engineering **Project Title:** Evaluation of role of macrophages in axonal growth for peripheral neuropathy **Faculty Advisor**: Dr. Jonathan M Grasman URI Program: Heritage Institute of Technology (HIT) Summer Research Program	**Name:** Kareem Shahat **Department**: Chemical Engineering **Project Title:** Miniature Peptide Synthesizer: Automation Progress **Faculty Advisor:** Dr. Nellone Reid **URI Program:**
Name: Keya Gulati **Department**: Biological Sciences **Project Title**: Molecular Cloning of Neurodevelopmental Disorder Associated G3BP1 Mutants **Faculty Advisor**: **Dr. Pabitra Sahoo** **URI Program**: HSRI (Honors Summer Research Institute)	**Name**: Kristina Camia **Department**: Biological Sciences **Project Title**: Understanding the Mechanism for Handedness Transformation in Eusocial Snapping Shrimp **Faculty Advisor**: Dr. Phil Barden **URI Program**: HSRI (Honors Summer Research Institute)

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Name: Kyuhyuk Cha **Department**: Mechanical & Industrial Engineering **Project Title**: Multiplex Assay Integrated Nanobiochip-based Point-Of- Care (MAIN-POC) Device for Cancer Early Diagnosis **Faculty Advis**or: Dr. Eon Soo Lee **URI Program**: Undergraduate Translational Research Internship (UTRI)	**Name**: Luisa Martinez **Department**: Chemical and Materials Engineering **Project Title**: Protein corona **Faculty Advisor**: Dr. McEnnis **URI Program**: Bergen Community College (BCC) - Chemical and Materials Engineering Dept Collaboration
Name: Margaret Meschia **Department**: Chemistry & Environmental Science **Project Title**: Tracking Mechanisms of Phthalates in Mouse Ovaries **Faculty Advisor**: Dr. Genoa Warner **URI Program**: URI Provost Summer Research Fellowship Program	**Name:** Maria Lazcano **Department:** Chemical and Materials Engineering **Project Title:** Platinum Nanoparticles for cancer Treatment **Advisor:** Dr. Kathleen McEnnis **URI Program:**
Name: Mason Brown **Department**: Chemical and Materials Engineering **Project Title**: Uterine Cancer Image Analysis with CNNs **Faculty Advisor**: Dr. Joshua Young, Dr. Nellone Reid **URI Program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention	**Name**: Matthew Fernandes **Department**: Biomedical Engineering **Project Title**: MEP Latency Dynamics in Low Cortical Excitability with Novel Paired-Pulse TMS Protocol **Faculty Advisor**: Dr. Kallioniemi **URI Program**: URI Provost Summer Research Fellowship Program
Name: Maya Hassan **Department**: Chemistry and Environmental Science **Project Title**: Assessment of DNA Profiling From Remains Exposed to Different Conditions **Faculty Advisor**: Dr. Sara Casado Zapico **URI Program**: McNair Summer Research Program	**Name**: Meera James **Department**: Department of Biomedical Engineering **Project Title**: Design of novel autoimmune antibody-binding peptides **Faculty Advisor**: Dr. Vivek Kumar, Dr. Corey Heffernan **URI Program**: HSRI (Honors Summer Research Institute)
Name: Melissa Nanotkar **Department**: Chemistry and Environmental Science **Project Title**: pH-Responsive Oligomers for Targeted Nucleic Acid Therapy **Faculty Advisor**: Dr. Trevor Del Castillo **URI Program**: HSRI (Honors Summer Research Institute)	**Name**: Merna Tanous **Department**: Biomedical Engineering **Project Title**: MCC950 as a Therapeutic for Inflammation in Blast-Induced Traumatic Brain Injury (bTBI) **Faculty Advisor**: Dr. Bryan Pfister **URI Program: URI** Provost Summer Research Fellowship Program
Name: Mimi Pham **Department**: Chemical and Materials Engineering **Project Title**: EGFr Binding Peptide Contrast Agents for Signaling EGFr-Positive Tumors **Faculty Advisor**: Dr. Vivek Kumar **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention	**Name**: Mina Abdelmalak **Department**: Chemical and Materials Engineering **Project Title**: Electromagnetic Field Effects on T47D and PME Cells **Faculty Advisor**: Dr. Nellone Reid **URI Program:** McNair Summer Research Program
Name: Mukund Maurya **Department**: Biomedical Engineering **Project Title**: Formulation of stable and functional recombinant protein stabilized phase shift nanodroplets for ultrasound theranostics **Faculty Advisor**: Rajarshi Chattaraj **URI Program**: HSRI (Honors Summer Research Institute)	**Name**: Nada Mohamed **Department**: Chemical and Materials Engineering, Biomedical Engineering **Project Title**: Designing Sigma-2 Peptide Ligands for a Novel Cancer Therapeutic **Faculty Advisor**: Dr. Nellone Reid, Dr. Vivek Kumar **URI Program**: McNair Summer Research Program

