

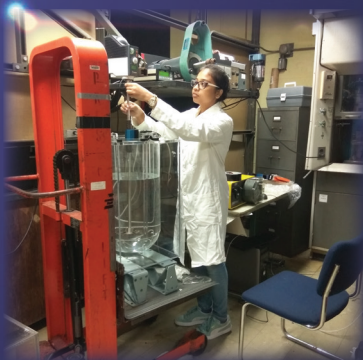
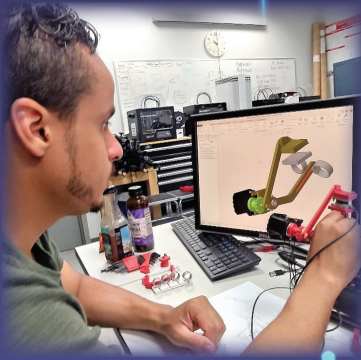
NJIT

New Jersey Institute
of Technology

Eleventh International Undergraduate Summer Research Symposium

Friday, July 27, 2018







11th International Undergraduate Summer Research Symposium

Friday, July 27, 2018

Agenda

- Poster Session 1 – 9:30-11:30 a.m.**
- Welcome Remarks & Lunch – 11:30-12:30 p.m.**
- Poster Session 2 – 12:30-2:30 p.m.**
- Closing Remarks – 2:30 p.m.**

Symposium Coordinator: Ms. Angela Retino
McNair Program Coordinator: Ms. Zara Williams

Thank you to the sponsors:

National Science Foundation
NASA
U.S. Department of Education
Ronald E. McNair Achievement
Program
PSE&G

The Hearst Foundation
Needham Foundation
Pfeiffer Foundation
James Stevenson and Family
Foundation
Capital One Bank

Brian Kiernan and Family
NJIT Office of Provost
NJIT Office of Research
US Army ARDEC



PROVOST UNDERGRADUATE SUMMER RESEARCH

John Antley (*Environmental Science*)¹⁻²⁹

Research: *Experimental Measurements of Uptake Coefficients of Gaseous Oxidized Mercury for Evaluation of its Atmospheric Deposition*

Faculty Adviser: Alexei Khalizov, Department of Chemistry and Environmental Science

Sean Bannon (*Chemical Engineering*)¹⁻³⁰

Research: *Creation of Microparticles for Drug Delivery Systems using Electrohydrodynamic Co-Jetting*

Faculty Adviser: Kathleen McEnnis, Department of Chemical and Materials Engineering

Jonard Diamante Bolante (*Computer Science*)¹⁻³¹

Research: *Augmented Reality Framework in Museum Exhibits*

Faculty Adviser: Eric Nersesian, Department of Informatics

Daniela Bushiri (*Chemical Engineering*)¹⁻³²

Research: *Nickel Fluoride as an Ionic Conductor Oxidizer for New Aluminum-based Reactive Materials*

Faculty Adviser: Edward Dreizen, Department of Chemical and Materials Engineering

Jan Aira Castillo Calalo (*Biomedical Engineering*)¹⁻³³

Research: *Analysis of Old and Young Adult Muscle Co-Contraction during Stair Ascent and Descent*

Faculty Adviser: Saikat Pal, Department of Biomedical Engineering

James Chao (*Interior Design*)¹⁻³⁴

Research: *A Statistical Study of Solar Polar Crown Filaments*

Faculty Adviser: Haimin Wang, Department of Physics

Alexander Coelho (*Chemical Engineering*)¹⁻³⁵

Research: *Elucidating the Impact of Polymer-Drug Interactions on the Formation of Spray-Dried Amorphous Solid Dispersions and Drug Dissolution Enhancement*

Faculty Adviser: Ecevit Bilgili, Department of Chemical and Materials Engineering

Nicholas Corrente (*Chemical Engineering*)¹⁻³⁶

Research: *Molecular Dynamics Simulations Study of Confinement Effects on Compressibility and Heat Capacity of Fluids*

Faculty Adviser: Gennady Gor, Department of Chemical and Materials Engineering

Kaytlyn Crowe (*Biomedical Engineering*)¹⁻³⁷

Research: *Identification of Frequency Modulation within Energetic and Informational Maskers*

Faculty Adviser: Antje Ihlefeld, Department of Biomedical Engineering

Karina Dsouza (*Biomedical Engineering*)¹⁻⁴²

Research: *Large-Scale Replication of Tubulin Subunits for Analysis of Microtubule Vibrational Properties*

Faculty Adviser: Camelia Prodan, Department of Physics

Eman Elgouz (*Chemical Engineering*)²⁻⁸

Research: *Nanocrystalline Cellulose as a Drug Delivery Vehicle*

Faculty Adviser: Somenath Mitra, Department of Chemistry and Environmental Science

