Ninth International Undergraduate Summer Research Symposium
Thursday, July 28, 2016
9th International Undergraduate Summer Research Symposium
Thursday, July 28, 2016

Agenda
Poster Session 1 – 9:30-11:30 a.m.
Welcome Remarks and Lunch – 11:30 a.m.-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

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URI
Undergraduate Research & Innovation
PROVOST UNDERGRADUATE SUMMER RESEARCH

Paul Abatemarco (Chemical Engineering) (1)
Research: Development of a Microfluidic Cell Culture System for the Study of Stem Cell Motility
Faculty Adviser: Roman Vonorov, Department of Chemical, Biological and Pharmaceutical Engineering

Nadia Al-Ebbinni (Chemical Engineering) (2)
Research: Detailed Chemical Reaction Mechanism Simulations of Methane Partial Oxidation
Faculty Adviser: Robert Barat, Department of Chemical, Biological and Pharmaceutical Engineering

Ayesha Ali (Biomedical Engineering) (1)
Research: The Fabrication of a Novel Carbon Fiber Microelectrode for Interfacing with the Brain
Faculty Adviser: Sahin Mesut, Department of Biomedical Engineering

Sugosh Anur (Biomedical Engineering) (2)
Research: Activation of Cardiac Fibroblasts Using Biaxial Stretching Replicating Heart Attack In Vivo
Faculty Adviser: Eun Jung Lee, Department of Biomedical Engineering

Nahian Basith (Computer Engineering) (1)
Research: Computer Vision
Faculty Adviser: Mohammed Feknous, Department of Electrical and Computer Engineering

James Basuino (Computer Engineering) (2)
Research: Modular Electronic Control Surface for Percussive Instruments
Faculty Adviser: Durga Misra, Department of Electrical and Computer Engineering

Walter Berreta (Computer Engineering) (2)
Research: A Reconfigurable Open-Architecture Servo System for Research on Advanced Robotic Manipulation
Faculty Adviser: Cong Wang, Department of Electrical and Computer Engineering

Andrea Cano (Civil Engineering) (1)
Research: Microbial Fuel Cell (MFC) Lighting System for Mobile Systems
Faculty Adviser: Wen Zhang, Department of Civil and Environmental Engineering

Wilmin Ceballos (Electrical Engineering) (1)
Research: Computer Vision
Faculty Adviser: Mohammed Feknous, Department of Electrical and Computer Engineering

Albert George Fraser V (Physics) (2)
Research: Protein Aggregation
Faculty Adviser: Cristiano Dias, Department of Physics

Michael Fredericks (Chemical Engineering) (1)
Research: Mesenchymal Stem Cell Migration and Growth in Microfluidic Devices
Faculty Adviser: Roman Vonorov, Department of Chemical, Biological and Pharmaceutical Engineering

Einreb Funda (Computer Engineering) (2)
Research: Implementation of Electroencephalography to Generate Digital Instructions
Faculty Adviser: Mohammed Feknous, Department of Electrical and Computer Engineering

Hannah Gattuso (Biomedical Engineering) (2)
Research: Differences in Neural Processing of Small and Large Moving Sensory images
Faculty Adviser: Eric Fortune, Department of Biological Sciences

Robert Gioia (Information Technology) (1)
Research: Proposal to Develop Novel Video Game for Oculus Rift Platform to Therapy Children with Traumatic Brain Injury and Vision Disorders
Faculty Adviser: Tara Alvarez, Department of Biomedical Engineering

Beverly Glasgow (Civil Engineering) (2)
Research: Biotransformation of 1,4-Dioxane and Co-occurring Contaminants by an Enriched Propanotrophic Consortium
Faculty Adviser: Mengyan Li, Department of Chemistry and Environmental Science

Ravindu Gunawardana (Computer Engineering) (2)
Research: Hand-written Digit Recognition on an Embedded GPU
Faculty Adviser: Bipin Rajendran, Department of Electrical and Computer Engineering

Victoria Harbour (Chemical Engineering) (2)
Research: Characterizing the Blood-Brain-Barrier with the Micro-Total Neurological System
Faculty Advisers: Sagnik Basuray, Department of Chemical, Biological and Pharmaceutical Engineering, and James Haorah, Department of Biomedical Engineering