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Name: Nader Zahran **Department**: Electrical Engineering **Project Title**: Point-of-Care Device for Zoonotic Disease Detection **Faculty Advisor**: **URI Program:** HSRI (Honors Summer Research Institute)	**Name**: Natalia Narvaez **Department**: Biomedical and Chemical Engineering **Project Title**: Piezoelectric Needle For Guided Tissue Targeting **Faculty Advisor**: Dr. Lin Dong **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention
Name: Niki Anagnostou **Department**: Biological Sciences **Project Title**: Effects of the Ablation of the Lateral Line System on Collective Fear Responses of Larval Zebrafish *Danio rerio* **Faculty Advisor**: **Dr. Kristen Severi** **URI Program:** URI Provost Summer Research Fellowship Program	**Name**: Nora Ronan **Department**: Chemistry and Environmental Science **Project Title**: Assessment of prostate-specific antigen (PSA) by immunochromatographic tests **Faculty Advisor**: Dr. Sara Casado Zapico **URI Program:** NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus
Name: Okherra Prosper **Department**: Chemistry and Environmental Science **Project Title**: Methylmercury Degradation by *Mycobacterium dioxanotrophicus* PH-06 **Faculty Advisor**: Dr. Lijie Zhang **URI Program:** NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus	**Name**: Olena Sen **Department**: Biomedical Engineering **Project Title**: Analytical Software Technique for Determining the Natural Frequencies of Pupillary Responses in Vergence Eye Movements **Faculty Advisor**: Dr. Tara L. Alvarez **URI Program:** Honors Summer Research Institute (HSRI)
Name: Oliwia Gorska **Department:** Biological Sciences **Project Title:** Establishing an assay for visual desensitization in larval zebrafish for understanding synaptic plasticity **Faculty Advisor:** **URI Program:** URI Provost Summer Research Fellowship Program	**Name:** Om Tripathi **Department:** Department of Otolaryngology Project Title: Factors Associated with Research Productivity and National Institutes of Health (NIH) Funding in Academic Rhinology **Faculty Advisor:** Dr. Andrey Filimonov **URI Program:** Honors Summer Research Institute (HSRI)
Name: Pranav Anthapu **Department**: Newark College of Engineering **Project Title**: Creating a Graphical User Interface to Analyze Motor-Evoked Potentials **Faculty Advisor**: Dr. Elisa Kallioniemi **URI Program:** Honors Summer Research Institute (HSRI)	**Name**: Quentin Young **Department**: Chemistry and Environmental Science **Project Title**: Structural and Quantitative Analysis of Proteins using Cross-Linking and Coulometric Mass Spectrometry **Faculty Advisor**: Dr. Hao Chen **URI Program:** NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus
Name: Rhea Sansguiri & Simritt Rai **Department**: Biological Sciences **Project Title**: CDC42 Molecular Mechanism in Colorectal Tumors **Faculty Advisor**: Dr. Yelda Semizer **URI Program: Honors** Summer Research Institute (HSRI)	**Name**: Robert Lodge **Department**: Biomedical Engineering **Project Title**: Morphological Changes in Neuroinflammation Markers After Blast Injuries **Faculty Advisor**: **URI Program:** URI Provost Summer Research Fellowship Program