Sebastian Fine (*Biomedical Engineering*)²⁻⁹

Research: *Maddox Components of Vergence: Establishing Normative Data*

Faculty Adviser: Tara Alvarez, Department of Biomedical Engineering

Ajay Gandhi (*Biology*)²⁻¹⁰

Research: *Microglia Activation after Blast-Induced Traumatic Brain Injury*

Faculty Adviser: Madhuvika Murugan, Department of Biomedical Engineering

Yasmine Ghattas (*Biology and Chemistry*)¹⁻⁴⁹

Research: *Feedback Control of Social Behavior*

Faculty Adviser: Eric Fortune, Federated Department of Biological Sciences

Jonpierre Grajales (*Applied Physics*)²⁻¹¹

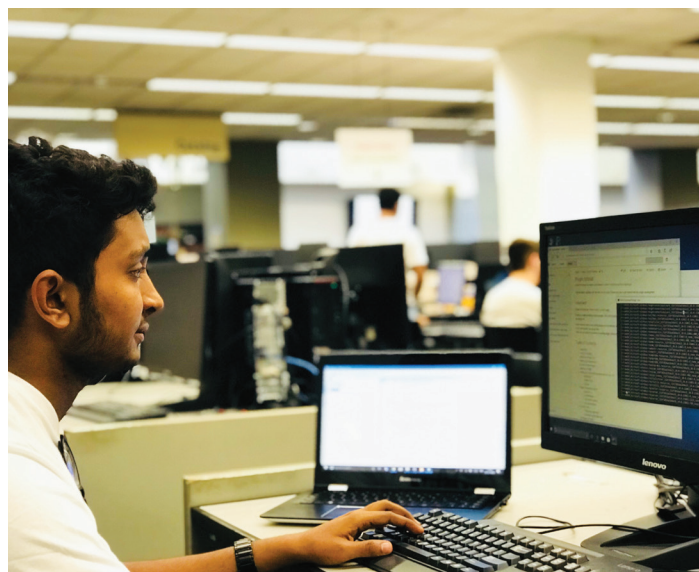
Research: *Analysis and Simulations of Vortex Beam Propagation and Polarization Properties*

Faculty Adviser: Andrei Sirenko, Department of Physics

Chloe Jelley (*Biology*)²⁻¹²

Research: *Revealing Trade-offs in Sensory Organs and Morphological Characteristics of Formicidae*

Faculty Adviser: Phillip Barden, Federated Department of Biological Sciences



Key: (session number – table number) For example: (2 – 13) is session 2, table number 13

Anuradha Kadam (*Architecture*)²⁻¹³

Research: *Design of Gas-Phase and Gas-Surface Chemistry Reactors for Mercury Experiments*

Faculty Adviser: Alexei Khalizov, Department of Chemistry and Environmental Science

Jeffrey Kim (*Biomedical Engineering*)²⁻¹⁶

Research: *Assistive Device for Autistic People 2*

Faculty Adviser: Alev Erdi, Department of Biomedical Engineering

Julianna Kosty (*Biomedical Engineering*)²⁻¹⁵

Research: *Behavioral and Cellular Consequences of Combination Blast and Blunt Traumatic Brain Injury*

Faculty Adviser: Bryan Pfister, Department of Biomedical Engineering

Karen Mandarina (*Biomedical Engineering*)²⁻¹⁶

Research: *Assistive Device for Autistic People 2*

Faculty Adviser: Alev Erdi, Department of Biomedical Engineering

Prarthana Manoj Rajai (*Chemical Engineering*)²⁻¹⁷

Research: *Real-Time Analysis in Continuous Manufacturing of Orally Dissolving Films*

Faculty Adviser: Rajesh Dave, Department of Chemical and Materials Engineering

Maliha Mathew (*Biology*)²⁻¹⁸

Research: *The Effects of Small Drugs on the Structure of Alzheimer's Disease Protein*

Faculty Adviser: Cristiano Dias, Department of Physics

Mary A. McGuinness (*Chemistry*)¹⁻⁴²

Research: *Modeling the Topological Dynamics of Microtubules*

Faculty Adviser: David Apigo, Department of Physics

Tracey Mraw (*Biomedical Engineering*)²⁻²⁹

Research: *Functional Connectivity in Stroke Subjects*

Faculty Adviser: Bharat Biswal, Department of Biomedical Engineering

Waleed Mujib (*Biology*)²⁻³⁰

Research: *Understanding Changes in Brain Oscillations following Blast-Induced Traumatic Brain Injury*

Faculty Adviser: Madhuvika Murugan, Department of Biomedical Engineering

Justin Newkirk (*Mechanical Engineering*)²⁻³¹

Research: *Vanishing Viscoelasticity in Polymeric Gels*

Faculty Adviser: Shawn Chester, Department of Mechanical Engineering

Kush Patel (*Civil Engineering*)²⁻³²

Research: *Expediting the Process of Food Waste Decomposition through Anaerobic Digestion*