Zohour Hassan (Biomedical Engineering) (2)
Research: Excitatory and Inhibitory Nerve Study to Generate a Therapy for Traumatic Brain Injury
Faculty Adviser: Bryan J. Pfister, Department of Biomedical Engineering

Liem Ho (Biology) (2)
Research: Equality Network: Connecting Patients with LGBTQ Friendly Healthcare Providers
Faculty Adviser: Michael Lee, Department of Information Systems

Key: (1) denotes Session 1 presenter  (2) denotes Session 2 presenter
Andrew House (Biomedical Engineering) (2)
Research: µfilms-Micro Total Analytical System for Studying Polymeric Film-Based Drug Delivery System
Faculty Adviser: Sagnik Basuray, Department of Biomedical Engineering

Assma Itani (Federated Department of Biological Sciences) (2)
Research: Role of Specific Inhibitory Motoneurons in C. elegans Locomotion Examined Via Microfluids, Tracking and Optogenetics
Faculty Adviser: Gal Haspel, Federated Department of Biological Sciences

Ashish John (Electrical Engineering) (2)
Research: III-Nitride Nanowire Solar Cells Grown by Molecular Beam Epitaxy
Faculty Adviser: Hieu P. T. Nguyen, Department of Electrical and Computer Engineering

Richard Johnson (Mechanical Engineering) (2)
Research: Design of a Testing Methodology to Measure the Polymer/Ceramic Interface
Faculty Adviser: Siva Nadimpalli, Department of Mechanical and Industrial Engineering

Ian Jordan (Electrical Engineering) (2)
Research: Chaotic Circuits and a Method for Semi-Chaotic Encryption
Faculty Adviser: Denis Blackmore, Department of Electrical and Computer Engineering

Jimmy Lu (Computer Science) (1)
Research: Algorithms for Contingencies and Other Features in Highly Flexible Educational Workflow Systems
Faculty Adviser: Michael Bieber, Department of Information Systems

Kabir Mitra (Chemical Engineering) (2)
Research: Utilization of Waste Heat to Generate Pure Water by Carbon Nanotube
Faculty Adviser: Somenath Mitra, Department of Chemistry and Environmental Science

Mehnaz Moon (Chemical Engineering) (2)
Research: Microwave-Assisted Antifouling Membrane Filtration Technology
Faculty Adviser: Wen Zhang, Department of Civil and Environmental Engineering

Jorge Murgueytio (Mechanical Engineering) (2)
Research: Analysis of Stress and Strain in a Depressurized Tank with Wall Embedded Channels
Faculty Adviser: Zhiming Ji, Department of Mechanical and Industrial Engineering

John Palmieri (Biomedical Engineering) (2)
Research: Microtubule Research
Faculty Adviser: Camelia Prodan, Department of Physics

Shyamal Patel (Biology) (2)
Research: Reconstitution of Two-Component Circadian Oscillator from “ProKaiC Like seKaiC” to Determine Specific Function of KaiA on KaiC A-Loop and Provide Greater Insight into Circadian Clock Mechanism
Faculty Adviser: Yong-Ick Kim, Department of Chemistry and Environmental Science

Rohit Premkumar (Biological Science) (2)
Research: Co-modulation of Neural Circuit Activity by Different Neuropeptides
Faculty Adviser: Dirk Bucher, Federated Department of Biological Sciences

Omar Qari (Biological Science) (2)
Research: Mapping the Neural Connectivity of Midwater Amphipod Phronima
Faculty Adviser: Daphne Soares, Federated Department of Biological Sciences

Umar Rao (Computer Engineering) (2)
Research: Implementation of Electroencephalography to Generate Digital Instructions
Faculty Adviser: Mohammed Feknous, Department of Electrical and Computer Engineering

Gopal Ravindran (Biology) (1)
Research: The Role of Trimethylamine N-oxide in Preventing Protein Misfolding during Alzheimer's Disease
Faculty Adviser: Cristiano L. Dias, Department of Physics