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Name: RyAnn Pryor **Department**: Chemistry and Environmental Science **Project Title**: Protein Engineering and Design for Bioremediation **Faculty Advisor**: Dr. Edgardo Farinas **URI Program:** NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus	**Name**: Salma Mohammed **Department**: Biomedical Engineering **Project Title**: Analysis of Exoskeleton-Patient Interaction during Exoskeleton-Assisted Locomotion using 3-D Motion Capture and Computer Simulations **Faculty Advisor**: Dr. Saikat Pal **URI Program:** HSRI (Honors Summer Research Institute)
Name: Sariah Coleman **Department**: Biological Sciences **Project Title**: Electrochemical Sensor **Faculty Advisor**: Dr. Sagnik Basuray **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention	**Name**: Sathvik Gopu **Department**: Humanities and Social Sciences **Project Title**: Breast Tissue Synthesis to Improve Cancer Detection **Faculty Advisor**: Dr. Yelda Semizer **URI Program: HSRI (Honors Summer Research Institute)**
Name: Shreyas S. Bolla **Department**: Biomedical Engineering **Project Title**: Developing IGF-1- and IGFBP-5-Loaded Collagen Scaffolds for Skeletal Muscle Regeneration **Faculty Advisor**: Dr. Jonathan M. Grasman **URI Program:** URI Provost Summer Research Fellowship Program	**Name:** Siya Patel **Department**: Biomedical Engineering **Project Title:** An Angiogenic and Myogenic Self-Assembling Peptide Hydrogel Therapeutic for Peripheral Artery Disease **Faculty Advisor:** Dr. Vivek Kumar **URI Program:** URI Provost Summer Research Fellowship Program
Name: Sophia Rollo **Department**: Humanities and Social Sciences **Project Title**: Quantifying Beak and Respiratory Movement of Zebra Finches Using DeepLabCut **Faculty Advisor**: Dr. Julia Hyland Bruno **URI Program:** HSRI (Honors Summer Research Institute)	**Name**: Sophia Starzynski **Department**: Biomedical Engineering **Project Title**: Investigation of Cerebral Blood Flow as a parameter to be used in Vestibular Testing **Faculty Advisor**: Dr. Chang Yaramothu **URI Program:** HSRI (Honors Summer Research Institute)
Name: Stephanie Ng **Department**:Chemistry and Environmental Science **Project Title**: The comparison of PAA and electrospun polyaniline nanofibers in the creation of pain biosensors **Faculty Advisor**: Dr. Omowunmi Sadik **URI Program:** HSRI (Honors Summer Research Institute)	**Name**: Steven Habeb **Department**: Biological Sciences **Project Title**: The Effect of Perfluorooctanesulfonic Acid (PFOS) on Ovarian Follicles **Faculty Advisor**: Dr. Genoa R. Warner **URI Program:** HSRI (Honors Summer Research Institute)
Name: Tanvi Mathur **Department**: Chemistry and Environmental Science **Project Title**: Effects of Phthalates on Hormones in the Female Reproductive System **Faculty Advisor**: Dr. Genoa Warner **URI Program**: NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus	**Name**: Taylor Pape **Department**: Biological Sciences **Project Title**: The effect of neuromodulation on the Stability of Neuronal Activity: A Computational Modeling Approach **Faculty Advisor**: Farzan Nadim **URI Program**: HSRI (Honors Summer Research Institute)
Name: Theon Harry **Department**: Biomedical Engineering Department, Chemical and Materials Engineering Department **Project Title**: Peptide Reactor**Faculty Advisor**: Dr. Nellone Reid **URI Program**: NSF Research Experience of Undergraduate (REU) Program for Cancer Diagnosis and Therapeutic Intervention	**Name:** Tramina Phan **Department**: Chemistry and Environmental Science **Project Title:** Exploring the Synthesis of Sequence-Defined Mixed Alpha-Amino and Beta-Amino Esters and Evaluating Their Effectiveness and Toxicity In Cells **Faculty Advisor**: Dr. Trevor Del Castillo **URI Program:** HSRI (Honors Summer Research Institute)

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Name: Vidhi Patel **Department:** Biomedical Engineering **Project Title:** Role of Stromal Cells for Breast Cancer Invasion in an Engineered Tumor Model **Faculty Advisor**: Dr. Amir K Miri **URI Program:** HSRI (Honors Summer Research Institute)	**Name:** Wafiza Julkipli **Department:** Biomedical Engineering **Project Title:** Influence of Ultrasound-Responsive Xenon Microbubbles on Blood Brain Barrier Repair Following Traumatic Brain Injury **Faculty Advisor:** **URI Program:** HSRI (Honors Summer Research Institute)
Name: Willy Caba **Department:** Biomedical Engineering **Project Title:** In Vivo and In Vitro Evaluation of Fluorescent Peptide Biodegradation **Faculty Advisor:** Vivek Kumar **URI Program:** URI Provost Summer Research Fellowship Program	**Name**: Yash Parikh **Department**: Biomedical Engineering **Project Title**: Exploring the Role of Stiffness on Myofiber Maturation and Alignment **Faculty Advisor**: Jonathan Grasman **URI Program:** URI Provost Summer Research Fellowship Program
Name: Yassa A. Beshai **Department**: Chemical & Materials Engineering **Project Title**: Development of a fully point-of-care Electrochemical microfluidic Biosensor **Faculty Advisor**: Dr. Sagnik Basuray **URI Program:** Undergraduate Translational Research Internship (UTRI)	

