

**Sanje Ponnudurai (NJIT)** – School of Management (Business)  
**Research:** Orange Phone Repair

**Crystal Rogers (NJIT)** – Business  
**Research:** Standard Property Investments

**Ilesha Sevak (NJIT)\*\*** – Interdisciplinary Design Studio—Honors College  
**Research:** QuikGraft

**Paul Sullivan (NJIT)** – Interdisciplinary Design Studio—Honors College  
**Research:** Koala Band

**Daniel Tanis (NJIT)** – Interdisciplinary Design Studio—Honors College  
**Research:** Koala Band

**Evan Tyerman (NJIT)\*\*** – Interdisciplinary Design Studio—Honors College  
**Research:** QuikGraft

**Ivette Vargas (NJIT)** – School of Management  
**Research:** Antique Deals

### **Biophysics SRP**

**Bartholomew Philip (NJIT)** – Physics/Mathematics  
**Research:** Capacitive Measurements showing success of a sensor for aiding brain injury

**Deliris Diaz (NJIT)\*** – Physics  
**Research:** Toward a cancer treatment: optimizing the conformation of microtubules

**Sathvik Murli (NJIT)** – Physics  
**Research:** Development of software for a tonometer to prevent blindness

**Dhara Rana (NJIT)** – Physics  
**Research:** Analyzing the flexural rigidity of Microtubules in the presence of Taxol to fight cancer

**Dylan Renaud (NJIT)** – Physics  
**Research:** Fabrication of a high-power density, implantable fuel cell using functionalized nanotubes

**Jennifer Rochette (NJIT)** – Physics  
**Research:** Control of microtubule length variation and its possibility of controlling cancer

**Anthony SanFilippo (NJIT)** – Physics  
**Research:** Successful fabrication and testing of a new tonometer for preventing blindness

**David Villacais (SEED)** – Physics  
**Research:** Impedance spectroscopy measurement of the membrane potential as a drug toxicity indicator

**Joshua Wang (NJIT)** – Physics  
**Research:** Measurement of ion channels using carbon nanotubes as a health check for a cell

**\*Also participated in the Provost program**

**Theresa Wagner (NJIT)** - Physics  
**Research:** Fabrication of faster, moral durable Vibration-Powered Impact Record for warfighter safety

**Phelan Yu (NJIT)** – Physics  
**Research:** Demonstration of a nanotube-enzyme device

### **International Summer Student Exchange Program with PONTIFICIA UNIVERSIDAD JAVERIANA**

**Garcia Karen (NJIT)** – Biomedical Engineering  
**Research:** The Ulceration of the Diabetic Foot

**Stevi Guzman (NJIT)** – Chemical Engineering  
**Research:** Modeling and control of the oxygen transfer process in a bioreactor

**Juan Manuel Vasques (Pontificia Universidad Javeriana)** – Electronics Engineering  
**Research:** Functional brain mapping using high frequency fMRI signal

**Jessica Marfo (NJIT)** – Biomedical Engineering  
**Research:** Early diagnostic tools for Ulceration of the Diabetic Foot

**Juan Sebastian Adame (Pontificia Universidad Javeriana)** – Electronics Engineering  
**Research:** Three Degree of Freedom Admittance Controlled Haptic Device

### **NSF Undergraduate Research Program; EXTREEMS-QED**

**Jake Brusca (NJIT)** – Mathematical Science  
**Research:** Sequential Filtering for Signal Analysis

**Jacob Moorman (NJIT)** – Computational Science/Computer Science  
**Research:** Sequential Filtering for Signal Analysis

### **NSF Nanotechnology**

**Sonali Kamath (NJIT)** – Physics  
**Research:** Diabet-Ease: selectivity of nanotube-mounted glucose-oxidase for glucose to treat diabetes

**Kenneth Ly (NJIT)** – Physics  
**Research:** Deposition of aptamers on carbon nanotubes to detect target molecules for a blood sensor

**Hathija Noor (NJIT)** – Chemical Engineering  
**Research:** Effects of solvent-less coating with nanoparticles on drug release rate from tablets