Ryan Rayman (Biology) (1)
Research: Transfection for the Expression of Fluorescent Proteins in Mesenchymal Stem Cells for High-Resolution
Faculty Adviser: Roman Voronov, Department of Chemical, Biological and Pharmaceutical Engineering

Matthew Reda (Mechanical Engineering) (1)
Research: Autonomous Snow Removal
Faculty Adviser: Lu Lu, Department of Mechanical and Industrial Engineering

Jennifer Rochette (Biomedical Engineering) (2)
Research: AudIQ: Auditory Cue Training to Improve Auditory Awareness
Faculty Adviser: Antje Ihlefeld, Department of Biomedical Engineering

Alan Romano (Computer Science) (1)
Research: Designing Instructor Mentoring and Oversight for Engaging Students in Participatory Learning System
Faculty Adviser: Michael Bieber, Department of Information Systems

Kristen Scotti (Chemical Engineering) (2)
Research: Engineering Ligand Targeted Polymer Nanoparticle
Faculty Adviser: Xiaoyang Xu, Department of Chemical, Biological and Pharmaceutical Engineering
Aesha Shah (Biochemistry) (2)
Research: Circadian Clock Oscillation Mechanism in Cyanobacteria
Faculty Adviser: Yong-Ick Kim, Department of Chemistry and Environmental Science

Tasneem Shaltout (Biochemistry) (2)
Research: Tiny Particles, Massive Impacts: The Relationship between the Morphological and Optical Properties
Faculty Adviser: Alexei Khalizov, Department of Chemistry and Environmental Science

Mansi Sheth (Biomedical Engineering) (2)
Research: Needleless Electrospinning
Faculty Adviser: Treena Arinzeh, Department of Biomedical Engineering

Michael Tadros (Federated History) (2)
Research: Investigating the Lack of Voter Participation among the Demographic of 18-24 Year Olds
Faculty Adviser: Elizabeth Petrick, Federated Department of History

Prasanna Tati (Biology) (1)
Research: Low Cost Easily Replicated Water Filter Made from Local Materials for Developing Countries
Faculty Adviser: Jay Meegoda, Department of Civil and Environmental Engineering

Ulysee Thompson (Information Technology) (2)
Research: Prototyping a Temporospatial Simulation Framework: Case of an Ottoman Insane Asylum
Faculty Advisers: Augustus Wendell and Burcak Ozludil, College of Architecture and Design

Maira Valencia (Biochemistry) (1)
Research: New Probes for Deep Vascular Imaging by Two-Photon Fluorescence Microscopy
Faculty Adviser: Kevin Belfield, Department of Chemistry and Environmental Science

Nevin Varghese (Electrical Engineering) (2)
Research: III-Nitride Nanowire Solar Cells Grown by Molecular Beam Epitaxy
Faculty Adviser: Hieu P. T. Nguyen, Department of Electrical and Computer Engineering

Omar Abovelkhair (Chemical Engineering) (1)
Research: Biodegradable Antibiotic-Encapsulated Hydrogel for Wound Healing Applications
Faculty Adviser: Xiaoyang Xu, Department of Chemical, Biological and Pharmaceutical Engineering

Krzysztof Andres (Computer Engineering) (1)
Research: Group Support for Educational Website Like Moodle
Faculty Adviser: Michael Bieber, Department of Information Systems

Kevin Enriquez (Mechanical Engineering) (1)
Research: Design Well TM – Database for Animations of Mechanism Simulation
Faculty Adviser: Balraj Mani, Department of Mechanical and Industrial Engineering

Marco Fernandez (Civil Engineering) (1)
Research: Impact of Recycled Concrete Aggregates (RCA) on Reinforcing Bar Bound Strength
Faculty Advisers: Matthew P. Adams and Matthew J. Bandelt, Department of Civil and Environmental Engineering

John Gonzales (Chemical Engineering) (1)
Research: Washing of Boron for Reduction of Mass Loss in TG Analysis
Faculty Adviser: Edward Dreyzin, Department of Chemical, Biological and Pharmaceutical Engineering

Mengxin He (Chemical Engineering) (1)
Research: Shear Enhancement of Separation of Monoclonal Antibodies
Faculty Adviser: Sagnik Basuray, Department of Chemical, Biological and Pharmaceutical Engineering