2024 Undergraduate Summer Research Symposium

Research Presentation Area

Environment & Sustainability

Name: Alan Tong **Department**: Physics, Center for Solar-Terrestrial Research **Project Title**: Laboratory Evaluation of BBSO Cameras for High-Resolution Solar Observation Application **Faculty Advisor**: Dr. Wenda Cao **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences	**Name**: Artin Khaleghi **Department**: Institute for Space Weather Science **Project Title**: Investigating Mini Filament Eruptions and Their Relationship with Small-Scale Magnetic Flux Rope in the Solar Wind **Faculty Advisor**: **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences
Name: Aryan Mudaliar **Department**: Biological Sciences **Project Title**: The impact of environmental pH changes on Mauthner cell development in Astyanax mexicanus **Faculty Advisor**: Dr. Daphne Soares **URI Program:** HSRI (Honors Summer Research Institute)	**Name**: Audrey Kormann **Department**: Environmental Engineering **Project Title**: Carbon Dioxide Nanobubbles to Enhance Biodegradation in Food Waste Digesters **Faculty Advisor**: Andrzej Zarzycki **URI Program:** HSRI (Honors Summer Research Institute)
Name: Caleb Polillio **Department**: Mechanical and Industrial Engineering, Department of Physics **Project Title**: Design and Construction of a Solar-Assisted, Self Starting MAGLEV Vertical-Axis Wind Turbine **Faculty Advisor**: Nuggehalli Ravindra **URI Program:** URI Provost Summer Research Fellowship Program	**Name**: Caroline Vierheilig **Department**: College of Architecture and Design **Project Title**: Characterizing Baseline Energy Use for NJIT Campus Buildings:Leveraging High-Resolution Energy Data **Faculty Advisor**: Hyojin Kim **URI Program:** Honors Summer Research Institute (HSRI)
Name: Chocie Landvik **Department**: **Project Title**: Development of a system to filter PFAs out of water **Faculty Advisor**: **URI Program:** NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus	**Name:** Christopher J. Lombardi **Department:** Center for Computational Heliophysics **Project Title:** Oscillations and Magnetic Activity of Solar-Type Stars **Faculty Advisor**: Alexander G. Kosovichev **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences
Name: Dhanya Sureshbabu **Department**: Biological Sciences **Project Title**: Nature vs. Nurture: The Study of Environmental Influences on Astyanax Development **Faculty Advisor**: Dr. Daphne Soares, Dr. Kristen Severi **URI Program:** Honors Summer Research Institute (HSRI)	**Name**: Elaf A. Mahmoud **Department**:Institute for Space Weather Sciences **Project Title**: Cloud Surveying for Fabry-Perot Aeronomy with OLAF (Optical Logger of Atmospheric Features) **Faculty Advisor**: Dr. Hyomin Kim **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences

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Name: Elliot Schweitzer **Department**: Institute of Space Weather Sciences **Project Title**: Predicting Solar Eruptions and Tracking Magnetic Features through Machine Learning **Faculty Advisor**: Bo Shen **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences	**Name**: James Hopkins **Department**: Physics, Computer Science **Project Title**: Predicting Solar Activity and EUV Through Machine Learning **Faculty Advisor**: Jason Wang, Zhenduo Wang **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences
Name: Joseph Visone **Department**: Physics **Project Title**: Magnetic Field Extrapolation in Solar Flares **Faculty Advisor**: Vasyl Yurchyshyn **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences	**Name**: KesUranNu Baylor **Department:** **Project Title:** Analysis of Coronal Mass Ejections Using OVRO-LWA Radio Imaging **Faculty Advisor**: **URI Program** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences
Name: Kevin Paredes **Department**: Chemicals and Materials Engineering **Project Title**: Developing Electrochemical Platform Technology for Detection of Target Analytes in on-field Applications **Faculty Advisor**: Sagnik Basuray **URI Program:** Undergraduate Translational Research Internship (UTRI)	**Name**: Khushi Faldu **Department**: Chemistry and Environmental Science **Project Title**: Using Fluorescence Absorption and Emission to Identify the Relationship between PFOS, SQ-1, and BSA **Faculty Advisor**: Dr. Yuanwei Zhang **URI Program:** NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus
Name: Kristopher K. Mantilla **Department**: Mechanical Engineering, Civil and Environmental Engineering **Project Title**: Quantification of Softening of Shale due to Storage of Green Hydrogen **Faculty Advisor**: Dr. Jay Meegoda **URI Program:** Garden State: Louis Stokes Alliance for Minority Participation (GS-LSAMP)	**Name**: Lara Tunca **Department**: Physics **Project Title**: Ion-Neutral Heating Observed with Fabry-Perot Interferometers and SuperDARN **Faculty Advisor**: Lindsay V. Goodwin **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences
Name: Mariam Naseer **Department**: Biomedical Engineering, Chemicals and Materials Engineering **Project Title**: 2D MoS2-based electronic sensor for rapid and efficient detection of lead ions in water **Faculty Advisor**: Mengiang Zhao **URI Program:** URI Provost Summer Research Fellowship Program	**Name**: Nwanebu Laura Udochukwu **Department**: Chemical and Environmental Engineering **Project Title**: An Ultrasound-Based Chemical Kinetic Model for Unraveling the Mechanism of Decomposing Per- and Polyfluoroalkyl Substances (PFAS) **Faculty Advisor**: Jay Meegoda **URI Program:** Honors Summer Research Institute (HSRI)
Name: Oluwanifemi Fuwa **Department**: Civil and Environmental Engineering **Project Title**: High-efficient inactivation of airborne viruses using a microwave-enabled air filtration system **Faculty Advisor**: Dr Wen Zhang **URI Program:** Undergraduate Translational Research Internship (UTRI)	**Name**: Pei Liao **Department**: Computer Science, Chemistry and Environmental Science **Project Title** Development of an ArcGIS Hub for Community Engagement and Collaboration to Enhance Flood Resilience in Paterson Township in Passaic River Basin **Faculty Advisor**: Dr. Zeyuan Qiu **URI Program:** URI Provost Summer Research Fellowship Program