Faculty Adviser: Jay Meegoda, Department of Civil and Environmental Engineering

Reshma Paul (*Biomedical Engineering*)²⁻³³

Research: *Application of Antibacterial Peptide Hydrogels in Diabetic Wound Healing Model*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

Ujjwala Rai (*Chemical Engineering*)²⁻³⁴

Research: *Migration of Bacteria in Aggregates for Optimized VOC Uptake*

Faculty Adviser: Mathew Schwartz, College of Architecture and Design

Pedro Reis Moura (*Chemical Engineering*)²⁻³⁵

Research: *Shear-Enhanced Platform for Protein Purification*

Faculty Adviser: Sagnik Basuray, Department of Chemical and Materials Engineering

Ayushi Sangoi (*Biomedical Engineering & Computer Engineering*)²⁻¹

Research: *Silica Implementation in Topological Body Armor*

Faculty Adviser: Kyle Dobiszewski, Albert Dorman Honors College





Nitya Shah (Biology) ²⁻²

Research: Modeling the Distribution of Superparamagnetic Nanoparticles in the Bloodstream for Use in Magnetic Drug Targeting

Faculty Adviser: Shahriar Afkhami, Department of Mathematical Sciences

Rahul Shah (Biomedical Engineering) ²⁻¹⁹

Research: Influence of Skull Strength on Shock Wave Propagation in Rats

Faculty Adviser: Namas Chandra, Department of Biomedical Engineering

Vatsal Shah (Mechanical Engineering and Computer Science) ²⁻³⁷

Research: Automation of Stem Cell Migration and Growth Control Using Electronically Actuated Microfluidic Devices

Faculty Adviser: Roman Voronov, Department of Chemical and Materials Engineering

Mansi Sheth (Biomedical Engineering) ²⁻²⁰

Research: Piezoelectric Biomaterial Characterization

Faculty Adviser: Treena Arinzeh, Department of Biomedical Engineering

Sydnee Sicherer (Biomedical Engineering) ²⁻²⁴

Research: The Effect of a Native Pancreatic Tissue Matrix on Insulin-producing Cells for the Treatment of Diabetes

Faculty Adviser: Alice Eun Jung Lee, Department of Biomedical Engineering

Niharika Singh (Biomedical Engineering) ²⁻³⁶

Research: Machine Learning to Further Earlier Studies on Alzheimer's Disease

Faculty Adviser: Bharat Biswal, Department of Biomedical Engineering

Catherine Sousa (Mathematics and Computer Science) ²⁻⁴²

Research: Modeling Filtering Process Using Stochastic Simulations of Monte-Carlo Type

Faculty Adviser: Lou Kondic, Department of Mathematical Sciences

Sydney Sweet (Chemical Engineering) ²⁻¹⁴

Research: Development of Nanogel Drug Delivery Systems for Heart Regeneration

Faculty Adviser: Xiaoyang Xu, Department of Chemical and Materials Engineering

Vinaya Thadhani (Biomedical Engineering) ²⁻⁴⁶

Research: An Efficient Visual Learning System based on a Biomimetic Camera

Faculty Adviser: Bipin Rajendran, Department of Electrical and Computer Engineering

Arif Uddin (History) ²⁻²⁵

Research: Wealth and Secularization in the Eternal City

Faculty Adviser: Louis Hamilton, Albert Dorman Honors College

Aayush Verma (Mechanical Engineering) ²⁻²⁶

Research: Development and Validation of a Computational Model of the Interactions of a Primary Shock Wave with a Human Head Surrogate

Faculty Adviser: Namas Chandra, Department of Biomedical Engineering

Hazal Yalcin (Biomedical Engineering) ²⁻²⁷

Research: HA/PCL Scaffolds for Bone Tissue Regeneration

Faculty Adviser: Murat Guvendiren, Department of Chemical and Materials Engineering

Juliana Yang (Biomedical Engineering) ¹⁻¹⁵

Research: Nanoparticle-based Formulation for Oral Delivery of GLP-1 for Treatment of Diabetes

Faculty Adviser: Xiaoyang Xu, Department of Chemical and Materials Engineering

RONALD E. MCNAIR ACHIEVEMENT PROGRAM

Naira Abou-Ghali (Biology) (Minor in Chemistry and Philosophy/ Applied Ethics) ¹⁻⁹

Research: Exploring a Role for Rac1 in Xenopus Neurulation Using Optogenetics

Faculty Adviser: Gregory Weber, Department of Biological Sciences, Rutgers University-Newark

Rogina Gerges (Biomedical Engineering) ¹⁻¹⁰

Research: Clearance of Waste Metabolites in the Paravenous Space

Faculty Adviser: James Haorah, Department of Biomedical Engineering

Jeffrey Jude-Ibe (Electrical Engineering) ¹⁻¹¹

Research: Establishing Temperature Control through the Cell Environment Using a Raspberry Pi