Jimmy Lu (Computer Science) (1)
Research: Algorithms for Contingencies and Other Features in Highly Flexible Educational Workflow System
Faculty Adviser: Michael Bieber, Department of Information Systems

Ivan Mitrevski (Electrical Engineering) (1)
Research: Reliability of High-K Dielectrics in Nanoscale CMOS Devices
Faculty Adviser: Durga Misra, Department of Electrical and Computer Engineering

Sara Mustafa (Chemical Engineering) (1)
Research: Cell Transportation: A Versatile Marker to Visualize Cells
Faculty Adviser: Roman Voronov, Department of Chemical, Biological and Pharmaceutical Engineering
Alan Romano (Computer Science) (1)
Research: Designing Instructor Mentoring and Oversight for Engineering Students in a Participatory Learning System
Faculty Adviser: Michael Bieber, Department of Information Systems

Indiana Suriel (Chemical Engineering) (1)
Research: Improved Dissolution Performance of Drug Nanocomposites with Various Dispersants
Faculty Adviser: Ecevit A. Bilgili, Department of Chemical, Biological and Pharmaceutical Engineering

Samprit Basu (Mechanical Engineering) (1)
Research: Mechanical Behavior of 3D-Printed Components
Faculty Adviser: Siva P. V. Nadimpalli, Department of Mechanical and Industrial Engineering

Ayushi Churiwala (Computer Science Engineering) (1)
Research: Ultimate Course Search Engine
Faculty Adviser: Vincent Oria, Department of Computer Science

Arkoprovo Dey (Computer Science Engineering) (1)
Research: Simulation of Spiking Neural Networks
Faculty Adviser: Bipin Rajendran, Department of Electrical and Computer Engineering

Abhijit Pal (Electronics and Communications Engineering) (1)
Research: Underwater Communication
Faculty Adviser: Ali Abdi, Department of Electrical and Computer Engineering

Akanksha Mukherjee (Computer Science Engineering) (1)
Research: Avatar (Android Programming and Apps in the Cloud) Using Moitree Middleware
Faculty Adviser: Cristian Borcea, Department of Computer Science

Arka Raha (Mechanical Engineering) (1)
Research: Computational Fluid Dynamics of Particles Adsorbed on Liquid Surfaces
Faculty Adviser: Pushpendra Singh, Department of Mechanical and Industrial Engineering

Susnata Mandal (Computer Science Engineering) (1)
Research: Avatar (Android Programming and Apps in the Cloud) using Moitree Middleware
Faculty Adviser: Cristian Borcea, Department of Computer Science

Manisha Mondal (Electronics and Computer Engineering) (1)
Research: Reliability of GaN Nanowire LED Devices
Faculty Adviser: Durga Misra, Department of Electrical and Computer Engineering

Shaunak Sarkar (Applied Electronics and Instrumentation Engineering) (1)
Research: Accuracy of Robotic Cuts in Soft Tissue-Equivalent Compliant Materials
Faculty Adviser: Sanchoy Das, Department of Mechanical and Industrial Engineering

Arijit Sengupta (Electronics and Communications Engineering) (1)
Research: Reliability of High-k Gate Dielectrics on Si/Ge Substrates for Nanoscale CMOS Devices
Faculty Adviser: Durga Misra, Department of Electrical and Computer Engineering

Aman Singhania (Computer Science Engineering) (1)
Research: Digital Image Processing
Faculty Adviser: Yun Q. Shi, Department of Electrical and Computer Engineering

Henry Drago (Industrial Design) (1)
Research: Constructing the Overall Brand of the Physics Additive Manufacturing Lab
Faculty Adviser: John Federici, Department of Physics

Jenna Meisner (Biochemistry) (2)
Research: Analyzing Shape Memory Effect through the Assessment of Smart Materials
Faculty Adviser: John Federici, Department of Physics

Lou Rizzo (Physics) (1)
Research: Assessment of Optical Components Incorporated into 3D-Printed Structures
Faculty Adviser: John Federici, Department of Physics

Alex Clark (Engineering Physics – Ramapo College) (2)
Research: Integration and Optimization of Electronic Circuits and Devices into 3D-Printed Structures
Faculty Adviser: John Federici, Department of Physics