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Name: Robert Bush **Department**: Physics **Project Title**: Origin of Coronal Extreme Ultraviolet (EUV) Wave Generation **Faculty Advisor**: Alexander Kosovichev **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences	**Name**: Sara Lyman **Department**: Physics **Project Title**: An incoherent scatter radar investigation of polar-cap F-region plasma structuring and dynamics **Faculty Advisor**: Dr. Gareth Perry **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences
Name: Shyamkumar Rana **Department:** Applied Engineering and Technology **Project Title**: Fate and Transport: Microplastics in Stormwater **Faculty Advisor:** Dr. Michel Boufadel & Dr. Ashish Borgaonkar **URI Program:** McNair Summer Research Program	**Name**: Siddardh Budamagunta **Department**: Physics Department, Center for Solar-Terrestrial Research, Institute for Space Weather Science **Project Title**: Feature Identification of Solar Prominences **Faculty Advisor**: Vasyl Yurchyshyn **URI Program:** NSF Research Experience of Undergraduate (REU) Program for Solar, Terrestrial, and Space Weather Sciences
Name: Sudiksha Sahu **Department**: School of Architecture **Project Title**: Optimal Spatial Resolution for Indoor Environmental Quality Measurements **Faculty Advisor**: Hyojin Kim **URI Program:** URI Provost Summer Research Fellowship Program	**Name**: Thomas Messiha **Department**: Civil & Environmental Engineering **Project Title**: Argon-Nanobubble Enhanced Ultrasound As a Potent Modality to Destroy PFAS (“forever chemicals”) **Faculty Advisor**: Dr. Jay Meegoda **URI Program:** Undergraduate Translational Research Internship
Name: Vijaninee **Department**: **Project Title**: Flexible solar cell for indoor light energy recovery and reuse **Faculty Advisor**: **URI Program**: Heritage Institute of Technology (HIT, India) Summer Research	**Name**: Yash Jain **Department**: Data Science and Surveying Engineering Technology **Project Title**: Analyzing Spatiotemporal Variations of Harmful Algal Blooms in New Jersey Lakes using Artificial Intelligence Techniques and Statistical Tests **Faculty Advisor**: Prof. Huiran Jin **URI Program**: URI Provost Summer Research Fellowship Program
Name: Yorquiria Maldonado Mejia **Department**: Chemical and Materials Engineering, Department of Civil Engineering **Project Title**: Characterization of Softening of Shale due to Storage of Green Hydrogen **Faculty Advisor**: Dr. Jay Meegoda and David Washington **URI Program**: McNair Summer Research Program	

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Research Presentation Area

Material Science and Engineering

Name: Adrien Durasno **Department**: Electrical and Computer Engineering **Project Title**: Advancing Offshore Wind Energy Integration through Battery Storage: A New Jersey Initiative **Faculty Advisor**: Dr. Philip Pong **URI Program**: McNair Summer Research Program	**Name**: Aidan Johnson **Department**: Chemical and Materials Engineering **Project Title**: Mucilage Extract from Chia Seeds as a Novel Stabilizer of Drug Nanosuspensions for Bioavailability Enhancement **Faculty Advisor**: Dr. Ecevit Bilgili **URI Program**: URI Provost Summer Research Fellowship Program
Name: Annie Shen **Department**: Chemistry and Environmental Science **Project Title**: Electron transfer reactions of transition-metal complexes for solar energy conversion and storage **Faculty Advisor**: Dr. Michael S. Eberhart **URI Program**: NSF Research Experience of Undergraduate (REU) Program for BioSensor Materials for Advanced Research and Technology (BIOSMART) at the Environment/Biotechnology Nexus	**Name**: Arwa Ouali **Department**: Chemical and Materials Engineering John A. Reif, Jr. Department of Civil and Environmental Engineering **Project Title**: Utilizing Ultrasounds to Decompose Microplastics **Faculty Advisor**: Dr. Jay Meegoda, Dr. Duwage Perera **URI Program**: URI Provost Summer Research Fellowship Program
Name: Austin Chen **Department**: Hillier College of Architecture and Design **Project Title**: Validating Ground Heat Transfer Models for a Net-Zero House with Basement **Faculty Advisor**: **Hyojin Kim** **URI Program**: URI Provost Summer Research Fellowship Program	Name: Brandon Sanchez Department: Chemistry & Environmental Science Project Title: Degradation of Plastics Faculty Advisor: Dr. Hao Chen URI Program: BIOSMART & GS LSAMP
Name: Burhan Shah **Department**: Federated Department of Biological Sciences **Project Title**: Simulating the effects of Beta Sheet Peptides on Membrane Permeability **Faculty Advisor**: **URI Program**: URI Provost Summer Research Fellowship Program	**Name**: Chloe Djedji **Department**: Chemical and Materials Engineering **Project Title**: Glass transition temperature of PLGA particles and its effect on drug delivery applications **Faculty Advisor**: Dr. Kathleen McEnnis **URI Program**: Bergen Community College (BCC) - Chemical and Materials Engineering Dept Collaboration
Name: Ebru Dagdelen **Department**: Mathematical Sciences **Project Title**: Understanding Fluid Flux in Porous Media Through Topological Data Analysis **Faculty Advisor**: Linda Cummings **URI Program**: URI Provost Summer Research Fellowship Program	**Name**: Gania Lafontant **Department**: Civil and Environmental Engineering **Project Title**: The Future of Nanobubbles in Toothbrushes. **Faculty Advisor**:vDr. Wen Zhang **URI Program**: Garden State: Louis Stokes Alliance for Minority Participation (GS-LSAMP)
Name: Geordy Jomon **Department**: Electrical and Computer Engineering **Project Title**: Compressibility of Fluids in Nanopores Based on Classical DFT **Faculty Advisor**: Andrei Kolesnikov **URI Program**: URI Provost Summer Research Fellowship Program	**Name**: Jaiman Parekh **Department**: Physics **Project Title**: Using a Quadrupolar Magnetic Field to initiate a Coronal Mass Ejection **Faculty Advisor**: Wooyoung Choi **URI Program**: Honors Summer Research Institute (HSRI)