**Akshat Patel (NJIT)** – Electrical Engineering  
**Research:** Switching graphene based Field Effect Transistor using negative differential resistance

**Danielle Quijano (NJIT)** – Chemical Engineering  
**Research:** Oxidation and combustion of mechanically alloyed nanocomposite Al-Mg powders in water

**\*\*Also participated in the TechQuest Innovation Program as Winner**

### **NJ Space Grant Consortium Summer Research Program**

**Colin McHugh (Ramapo)** – Physics  
**Research:** Control System for 2-m Solar Radio Antenna

**Michael Papili (Ramapo)** – Physics  
**Research:** Structures related to peptide aggregation for Alzheimer's and Parkinson's diseases

**Christo Videlov (Ramapo)** – Physics  
**Research:** Detection of an electrical signal from a single cell using carbon nanotubes

### **NSF Faculty Research Experience Undergraduate Supplement**

**Timothy Boyle (NJIT)** - Computer Science  
**Research:** "Efficient Algorithms for Analyzing Cascading Failures in a Markovian Dependability Model"

**Venkata Kajur (NJIT)** – School of Management  
**Research:** Applications of Nested Virtualization

**Frank Vorrius (NJIT)** – Physics  
**Research:** Effects of Atmospheric Propagation on wireless Terahertz Communication Links

### **Research Advisors**

**Dr. Ali Abdi**

**Dr. Shahriar Afkhami**

**Dr. Cesar Bandera**

**Dr. Robert Barat**

**Dr. Michael Bieber**

**Dr. Ecevit Bilgili**

**Dr. Bharat Biswal**

**Dr. Joseph Bozzelli**

**Dr. George Collins**

**Dr. Sanchoy Das**

**Dr. Raj Dave**

**Dr. Atam Dhawan**

**Dr. Cristiano L. Dias**

**Dr. Martha Zequera Diaz**

**Prof. Casey Diekman**

**Dr. Kyle Dobiszewski**

**Dr. Edward Dreizin**

**Dr. Michael Ehrlich**

**Dr. Gabrielle Esperdy**

**Dr. Edgardo Farinas**

**Dr. Reginald Farrow**

**Dr. John Federici**

**Dr. Eric Fortune**

**Dr. Richard Foulds**

**Prof. Richard Garber**

**Dr. Dale Gary**

**Dr. Haim Grebel**

**Prof. Gal Haspel**

**Prof. David Horntrop**

**Dr. Dentcho Ivanov**

**Dr. Michael Jaffe**

**Prof. Alokik Kanwal**

**Dr. Abdallah Khreishah**

**Dr. Eon Lee**

**Dr. Treena Livingston**

**Prof. Balraj Mani**

**Dr. Eliza Michalopoulou**

**Dr. Durgamadhab Misra**

**Dr. Marvin Nakayama**

**Dr. Camelia Prodan**

**Dr. Ravindra M. Nuggehalli**

**Dr. Usman Roshan**

**Dr. Fredy Ruiz**

**Dr. Ruby J. Sampson**

**Dr. Yun Shi**

**Dr. Andrew Sohn**

**Dr. Gordon Thomas**

**Dr. Xianqin Wang**

**Dr. Wen Zhang**



# **NJIT Seventh International Undergraduate Summer Research Symposium July 31, 2014**

**Symposium Chair - Dr. Angelo J. Perna  
Symposium Co-Chair - Ms. Zara Williams**

**Executive Director, Undergraduate Research  
and Innovation (URI) - Dr. Atam P. Dhawan**

**NJIT**  
New Jersey's Science &  
Technology University

## Ronald E. McNair Postbaccalaureate

### Achievement Program

**Erole Alexandre (NJIT)** – Computer Engineering

**Research:** High-K Dielectric Material (HfALO) - Si Interface Quality Studied by Mos-Capacitance Conductance Techniques