Lindsey Gray (Engineering Physics – Ramapo College) (1)
Research: Observing Solar Flares at Radio Wavelengths
Faculty Adviser: Bin Chen, Department of Physics

Patrick Rehain (Engineering Physics – Ramapo College) (2)
Research: Protein Folding Using the GROMACS Molecular Dynamics Software
Faculty Adviser: Cristiano Dias, Department of Physics
NSF REU - OPTICS AND PHOTONICS: TECHNOLOGIES, SYSTEMS, AND DEVICES

Olaoluwa Akinnuoye (Electrical and Computer Engineering) (1)
Research: Fabrication and Characterization of III-nitride Nanowire Light-Emitting Diodes (LED)
Faculty Adviser: Hieu P. T. Nguyen, Department of Electrical and Computer Engineering

Fares Al-Salim (Electrical and Computer Engineering) (1)
Research: Experimental Evaluation of Underwater Visible Light Communication Backscattering
Faculty Advisers: Abdallah Khreishah and Nirwan Ansari, Department of Electrical and Computer Engineering

Kely Amegbor (Electrical and Computer Engineering) (1)
Research: Investigation of Light Scattering in Plasmonic Structures of GaAs Pillars and Its Properties Due to Environment Changes
Faculty Adviser: Haim Grebel, Department of Electrical and Computer Engineering

Shawn Billy (Electrical and Computer Engineering) (1)
Research: Double JPEG Compression Detection through Convolution Neural Networks
Faculty Adviser: Yun-Qing Shi, Department of Electrical and Computer Engineering

Austin Daniel (Electrical and Computer Engineering) (1)
Research: Lead Sulfide Quantum Dot Solar Cells: The New and Easy Alternative
Faculty Adviser: Dong-kyun Ko, Department of Electrical and Computer Engineering

Amira Feknous (Electrical and Computer Engineering) (1)
Research: Low Cost Applications of Visible Light Communication Systems for Intelligent In-Store Consumer Messaging
Faculty Adviser: Sui-Hoi Edwin Hou, Department of Electrical and Computer Engineering

Ashley Fitzsimmons (Biomedical Engineering) (1)
Research: Testing Visual Sustained Attention Capacity in Adults Using Functional Near-infrared Spectroscopy
Faculty Adviser: Xiaobo Li, Department of Biomedical Engineering

Isabella Hou (Electrical and Computer Engineering) (1)
Research: Optical Coherence Tomography for Non-invasive Examination and Conservation of Cultural Heritage Objects
Faculty Adviser: Xuan Liu, Department of Electrical and Computer Engineering

Sharon Obiefuna (Electrical and Computer Engineering) (1)
Research: GaN LEDs: Reliability and Sustainability
Faculty Adviser: Durga Misra, Department of Electrical and Computer Engineering

Joel Stauffer (Electrical and Computer Engineering) (1)
Research: Estimating General Population Knowledge of Optics and Photonics Using User Interaction Analytics
Faculty Advisers: John Carpinelli and Abdallah Khreishah, Department of Electrical and Computer Engineering

BRAZIL SCIENTIFIC MOBILITY PROGRAM

Artur Balthazar, Eduardo Pereira, Leonardo Fontoura (1)
Research: Magnetism Applications in Power Transfer and Generation
Faculty Adviser: N.M. Ravindra, Department of Physics

Vitor Russyere Sousa Barros (1)
Research: Use of Red Clay to Remove Heavy Metals from Contaminated Water
Faculty Adviser: Jay N. Meegoda, Department of Civil and Environmental Engineering

Eduardo B. Carlin, Guilherme T. N. do Amaral, Tatiana de F. Centurio (2)
Research: Improvement in a Simple and Sustainable Apparatus to Measure Fines Content in Soil
Faculty Advisers: Mohamed Mahgoub, Department of Engineering Technology, and Laramie Potts, Department of Civil and Environmental Engineering

Ana Clara Carvalho (2)
Research: Colloidal Silver to Remove Pathogens
Faculty Advisers: Wen Zhang and Jay Meegoda, Department of Chemical, Biological and Pharmaceutical Engineering