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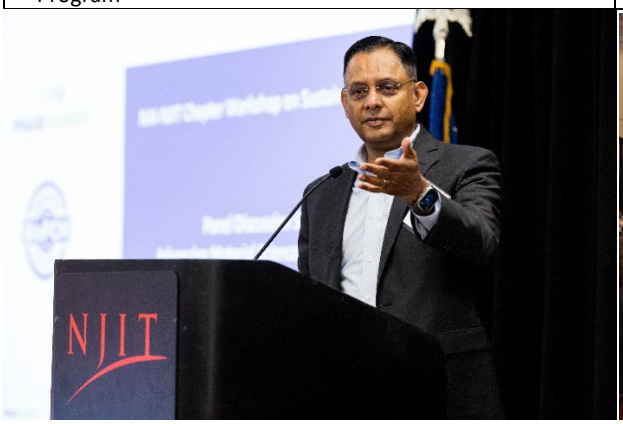
Name: **Juana Perez** **Department**: Chemistry and Environmental Science **Project Title**: **Degradation of Plastics Via Microdroplet Digestion** **Faculty Advisor**: **Dr. Hao Chen** **URI Program:** BIOSMART & GS LSAMP	**Name**: Kara Thompson **Department**: Chemical and Materials Engineering **Project Title**: Engineering a Multi-Chemistry Mixed Metal Oxide (MCMO) for Chemical Looping Combustion (CLC) **Faculty Advisor**: Dr. Kerri Lee Chintersingh **URI Program**: URI Provost Summer Research Fellowship Program
Name: Lisandro Martinez **Department**: Chemicals and Materials Engineering **Project Title**: Fabrication of 2D Transition Metal Dichalcogenides Based Electronic Nanosensors **Faculty Advisor**: Md Mohidul Alam Sabuj, Mengiang Zhao **URI Program**: Bergen Community College (BCC) - Chemical and Materials Engineering Dept Collaboration	**Name:** Mark Nyevgen **Department**: Mechanical and Industrial Engineering **Project Title**: Characterization of Mullins Recovery in Filled Rubbers **Faculty Advisor**: Dr. Shawn Chester **URI Program**: URI Provost Summer Research Fellowship Program
Name: Miguel Beauchamp **Department**: Electrical Engineering **Project Title**: characterizing RRAM devices **Faculty Advisor**: Misra Durgamadhab **URI Program**: Garden State: Louis Stokes Alliance for Minority Participation (GS-LSAMP)	**Name**: Neil Ahlawat **Department**: Chemical and Materials Engineering **Project Title**: Rapid Ignition of Reactive Material Powder **Faculty Advisor**: Dr. Edward Dreizin **URI Program**: Honors Summer Research Institute (HSRI)
Name: Noor Haque **Department**: Biomedical Engineering **Project Title**: Application and Design of Novel Scaffold Anchoring Devices **Faculty Advisor**: Jonathan M. Grasman **URI Program**: URI Provost Summer Research Fellowship Program	**Name: Nyssa Nixon** **Department**: Biomedical Engineering **Project Title**: The Combined Effect of Non-Steroidal Anti-Inflammatory Drugs and Growth Factors on Axonal Growth **Faculty Advisor**: Jonathan Grasman **URI Program**: URI Provost Summer Research Fellowship Program
Name: Omar Al-Zaman **Department**: Chemistry and Environmental Sciences **Project Title**: Synthesis of Red-Absorbing Photosensitizers for Artificial Photosynthesis **Faculty Advisor**: Dr. Michael Eberhart **URI Program**: URI Provost Summer Research Fellowship Program	**Name**: Yousef Mortaja **Department**: Physics **Project Title**: Amyloid Toxicity: Structure and Size of Toxic Amyloid Aggregates **Faculty Advisor**: Dr. Cristiano L. Dias **URI Program**: URI Provost Summer Research Fellowship Program



