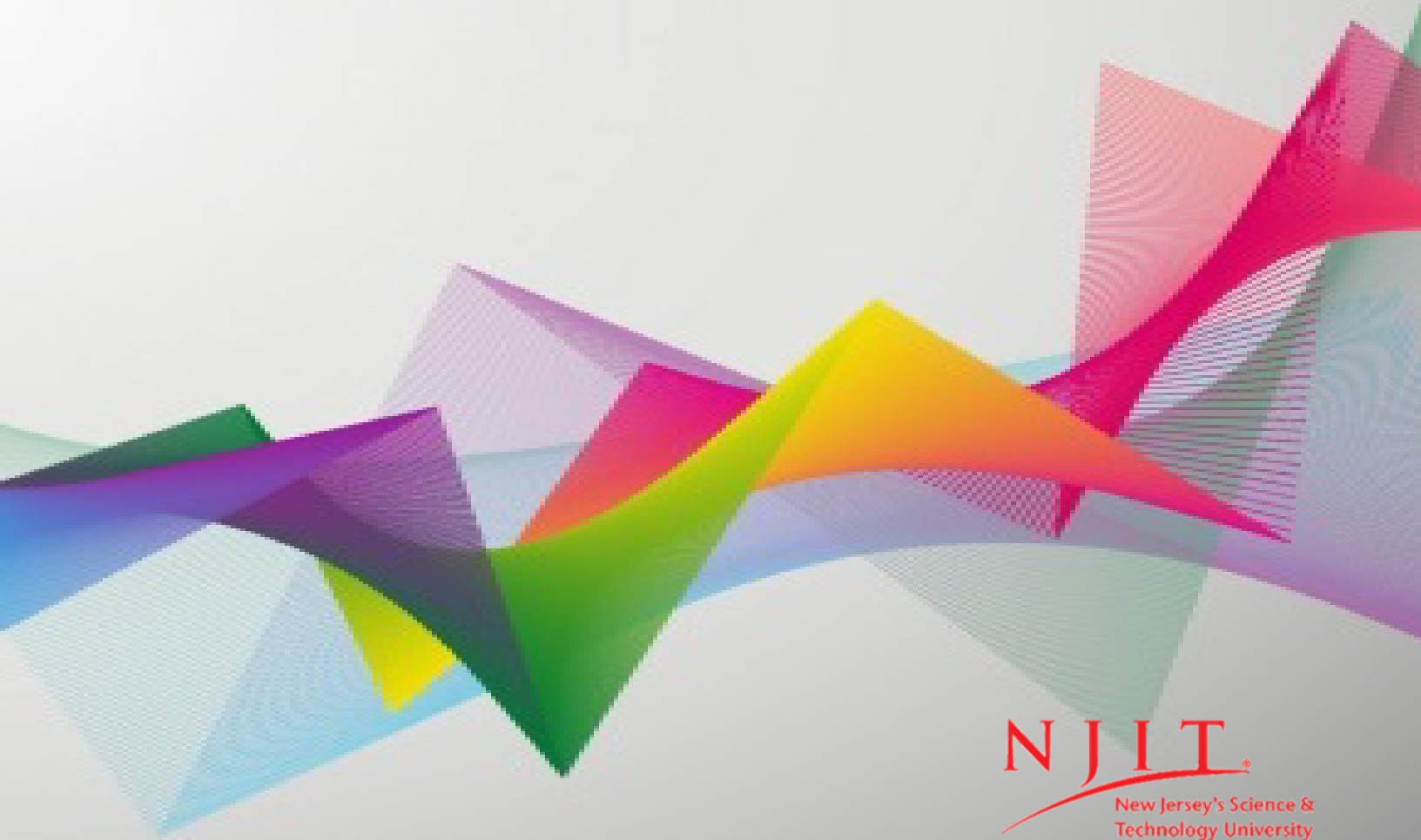


**New Jersey Institute of Technology
Tenth International
Summer Research Symposium
McNair-HIT-NSF REU Programs
July 27, 2017**



July 27, 2017

Welcome to New Jersey Institute of Technology's Tenth International Summer Research Symposium. It is indeed an honor and a privilege to be part of the 2017 International Undergraduate Summer Research Symposium and partner with Dr. Durgamadhab Misra, Dr. Abdallah Khreishah, as well as other individuals that contribute to the success of the event. In particular Ms. Zara Williams and Ms. Lucero Arevalo for their efforts in producing our program brochure and student awards.