Faculty Adviser: Roman Voronov, Department of Chemical and Materials Engineering

Deena Khandakar (Mechanical Engineering) ¹⁻¹²

Research: Database of Mechanism Animations

Faculty Adviser: Balraj Subra Mani, Department of Mechanical and Industrial Engineering

Kimberly Prince (*Science, Technology and Society*)¹⁻¹³

Research: *Social Systems/Network Application for Recovering Opioid Addicts - Customer Discovery*

Faculty Adviser: Donghee Yvette Wohn, Department of Information Systems

Keyra Pulliam (*Chemical Engineering*)¹⁻¹⁴

Research: *Boiling of HFE-7100 on a Microheater*

Faculty Adviser: Boris Khusid, Department of Chemical and Materials Engineering

Amina Siraj (*Biology*)¹⁻²⁰

Research: *Observing Morphological and Ecological Evolution over 20 Million Years through Ants and Amber*

Faculty Adviser: Phillip Barden, Department of Biological Sciences

Pablo Tejada Jr. (*Biomedical Engineering*)¹⁻²¹

Research: *Optimizing Hand Rehabilitation Post-Stroke Using Interactive Virtual Environments*

Faculty Adviser: Sergei Adamovich, Department of Biomedical Engineering

HONORS SUMMER RESEARCH FELLOWSHIP

Jennifer Callaghan (*Chemical Engineering*)²⁻¹

Research: *Ballistic Armor Composite Metamaterials*

Faculty Adviser: Kyle Dobiszewski, Albert Dorman Honors College

Daniel Daudelin (*Biology*)²⁻⁷

Research: *Compensatory Neuronal Plasticity Mechanisms in Response to Insertion of Exogenous GenesC*

Faculty Adviser: Jorge Golowasch, Department of Biological Sciences

Katherine DeMottie (*Law, Technology and Culture*)²⁻⁶

Research: *Edicole Sparita in Rome's Eleventh Rione and the Historic Jewish Ghetto*

Faculty Adviser: Louis Hamilton, Albert Dorman Honors College

Caroline D'Souza (*Chemical Engineering*)²⁻²¹

Research: *Optimization of 3D-Printed Hybrid Scaffolds*

Faculty Adviser: Murat Guvendiren, Department of Chemical and Materials Engineering

Laura Gould (*Architecture*)¹⁻¹⁶

Research: *Urban Infrastructure and Apparent Religious Devotion in Rome, Italy*

Faculty Adviser: Louis Hamilton, Albert Dorman Honors College

Richard Marsh (*Chemical Engineering*)¹⁻⁴⁷

Research: *Intense Ultrasonic Waves in Fluids: Nonlinear Behavior*

Faculty Adviser: Jay Meegoda, Department of Civil and Environmental Engineering

Zoraiz Naeem (*Computer Science*)²⁻⁴⁸

Research: *Topologically Protected Domain Boundary Modes in Metamaterials*

Faculty Adviser: Ken Ahn, Department of Physics

Swathi Pavuluri (*Biomedical Engineering*)²⁻⁴³

Research: *Measuring Susceptibility to Seizures After Blast-Induced Traumatic Brain Injury in Rats with Alzheimer's Disease*

Faculty Adviser: Madhuvika Murugan, Department of Biomedical Engineering

Beatrice Rejouis (*Biology*)²⁻⁴⁴

Research: *The Effect of Breeding on Thoroughbred Race Horse Durability*

Faculty Adviser: Louis Hamilton, Albert Dorman Honors College

NSF REU – EXTREEMS-QED

Amina Bendaoud (*Mathematical Sciences*)¹⁻⁴³

Research: *Computer Simulation of a Biophysical Pallidoatrial Network Model*

Faculty Adviser: Casey Diekman, Department of Mathematical Sciences



William McCann (*Mathematical Sciences*)¹⁻⁴³

Research: *Computer Simulation of a Biophysical Pallidostriatal Network Model*

Faculty Adviser: Casey Diekman, Department of Mathematical Sciences

Thomas Slawinski (*Mathematical Sciences*)¹⁻⁴³

Research: *Computer Simulation of a Biophysical Pallidostriatal Network Model*

Faculty Adviser: Casey Diekman, Department of Mathematical Sciences

NSF REU - OPTICS AND PHOTONICS: TECHNOLOGIES, SYSTEMS, AND DEVICES

Hassan Abdelwahab (*Biology, Indiana University Purdue University Indianapolis (IUPUI)*)¹⁻²⁸

Research: *Observing the Properties of CsPb Halide Quantum Dots*

Faculty Adviser: Yong Yan, Department of Environmental Science

Joseph Griesel (*Chemical Engineering, Texas Tech University*)¹⁻²⁷

Research: *Synthesis of Metallic Nanoparticles in Lab-on-a-Chip Devices*

Faculty Adviser: Sagnik Basuray, Department of Chemical and Materials Engineering