**Noor Aly (NJIT)** – Chemical Engineering

**Research:** Heterogeneous Impact Initiation of Tungsten-based Reactive Materials

**Jose Chacon (NJIT)** – Chemical Engineering

**Research:** Effects of Turbulence on Burn Rate of Reactive Material Particles

**Michael Cruz De La (NJIT)** – Business & Information Systems

**Research:** Collaborative Learning through Assessment: Literature Review on Motivation and Assignment Editor

**Pierre Mbe Fokam (NJIT)** – Computer Engineering/Computer Science

**Research:** Indoor System Involving Wi-Fi and Visible Light Communication

**Nazmul Hossain (NJIT)** – Chemical Engineering

**Research:** Spark Ignition of Nanocomposite Thermite Powders

**Jaelynne King (NJIT)** – Chemical Engineering

**Research:** Conversion of Carbon Dioxide to Useful Liquid Chemicals Using A Novel Organic Based Catalytic System

**Alex Nyamweya (NJIT)** – Electrical Engineering/Applied Mathematics

**Research:** Developing Interpersonal Skills and Facilitating Integration of a New Learning Method

**Joshua Ortega (NJIT)** – Information Technology

**Research:** Collaborative Learning Through Assessment (CLASS) Facilitating of a Flexible Framework and Literature Review

**Anthony Quarato (NJIT)** – Chemical Engineering

**Research:** Impact of Polymer Molecular Weight on the Physical Stability of Milled Drug Suspensions

### HIT-NJIT Summer Research Program

**Saba Bano (HIT)** – Biomedical Engineering

**Research:** Fabrication of gelatin/glycosaminoglycans (GAG) scaffolds using electrospining technique in tissue engineering for spinal cord repair