Research Presentation Area

Data Science and Management

Name: AKASH RAJ **Department**: Data Science **Project Title**: Prompt Optimisation AI chatbot **Faculty Advisor**: Dr. Hai Phan **URI Program**: Heritage Institute of Technology (HIT) Summer Research Program)	**Name**: Albright Owusu, Pharell Kenda **Department**: Mathematical Sciences **Project Title**: Mathematical Modeling and Data Analysis in Computational Psychiatry **Faculty Advisor**: Casey Diekman **URI Program**: Biomathematical Research Initiation Program
Name: Alex Patchedjiev **Department**: Computer Science **Project Title**: Geographical Data Visualization and Analysis for Roman Street Shrines **Faculty Advisor**: Dr. Louis Hamilton **URI Program**: Honors Summer Research Institute (HSRI)	**Name**: Alp Hance **Department**: Informatics **Project Title**: Zero-Shot Audio Classification Without Audio Training **Faculty Advisor**: Dr. Mark Cartwright **URI Program**: URI Provost Summer Research Fellowship Program
Name: Arianna Alves, Melna Abraham **Department** **Project Title:** Audiobook/Podcast Interface **StudyFaculty Advisor:** **URI Program:** Honors Summer Research Institute (HSRI)	**Name**: Catherine Huggins, Christopher Agesen **Department**: Mathematical Sciences **Project Title**: Dynamical Systems in Computational Psychiatry **Faculty Advisor**: Casey Diekman **URI Program**: Biomathematical Research Initiation Program
Name: Elijah Nutt **Department**: Ying Wu College of Computing **Project Title**: Examining Relationships Between Mood and Music Listening Habits **Faculty Advisor**: Dr. David Rothenberg **URI Program**: Honors Summer Research Institute (HSRI)	**Name**: Grace Revoredo **Department**: Humanities and Social Sciences **Project Title**: Are human interaction biases employed when using cross-species communication signals? **Faculty Advisor**: Dr Julia Hyland Bruno **URI Program**: Honors Summer Research Institute (HSRI)
Name: Gurdeep Singh **Department**: Chemical and Materials Engineering **Project Title**: Automation and Data Processing for Sorption-Ultrasonics Experiments **Faculty Advisor**: Dr. Gennady Gor **URI Program**: Bergen Community College (BCC) - Chemical and Materials Engineering Dept Collaboration	**Name:** Jonas Tirona **Department**: Computer Science, Humanities **Project Title**: Increasing Web Accessibility of New Jersey Institute of Technology's Learning Management System **Faculty Advisor**: Andrew Klobucar **URI Program**: Honors Summer Research Institute (HSRI)
Name: **Keith Anderson** **Department**: Mathematical Sciences **Project Title**: Fast computation of differential geometry operators on discrete surfaces with applications to interfacial flows and computer graphics **Faculty Advisor**: Shahriar Afkhami **URI Program**: URI Provost Summer Research Fellowship Program	**Name**: Krishi Shah **Department**: Computer Science **Project Title**: Zero-Shot Generalization Analysis **Faculty Advisor**: Mark Cartwright **URI Program**: URI Provost Summer Research Fellowship Program
Name: Ryan Woodrow **Department**: Newark College of Engineering **Project Title**: Digital Twins and Smart Home Architecture **Faculty Advisor**: Dr. Gennady Gor **URI Program**: Undergraduate Translational Research Internship (UTRI)	