Cleber Oliveira Damasceno, Saint Clair Barbosa Bernardes, Silvino Gustavo (2)
Research: Making High-throughput Microfluidic Experimentation Possible through the Use of Computer Vision
Faculty Adviser: Roman Voronov, Department of Chemical, Biological and Pharmaceutical Engineering

Alisson Giaretta (2)
Research: An Innovative Method to Determine the Suitable of Soils for Clay Pot Filters
Faculty Adviser: Jay N. Meegoda, Department of Civil and Environmental Engineering

Cristiano Fernandes, Douglas Freitas, Nicolas Pauli (1)
Research: Concrete Bridge Digital Method Analysis through Laser Scanning
Faculty Adviser: Mohamed Mahgoub, Department of Engineering Technology

Ryan Seiyu Yamaguchi Kimura (Electrical and Computer Engineering) (2)
Research: Simulation and Optical Characterization of High Performance Nanowire Light-emitting Diodes
Faculty Adviser: Hieu P. T. Nguyen, Department of Electrical and Computer Engineering

Karine Alves de Freitas Leite, Tulio Seike Nascimento (1)
Research: Lattice Light-Sheet Microscopy
Faculty Adviser: Roman Voronov, Department of Chemical, Biological and Pharmaceutical Engineering
Alef A. Lima, Igor Y. P. Nishimura, Caique Ogata C. da Rocha (2)
Research: Smart Structural and Sustainability Analysis for Rehabilitation of Steel Structures
Faculty Advisers: Mohamed Mahgoub, Department of Engineering Technology, and Laramie Potts, Department of Civil and Environmental Engineering

Felipe Augusto Schiquette (Computer Science)
Atisha Shyam Poojary (Information Systems)
Indranee Kulkarni (Computer Science)
Roseli de Jesus (Game Design)
Cássio Maciel Leal (Information Systems) (2)
Research: Designing a Social Support App for STEM Women
Faculty Adviser: D. Yvette Wohn, Department of Information Systems

Priscila A Eburneo Tanioka (2)
Research: Inexpensive Water Filter Remove Heavy Metals for Using Bio-Char
Faculty Adviser: Jay N. Meegoda, Department of Civil and Environmental Engineering

Guilherme Parana (2)
Research: Automated Microfluidics
Faculty Adviser: Roman Voronov, Department of Chemical, Biological and Pharmaceutical Engineering

LEAN STARTUP ACCELERATOR PROGRAM
Kabir Mitra (Chemical Engineering) (2)
Research: CNIM Scale Up
Faculty Adviser: Somenath Mitra, Department of Chemistry and Environmental Science

INTERNATIONAL COUNCIL FOR SMALL BUSINESS ACADEMY
John Fahim (Business) (2)
Research: BRIQ Meals
Faculty Adviser: Cesar Bandera, Martin Tuchman School of Management

Miriam Helmy (MBA, Marketing) (2)
Research: BRIQ Meals, and Characterization and Promotion of the Digital Entrepreneur
Faculty Adviser: Cesar Bandera, Martin Tuchman School of Management

BIOMEDICAL ENGINEERING
Anthony Chirayath (BME) (2)
Research: The Characterization of Angiogenic MultiDomain Peptides with the Introduction of Cardiomyocytes
Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

NSF UNDERGRADUATE RESEARCH PROGRAM – EXTREEMS-QED
Diego Rios (Physics) (2)
Research: Eulerian vs. Lagrangian Data Assimilation
Faculty Adviser: Richard Moore, Department of Mathematical Sciences

Tadanaga Takahashi (3)
Research: Eulerian vs. Lagrangian Data Assimilation
Faculty Advisor: Richard Moore, Department of Mathematical Sciences

Alina Mohit-Tabatabai (3)
Research: Eulerian vs. Lagrangian Data Assimilation
Faculty Adviser: Richard Moore, Department of Mathematical Sciences

Jimmie Adriazola (Math) (2)
Research: Diffusion Limited Aggregation and Saffman-Taylor Instability in Non-Newtonian Hele-Shaw Flow
Faculty Advisers: Linda Cummings and Lou Kondic, Department of Mathematical Sciences