Juan Paez (*Electrical Computer Engineering, University of Texas at Austin*)¹⁻²⁶

Research: *Real Time VLC Indoor Positioning System for Electronic-Free IoT Devices*

Faculty Advisers: Abdallah Khreishah and Edwin Hou, Department of Electrical and Computer Engineering

Henil Patel (*Electrical Engineering and Applied Mathematics, North Carolina State University (NCSU)*)¹⁻²⁵

Research: *Image Registration in Optical Coherence Tomography*

Faculty Adviser: Xuan Liu, Department of Electrical and Computer Engineering

Aradhya Rajanala (*Physics, Georgia Institute of Technology*)¹⁻²⁴

Research: *Hall Effect Characterization of Silver Selenide Colloidal Quantum Dots*

Faculty Adviser: Dongkyun Ko, Department of Electrical and Computer Engineering

Maria Ramirez (*Physics, University of Southern California*)¹⁻²³

Research: *Design, Fabrication, and Characterization of AlGaN-Based Ultraviolet Nanowire Light Emitting Diodes*

Faculty Adviser: Hieu Nguyen, Department of Electrical and Computer Engineering

Austin Smith (*Biomedical Engineering, University of Alabama at Birmingham*)¹⁻²²

Research: *Application and Comparison of Noise Reduction Methods in Functional Near-Infrared Spectroscopy*

Faculty Adviser: Xiaobo Li, Department of Biomedical Engineering



Moses Tumuna (*Computer Engineering*)¹⁻¹⁹

Research: *Investigating the Effects of Light Soaking on ZMO/CdTe Solar Cells*

Faculty Adviser: Durgamadhab Misra, Department of Electrical and Computer Engineering

Louis Yopez (*Computer Engineering*)¹⁻¹⁸

Research: *Multi-Platform Optics and Photonics Educational App*

Faculty Advisers: John Carpinelli and Abdallah Khreishah, Department of Electrical and Computer Engineering

NSF - COMMUNITY COLLEGE BIOMATHEMATICAL RESEARCH INITIATION PROGRAM (C2BRIP)

Sean Bacote (*Mathematical Science - Essex County College*)¹⁻¹⁷

Research: *Predicting Apneas in Preterm Infants from Physiological Time Series Data*

Faculty Adviser: Casey Diekman, Department of Mathematical Sciences

Angela Castillo (*Biomedical Engineering - Essex County College*)¹⁻¹⁷

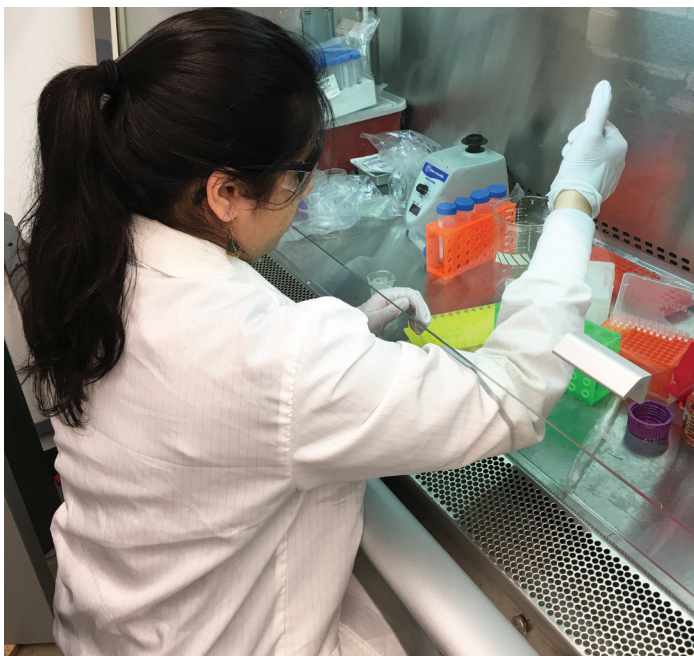
Research: *Predicting Apneas in Preterm Infants from Physiological Time Series Data*

Faculty Adviser: Casey Diekman, Department of Mathematical Sciences

Alyssa Marie Maquiling (*Mathematical Science - Essex County College*)¹⁻¹⁷

Research: *Predicting Apneas in Preterm Infants from Physiological Time Series Data*

Faculty Adviser: Casey Diekman, Department of Mathematical Sciences



NSF AND OTHER REUS

Ecem Badruk (*Bioengineering/Materials Engineering - Celal Bayar University, Turkey*)²⁻⁵

Research: 3D-Printing of Flexible Structures with Tunable Mechanical Properties

Faculty Adviser: Murat Guvendiren, Department of Chemical and Materials Engineering

Alahna Diaz (*Biological Sciences*)²⁻⁴⁷

Research: Optimization of Soft Lithography Using 3D Molds for Micron-sized PDMS Channels