The 2017 Research Symposium is ninth such event showcasing the research efforts of undergraduate students from the NJIT Ronald E. McNair Program, Heritage Institute of Technology, India as well as students from seven other programs. One hundred and twenty-five undergraduate students will present electronic posters describing their research accomplishments under the guidance of seventy NJIT faculty. This research symposium is among the largest such event ever held at NJIT. We are extremely proud of the research efforts of all these students, the quality of the research presentations and the support of the NJIT faculty and staff in contributing to the success of today's event.



Angelo J. Perna,
Professor of Chemical Engineering
& Environmental Engineering
McNair Program Director

July 27, 2017

NJIT's relationship with Heritage Institute of Technology (HIT), Kolkata, India for student exchange during summer for research has completed one decade this year. It is, therefore, a distinct pleasure to welcome the undergraduate engineering students from HIT to participating at the Tenth International Summer Research Symposium of New Jersey Institute of Technology along with students from several other summer research programs including NJIT's Ronald E. McNair Program and NSF-REU Site on Optics and Photonics: Technologies, Systems, and Devices. This gives the HIT students an opportunity to present their research accomplishments that they have completed under the supervision of NJIT faculty. Also, the students get an opportunity to interact with all other summer research students on campus.

The Summer Research Symposium became "International" Summer Research Symposium ten years ago when the HIT students participated in the annual summer research symposium for the first time. The tradition continued as HIT and NJIT have established an inter-institutional cooperation since 2008 where every summer several talented undergraduate students from HIT to attend NJIT and conduct research with NJIT faculty members for six-week summer research program. The purpose of this exchange is to promote international understanding, scholarly collaboration, cultural interaction and friendship by supporting educational professional and cultural activities among faculty and students of the two institutions.

The outstanding achievement of the students would not have been possible without the time and effort of NJIT faculty and graduate student mentors. Staff members of several administrative offices including Office of Global Initiative, Budget Office, Physical Plant, McNair Program and ECE Department contributed significantly to the success of the HIT-NJIT Summer Research Program. A special thanks goes to Ms. Zara Williams and Prof. Angelo Perna for their continuous support. In addition, this year the Director of NSF-REU Site Prof. Abdallah Khreishah's support is also commendable.

We are proud of the research efforts of all the students and wish them all the best for their presentation at the Tenth International Summer Research Symposium of 2017 and for the future.

Sincerely,



Durgamahab Misra, PhD

Ronald E. McNair Postbaccalaureate Achievement Program



Top Row (L to R):

Matias Maidana
Faustin Arevalo

Raymon Saadalla

Joshua Coronel

Bottom Row (L to R):

Jorge Pereyra
John Brito

Mirana Alam
Emily Almeida

John Alexiades
Mateusz Kalata

Mirana Alam (NJIT) – Electrical Engineering

Research: Designing Conformal Micro-Patch RF Antenna

Advisor: Haim Grebel

John Alexiades (NJIT) - Computer Engineering

Research: Spike Based Handwritten Digit Classification on an Embedded GPU

Advisor: Bipin Rajendran

Emily Almeida (NJIT) – Chemical Engineering

Research: 3D Bioprinting of Vascular Networks Using Hydrogels

Advisor: Murat Guvendiren

Faustin Arevalo (NJIT) - Chemical Engineering

Research: Spray drying of Griseofulvin Nanosuspensions and Solutions for Preparation of Nanocomposites and Amorphous Solid Dispersions: Comparative Assessment of Drug Release

Advisor: Ecevit Bilgili

John Brito (NJIT) - Chemical Engineering

Research: Manual Labeling of Cells

Advisor: Roman Voronov

Joshua Coronel (NJIT) – Biomedical Engineering

Research: Patterning Nanofibrous Electrospun Mats Using Electric Field Focusing Techniques

Advisor: Treena Arinzeh

Mateusz Kalata (NJIT) – Electrical Engineering

Research: Kinetic Human Control Interface for a Surrogate Robot

Advisor: Cong Wang

Matias Maidana (NJIT) - Biomedical Engineering

Research: Virtual Stimulation of a Robotic Exoskeleton for Gait Analysis and Optimization

Advisor: Saikat Pal

Jorge Pereyra (NJIT) - Chemical Engineering

Research: Hierarchical Patterning Through the Combination of Photomasks and Swelling in Hydrogels with Gradient Crosslinking Density

Advisor: Murat Guvendiren

Raymon Saadalla (NJIT) - Computer Engineering

Research: Kinetic Human Control Interface for a Surrogate Robot

Advisor: Cong Wong

Heritage Institute of Technology NJIT Summer Research Program



Top Row (L to R):