Research Presentation Area

Robotics and Machine Intelligence

Name: Aakash Karlekar **Department**: Mathematical Sciences **Project Title**: Applying Parallelism to Optimize the Backpropagation Algorithm **Faculty Advisor**: Dr. Shahriar Afkhami **URI Program**: Honors Summer Research Institute (HSRI)	**Name**: Alfredo Rojas **Department**: Architecture and Design **Project Title**: Photorealistic Virtual Environments and Visual Clutter **Faculty Advisor**: Andrzej Zarzycki **URI Program**: URI Provost Summer Research Fellowship Program
Name: Angelina Marie De Guzman **Department**: School of Art and Design **Project Title**: 3D Environment Optimization for Virtual Reality **Faculty Advisor**: Richard Thompson **URI Program**: URI Provost Summer Research Fellowship Program	**Name**: Aryiadna Yesmanchyk **Department**: Physics **Project Title**: Generating and Validating 3D Magnetograms for SOHO/MDI using A Machine Learning Method **Faculty Advisor**: Yan Xu, Haimin Wang **URI Program**: Undergraduate Translational Research Internship
Name: Ciara Adams **Department**: Biomedical Engineering **Project Title**: Assessing Vergence Speed from Virtual Reality System and Vergence Facility as a Potential Biomarker for Concussions **Faculty Advisor**: Dr. Tara Alvarez **URI Program**: Honors Summer Research Institute (HSRI)	**Name**: Darren Bonifacio **Department**: Ying Wu College of Computing **Project Title**: Personality Classification Using Natural Language Processing **Faculty Advisor**: Dr. Amy K. Hoover **URI Program**: Honors Summer Research Institute (HSRI)
Name: Dev Doshi **Department**: Biomedical Engineering **Project Title**: Using AI Prediction & Genetic Analysis of the Protocadherin Gene Cluster to Improve Diagnosis Yields of Pathogenic Variant Carriers in Diverse U.S. Populations **Faculty Advisor**: **URI Program**: Honors Summer Research Institute (HSRI)	**Name**: Jainam Shah **Department**: Big Data Analytics Laboratory **Project Title**: Assisting the Navy in predicting ship delay using a downstream machine learning pipeline **Faculty Advisor**: **URI Program**: Honors Summer Research Institute (HSRI)
Name: Jane Kalla **Department**: Computer Science, Humanities and Social Sciences **Project Title**: What is the Impact of Visual Clutter on Emotion Recognition in Video Conferencing? **Faculty Advisor**: Dr. Yelda Semizer **URI Program**: Honors Summer Research Institute (HSRI)	**Name**: John Mohring **Department**: Digital Design **Project Title**: Immersive Design: Amplifying User Learning with Gamification in VR **Faculty Advisor**: Dr. Burçak Özlüdil **URI Program**: Honors Summer Research Institute (HSRI)
Name: Jordan Bruce, Yasmeen Javadi **Department**: Ying Wu College of Computing **Project Title**: Foundation Models/Deep learning frameworks for Simulation problems **Faculty Advisor**: Amit Chakraborty **URI Program**: Undergraduate Translational Research Internship	**Name**: Joshuan Barba **Department**: Informatics **Project Title**: Virtual Reality Gesture Learning **Faculty Advisor**: Dr. Margarita Vinnikov **URI Program**: URI Provost Summer Research Fellowship Program

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Name: Koushiki Das **Department**: Electrical and Computer Engineering, Data Science **Project Title**: Solving Fast Fair Bandit with Switching Cost Using Reinforcement Learning **Faculty Advisor**: Dr. Arnob Ghosh, Dr. Shuai Zhang **URI Program**: Heritage Institute of Technology (HIT) Summer Research Program	**Name**: Lindsay Burke **Department**: Mechanical and Industrial Engineering **Project Title**: Navigating by Nature: Harnessing Birdsong for Spatial Perception **Faculty Advisor**: Dr. Petras Swissler **URI Program**: Honors Summer Research Institute (HSRI)
Name: Luke Shen **Department**: Mechanical Engineering **Project Title**: Robot Self Assembly based off Slime Mold Growth **Faculty Advisor**: Petras Swissler **URI Program**: Honors Summer Research Institute (HSRI)	**Name**: Maharshi Vyas **Department**: Humanities & Social Sciences **Project Title**: A Statistical Analysis of Student Voice Trends in NJIT's The Vector **Faculty Advisor**: Dr. Miriam F Ascarelli **URI Program**: Honors Summer Research Institute (HSRI)
Name: Mark Hanna **Department**: Informatics, Data Science **Project Title**: Usability Evaluation of Multi-User Virtual Reality Ontology Object Manipulation (VROOM) **Faculty Advisor**: Dr. James Geller, Dr. Margarita Vinnikov **URI Program**: URI Provost Summer Research Fellowship Program	**Name**: Marwan Kashkoush **Department**: Applied Physics **Project Title**: Exploring the Clustering of Small Scale Flux Ropes near the Heliospheric Current Sheet Using the Improved Detection Algorithm **Faculty Advisor**: Dr. Hyomin Kim **URI Program**: Honors Summer Research Institute (HSRI)
Name: Nathan Campiche **Department**: Hillier College of Architecture and Design **Project Title**: Navigating the Uncanny Valley: Optimizing VR Training Character Design **Faculty Advisor**: Richard Thompson **URI Program**: URI Provost Summer Research Fellowship Program	**Name**: Rohan Shah **Department**: Computer Science **Project Title**: Quantifying Global Learning: A Data-Driven Analysis and Visualization of the Study Abroad Experience **Faculty Advisor**: Dr. Sunil Dhar **URI Program**: Honors Summer Research Institute (HSRI
Name: Saketh Golla **Department**: Ying Wu College of Computing **Project Title**: Machine Learning Models to Predict Cholera Infection in an Ottoman Asylum **Faculty Advisor**: Dr. Ozludil **URI Program**: Honors Summer Research Institute (HSRI)	**Name**: Srinesh Selvaraj **Department**: Computer Science **Project Title**: Increasing the Scale of Ontology Visualizations in a Virtual Reality System **Faculty Advisor**: Dr. James Geller, Dr. Margarita Vinnikov **URI Program:** Honors Summer Research Institute (HSRI)
Name: Zinelabidine Regragui **Department**: Biomedical Engineering **Project Title**: Comparison of the dynamics of exoskeletal-assisted locomotion in an FDA-approved lower extremity device: Controlled experiments and development of a subject-specific virtual simulator **Faculty Advisor**: Saikat Pal **URI Program**: URI Provost Summer Research Fellowship Program	

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