Faculty Adviser: Sagnik Basuray, Department of Chemical and Materials Engineering

Ricardo Garcia (*Biomedical Engineering*)²⁻²²

Research: The Comorbid Effect of Alcohol and HIV-1 Tat Neurodegeneration: Increased Infiltration Across Impaired Blood Brain Barrier Model

Faculty Adviser: James Haorah, Department of Biomedical Engineering

Ekaterina Knyazeva (*Computer Science - Bergen Community College*)²⁻²³

Research: Scraping Kickstarter and Predicting the Success of Campaigns

Faculty Adviser: Zhi Wei, Department of Computer Science

Alvin Sarmiento (*Electrical Engineering*)¹⁻⁴⁵

Research: Controllable Delivery Power Grid-CDG

Faculty Adviser: Roberto Rojas-Cessa, Department of Electrical and Computer Engineering

Jordan Sheft-Ason (*Chemical Engineering*)¹⁻⁴⁸

Research: Desalination of Water with Carbon Nanotubes

Faculty Adviser: Somenath Mitra, Department of Chemistry and Environmental Science

U.S. ARMY RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, PICATINNY ARSENAL

Roy Baker (*Electrical Engineering*)¹⁻⁴¹

Research: Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics

Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design

Oliver Budd (*Industrial Design*)²⁻⁴¹

Research: Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics

Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design

Austin Hall (*Computer Science*)¹⁻⁴⁰

Research: Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics

Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design

Preston Konopka (*Industrial Design*)²⁻⁴⁰

Research: Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics

Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design

Jonathan Martinez (*Applied Physics and Computer Science*)¹⁻³⁹

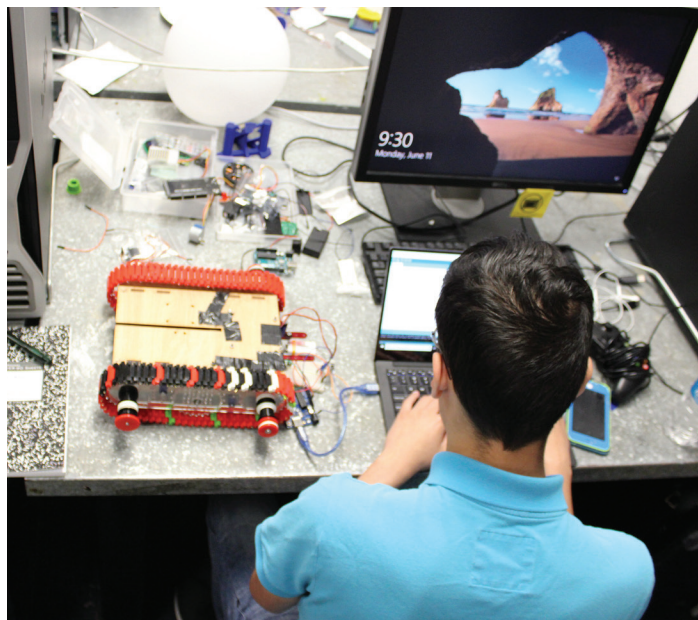
Research: Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics

Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design

Nicolas Ramirez-Diaz (*Computer Science*)²⁻³⁹

Research: Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics

Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design



Nicholas Warholak (*Industrial Design*)¹⁻³⁸

Research: *Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics*
Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design

Anthony Yacoub (*Industrial Design*)²⁻³⁸

Research: *Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics*
Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design

NJ SPACE GRANT CONSORTIUM SUMMER RESEARCH

Luke Connell (*Engineering Physics - Ramapo College*)¹⁻⁴⁰

Research: *Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics*
Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design