Aakash Saha
Raunak Das

Aihik Banerjee

Happy Kumar

Bottom Row (L to R):

Samalee Banerjee
Mahma Kaur Chawla

Tulika Das
Jasleen Sekhon

Shreya Ghosh
Anisha Gupta

Aihik Banerjee (HIT) - Biotechnology

Research: *Examination of Acute Neuronal Plasma Membrane Damage after Blast Induced Traumatic Brain Injury (bTBI) in Animals Using Fluorescent Tracer*

Advisor: Namas Chandra

Samalee Banerjee (HIT) - Biotechnology

Research: *An Investigation of Binding Affinity of Growth Factors on Glycosaminoglycans-mimetic Scaffolds for Cartilage Tissue Engineering*

Advisor: Treena Arinzeh

Mehma Kaur Chawla (HIT) - Biotechnology

Research: *Development of Cholesterol Lowering Peptide Drug*

Advisor: Vivek A. Kumar

Raunak Das (HIT) - Electronics and Communication Engineering

Research: *Integration of Asymmetric and Aggregated Li+WiFi Systems*

Advisor: Abdallah Khreishah

Tulika Das (HIT) - Applied Electronics and Instrumentation Engineering

Research: *Biosensor Based on Nanoporous Capacitive Flow through Electrodes*

Advisor: Sagnik Basuray

Shreya Ghosh (HIT) - Electronics and Communication Engineering

Research: *SDN Simulation Testbed Setup and Improvement*

Advisor: Abdallah Khreishah

Anisha Gupta (HIT) - Computer Science and Engineering

Research: *Spiking Neural Circuit for Tracking an Isotherm*

Advisor: Bipin Rajendran

Happy Kumar (BRCM) - Electrical and Electronics Engineering

Research: *Investigation of Instability and Ion Drift in Commercial Thin Film Cd-Te Photovoltaic Modules*

Advisor: Alan Delahoy

Aakash Saha (HIT) - Biotechnology

Research: *Piezoelectric Characterization of a Degradable Zinc Oxide Composite Scaffold for Tissue Engineering Applications*

Advisor: Treena Arinzeh

Jasleen Sekhon (HIT) - Computer Science and Engineering

Research: *Eliciting Worker Preference for Improved Task Completion in Crowdsourcing*

Advisor: Senjuti Basu Roy

NSF REU Site: Optics and Photonics: Technologies, Systems, and Devices



Dylan Renaud
Johanna Lopez Benitez
Tristan Ventura
Luke Saladis

Top Row (L to R):
Miles Wang
Anumeena Soma
Benjamin November

Jerry Shih-Ming Wang
Juan Salinas
Briana Hackos

Briana Hackos (NJIT) - Biophysics

Research: *Antibacterial Disinfection in the Presence of Light from 2D and 3D Nanostructures*

Advisor: Sagnik Basuray

Johanna Lopez (NJIT) – Electrical Engineering

Research: *Circular Retroreflector Based Visible Light Indoor-Positioning*

Advisor: Edwin Hou and Abdallah Khreishah

Benjamin November (University of Chicago) – Physics and Molecular Engineering

Research: *Effect of Co-Catalysts and Surface Area on Efficiency of Silicon Photoelectrodes for Water Splitting in Photoelectrochemical Cells*

Advisor: Yong Yang

Dylan Reanud (NJIT) – Applied Physics and Math

Research: *A New Imaging Technology: Development of Spectral Domain Doppler Phase Microscopy*

Advisor: Xuan Liu

Luke Saladis (St. Cloud State University) - Electrical Engineering

Research: *Convolutional Neural Networks for Digital Image Forensics*

Advisor: Yun-Qing Shi

Juan Salinas (Oklahoma State University) – Electrical Engineering

Research: *User-Friendly Dynamic Network Topology Display for Network Testing and Troubleshooting*

Advisor: Nirwin Ansari and Abdallah Khreishah

Anumeena Sorna (National Institute of Technology) – Electronics and Computer Engineering

Research: *Design and Characterization of 265nm Deep-Ultraviolet Nanowire Light-Emitting Diodes*

Advisor: Hieu P. T. Nguyen

Tristen Ventura (Rutgers University) – Computer Engineering

Research: *Multi-Platform Optics and Photonics Educational Application with User Data Analytics*