Gerassimos Giannoulis (*Engineering Physics - Ramapo College*)²⁻⁴

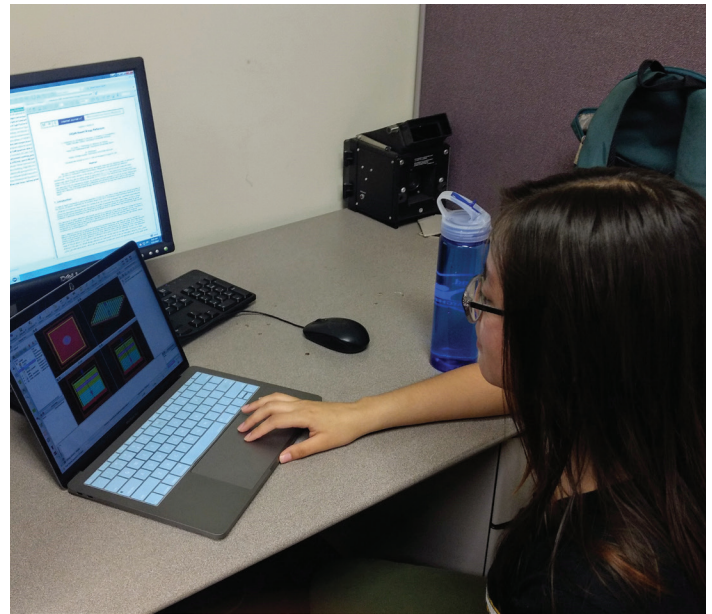
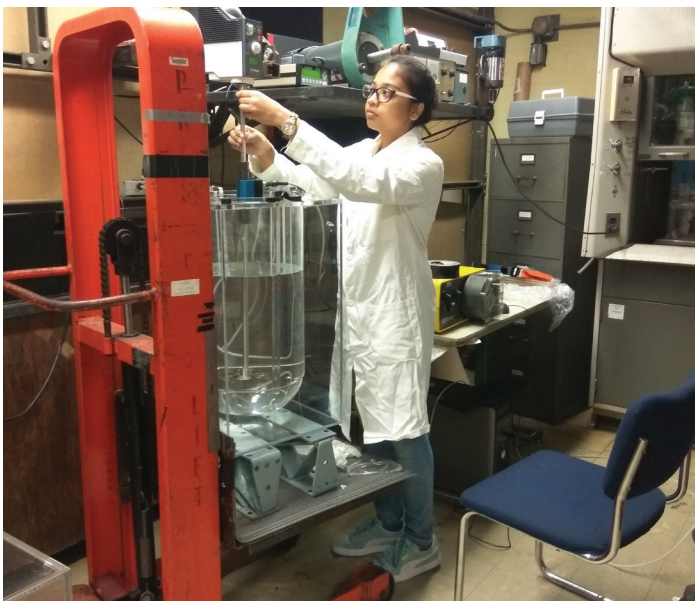
Research: *Octahedral Compression and Rotations in Halide Perovskites Under Pressure*
Faculty Adviser: Elizabeth A. Nowadnick, Department of Physics

Nicholas Sorce (*Engineering Physics – Ramapo College*)¹⁻⁴⁶

Research: *Laser Phase-Shift Range Finder for Entomological Lidars*
Faculty Adviser: Benjamin Thomas, Department of Physics

Matthew Vantslot (*Engineering Physics - Ramapo College*)²⁻³⁹

Research: *Interdisciplinary Summer Research – Design Process, Collaborative Robotic Fleet and Distributed Robotics*
Faculty Advisers: John Federici and Sam Gatley, Department of Physics, and Martina Decker, College of Architecture and Design



HERITAGE INSTITUTE OF TECHNOLOGY – NJIT SUMMER RESEARCH

Abhishek Agarwal (*Computer Science*)¹⁻¹

Research: *Detecting Bad Hubs in High Dimensional Data Using Local Laplacian Score*
Faculty Adviser: Vincent Oria, Department of Computer Science

Soumita Das (*Computer Science*)¹⁻²

Research: *Detection of Bad Hubs from Query Results Using Feature Selection*
Faculty Adviser: Vincent Oria, Department of Computer Science

Sambo Dutta (*Computer Science*)¹⁻³

Research: *Dimension Reduction for Compressing HPC Data*
Faculty Adviser: Gary Liu, Department of Electrical and Computer Engineering

Oindrila Ghosh (*Mechanical Engineering*)¹⁻⁴

Research: *Fabrication of an Assistive Robot Arm and Voice Control*
Faculty Adviser: Lu Lu, Department of Mechanical and Industrial Engineering

Yogita Mindia (*Electrical Computer Engineering*)¹⁻⁵

Research: *Investigating the Role of Interfacial Dielectric in Ge/Al₂O₃/ZrO₂/TiN Gate Stacks*
Faculty Adviser: Durgamadhab Misra, Department of Electrical and Computer Engineering

Adil Rahman (*Information Technology*)¹⁻⁶

Research: *Capturing the Metadata in Continuous Integration Workflows*
Faculty Adviser: Reza Curtmola, Department of Computer Science

Sweta Sanganeria (*Chemical Engineering*)¹⁻⁷

Research: *Effect of Bottom Shape and Liquid Level on Power Dissipation and Power Number for Stirred Vessels under Different Baffle Configurations*

Faculty Adviser: Piero M. Armenante, Department of Chemical and Materials Engineering

Niyali Sen (*Chemical Engineering*)¹⁻⁸

Research: *Synthesis of Metallic Nanoparticles: Comparing Batch to Continuous Micro-Scale Production*

Faculty Adviser: Sagnik Basuray, Department of Chemical and Materials Engineering

CENTER FOR INJURY BIOMECHANICS, MATERIALS & MEDICINE (CIBM3) UNDERGRADUATE SUMMER RESEARCH

Shahbaz Choudry (*Biomedical Engineering*)²⁻³

Research: *Evaluation of Boxing Gear Protection Efficiency*

Faculty Advisers: Namas Chandra and Maciej Skotak, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Ajay Gandhi (*Biology*)²⁻¹⁰