Advisor: John Carpinelli and Abdallah Khreishah

Miles Wong (Harvard University) – Electrical Engineering

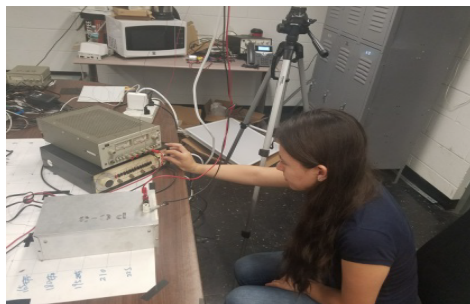
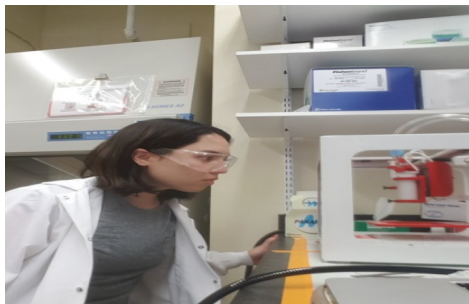
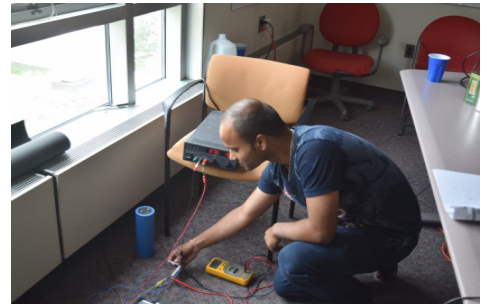
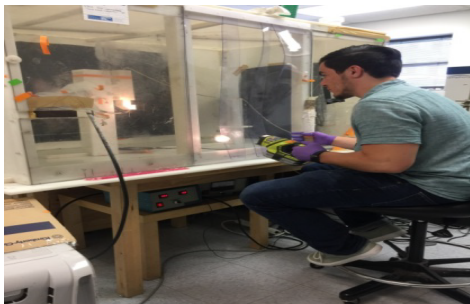
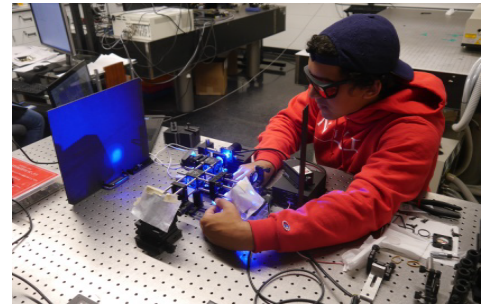
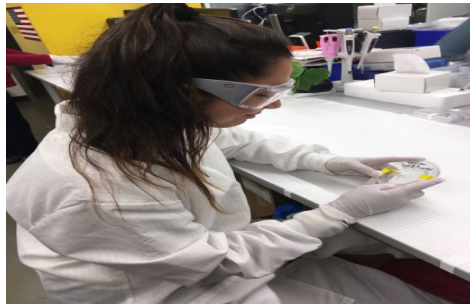
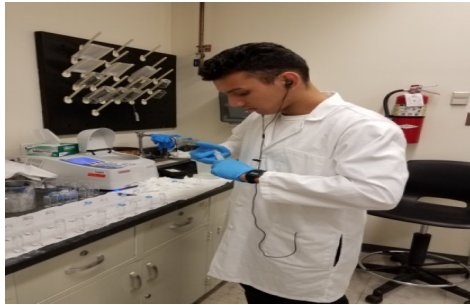
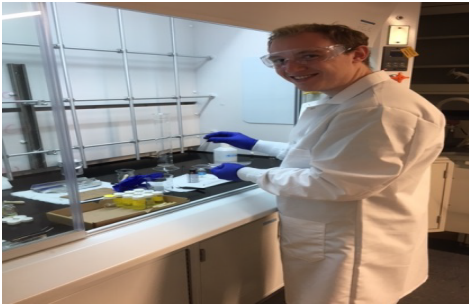
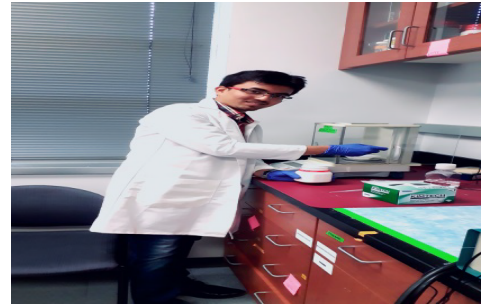
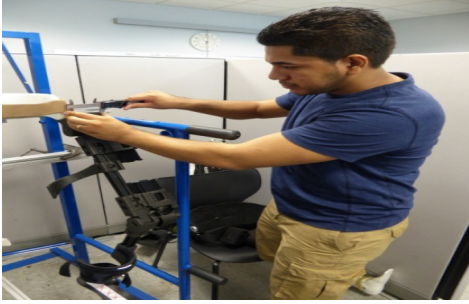
Research: *Towards Ultra-Cheap Electronics: Paper-based Colloidal Quantum Dot Photodetectors*