Research: *Microglia Activation After Blast-Induced Traumatic Brain Injury*

Faculty Adviser: Madhuvika Murugan, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Sainithin Kuntamukkala (*Biochemistry*)¹⁻⁴⁴

Research: *Neuroinflammation on Inflammasome*

Faculty Advisers: Namas Chandra and Venkata RamaRao Kakulavarapu, Center for Injury Biomechanics, Materials and Medicine (CIBM3)



Osama Mahgob (*Biomedical Engineering*)²⁻³

Research: *Evaluation of Boxing Gear Protection Efficiency*

Faculty Advisers: Namas Chandra and Maciej Skotak, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Sushni Mukkamalla (*Biology*)²⁻⁴⁵

Research: *Data Analysis in Epilepsy and Microglia Projects*

Faculty Advisers: Namas Chandra and Madhuvika Murugan, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Waleed Mujib (*Biology*)²⁻³⁰

Research: *Understanding Changes in Brain Oscillations Following Blast-Induced Traumatic Brain Injury*

Faculty Adviser: Madhuvika Murugan, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Dhruv Patel (*Computer Engineering*)²⁻²⁸

Research: *Fundamental Understanding of the Mechanism of Cavitation*

Faculty Advisers: Namas Chandra and Maciej Skotak, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Swathi Pavuluri (*Biomedical Engineering*)²⁻⁴³

Research: *Behavioral Changes in Mice Following Blast Traumatic Brain Injury*

Faculty Advisers: Namas Chandra and Madhuvika Murugan, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Kaylah Ruiz (*Engineering Science*)²⁻²⁸

Research: *Fundamental Understanding of the Mechanism of Cavitation*

Faculty Advisers: Namas Chandra and Maciej Skotak, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Rahul Shah (*Biomedical Engineering*)²⁻¹⁹

Research: *Influence of Skull Strength on Shock Wave Propagation in Rats*

Faculty Adviser: Namas Chandra, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Geetasravya Vegunta (*Biology*)²⁻¹⁰

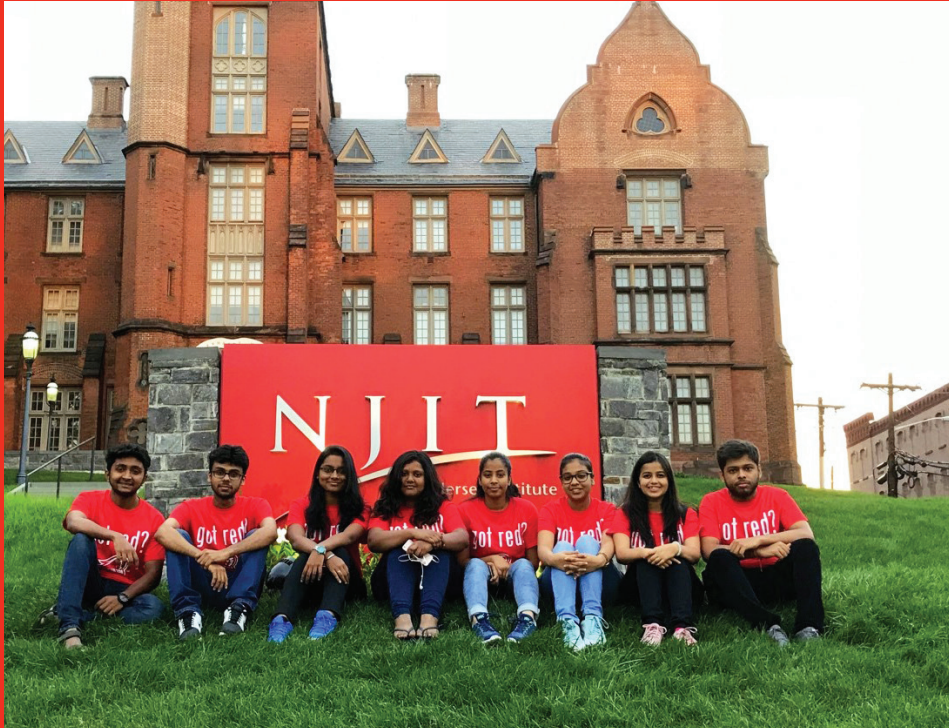
Research: *Characterizing Dynamic Changes in Microglia After Blast-Induced Traumatic Brain Injury*

Faculty Advisers: Namas Chandra and Madhuvika Murugan, Center for Injury Biomechanics, Materials and Medicine (CIBM3)

Aayush Verma (*Mechanical Engineering*)²⁻²⁶

Research: *Development and Validation of a Computational Model of the Interactions of a Primary Shock Wave with a Human Head Surrogate*

Faculty Adviser: Namas Chandra, Center for Injury Biomechanics, Materials and Medicine (CIBM3)



NJIT
New Jersey Institute
of Technology