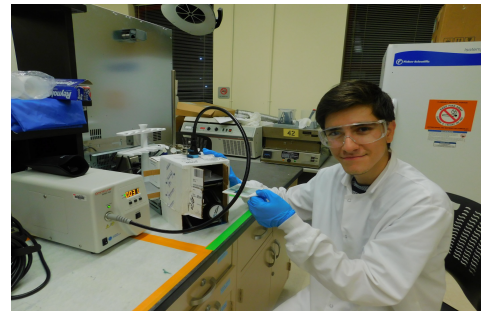
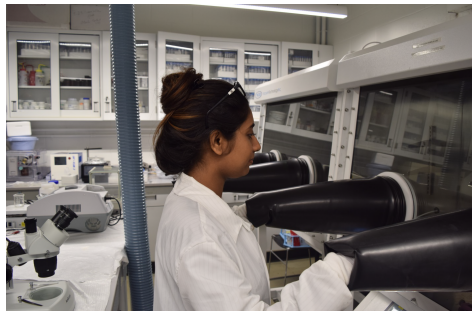
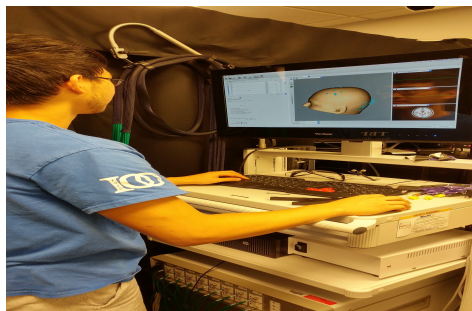
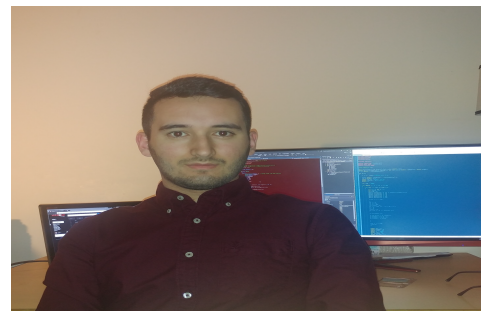
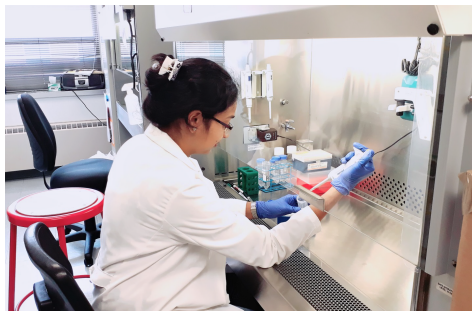
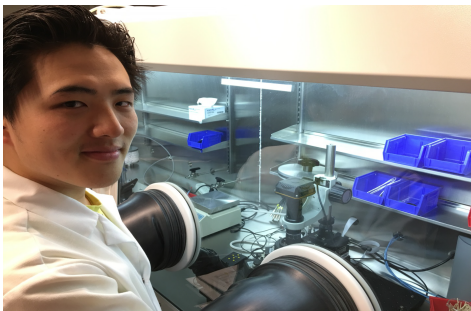
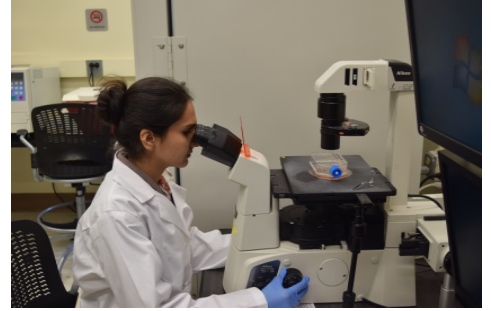
Advisor: Dong Ko

Jerry Shih-Ming Wang (University of Texas at Austin) – Electrical Engineering

Research: *Testing Functional Brain Alterations for Visual Attention Processing between Young Adults with Primary Attention Deficit Hyperactivity Disorder and Traumatic Brain Injury*

Advisor: Xiaobo Li







Booklet Created by:
Ronald E. McNair Postbaccalaureate Achievement Program
New Jersey Institute of Technology
University Heights, NJ 07102-1982
Tel (973) 596-5590 Fax (973) 596-5201
Website: mcnair.njit.edu

Designer/Editor: Lucero Arevalo