**Indrasis Banerjee (HIT)** – Electrical and Computer Engineering

**Research:** A Hybrid System: Coexistence of Visible Light Communication (VLC) and Wi-Fi

**Polley Bhunia (HIT)** – Electrical and Computer Engineering

**Research:** Statistical Modeling of the Received Power in Wireless Networks

**Poulami Chakraborty (HIT)** – Electrical and Computer engineering

**Research:** Image Statistical Analysis & its application to Information Forensics

**Sunandan Dhar (HIT)** – Chemistry and Environmental Science

**Research:** Engineering CotA Laccase for Acidic pH Stability using *Bacillus subtilis* Spore Display

**Sourav Dutta (HIT)** – Electrical and Computer Engineering

**Research:** Characterization of Deep Level Defects in a Thin Film Solar Cell

**Saptadwipa Ganguly (HIT)** – Biomedical Engineering

**Research:** Functional MRI: A Tool for Evaluating Psychiatric Disorders

**Sunil Kumar (BRCM CET)** – Physics

**Research:** Analyzing and Finding Solar Radio Burst Events Using IDL

**Gaurab Kar (HIT)** – Mechanical and Industrial Engineering

**Research:** Analysis of Repeatability of an Industrial Robotic Arm

**Mitul Khanchandani (HIT)** – Mechanical and Industrial Engineering

**Research:** Analysis of Repeatability of an Industrial Robotic Arm

**Surajit Laik (HIT)** – Electrical and Computer Engineering

**Research:** Statistical Modeling of the Received Power in Wireless Networks

**Vikas Mittal (BRCM CET)** – Biomedical Engineering

**Research:** Design and Fabrication of Variable pressure sensing microfluidic valve

**Swapnadeep Poddar (HIT)** – Electrical and Computer Engineering

**Research:** Understanding Defects in TiN/HfZrO/SiON/Si Gate Stacks

**Aruja Rustagi (HIT)** – Biomedical Engineering

**Research:** Fabrication and evaluation of PVDF-TrFE/PEO scaffolds for drug delivery

**Samrat Saha (HIT)** - Electrical and Computer Engineering

**Research:** A Hybrid System: Coexistence of Visible Light Communication (VLC) and Wi-Fi

### Provost’s Undergraduate Summer Research

**Roa Al – Abdalla (NJIT)\*** – Biology

**Research:** The Trans – Palberal Self-Tonometer

**Victor Aladele (NJIT)** – Electrical Engineering

**Research:** ComfyMat for Diabetic Foot Ulcers

**Andres Alban (NJIT)** – Applied Physics, Math

**Research:** Infrared Imaging of Objects in Contact with Water

**Nesseline Belceus (NJIT)** – Civil & Environmental Engineering

**Research:** Magnetic Nanoparticles for Algal Harvesting

**Karthik Chandrasekaran (NJIT)\*** – Chemistry

**Research:** Development of Anti-Oxidation Catalysts

**Dayal Pitambar (NJIT)\*** – Biomedical Engineering

**Research:** Relationship Between Brain Connectivity and Cerebral Blood Flow in Stroke Patients

**Matthew Downey (NJIT)** – Computer Science

**Research:** “Efficient Algorithms for Analyzing Cascading Failures in a Markovian Dependability Model”

**Andrew Esteves (NJIT)** – Biochemistry

**Research:** Engineering Bacillus subtilis spores to evolve G protein-coupled Receptors for Directed Evolution

**Stephen Harris (NJIT)** – Mechanical Engineering

**Research:** Manufacturing and Characterizing an Air-Breathing Fuel Cell

**Rajan Jain (NJIT)** – Bioinformtics

**Research:** Complete Genome Pipeline for Mapping and Viewing Short Reads

**Justin Joseph (NJIT)\*** – Electrical Engineering

**Research:** SenVis Smartcane for the Blind and Visually Impaired

**Monica Khattak (NJIT)** – Biology

**Research:** Distribution of GABA and Glutamate in Weakly Electric Fish

**Victoria Leybova (NJIT)** – Chemical Engineering

**Research:** Boron-based reactive materials with biocidal combustion products

**Melvin Mathew (NJIT)** – Biology

**Research:** SenVis Smartcane for the Blind and Visually Impaired

**Kevin Mcilmail (NJIT)\*** – Architecture

**Research:** “Malcolm Wells: [New Jersey’s] Father of Modern Earth— Sheltered Architecture.”

**Shivank Mishra (NJIT)** – Chemical Engineering

**Research:** Elementary, Fundamentals Based reaction Mechanism to Model Oxidation of C1 to C4 Sulfide Hydrocarbons under Combustion and Atmospheric Environments

**Anmol Mittal (NJIT)** – Biology

**Research:** Do motoneurons supply cross-inhibition in C. elegans locomotion circuit?

**Josef Mohrenweiser (NJIT)** – Mathematics

**Research:** Tracking Superparamagnetic Nanoparticles in Blood Flow

**Sana Nasim (NJIT)** – Biomedical Engineering

**Research:** An approach to mimic the fibrous protein in the extracellular matrix of articular cartilage via electrospinning

**Oluwakorede Otetubi (NJIT)** – Mechanical Engineering

**Research:** Modeling and Animation of Mechanisms used in Mechanical Design

**John Palmieri (NJIT)\*\*\*** – Biomedical Engineering

**Research:** “Applications to Cancer treatment: The Determination of Young’s Modulus for Microtubules Stabilized with Paclitaxel and Analysis of Vibrational Modes.”

**Sabrina Raia (NJIT)** – Architecture

**Research:** Developing a New Eco-village Implementation Plan

**Andrea Roeser (NJIT)** – Biology/Math

**Research:** Decoding brain mechanisms for sexual signaling

**Dhara Shah (NJIT)** – Chemical Engineering

**Research:** Precipitation Reaction Experiment for the Chemical Engineering Student Laboratory

**Jordan Sorg (NJIT)** – Biomedical Engineering

**Research:** Integrating the Kinect, iARM, and Optitrack Motion Capture System into a Low-Cost TMS Stimulator Positioning System

**Angelo Taranto (NJIT)** – Physics

**Research:** Design, Fabrication, and Testing of a Multispectral Camera

**Maya Woods (NJIT)** – Biomedical Engineering

**Research:** Induced Pluripotent Stem Cell

**Joseph Zaleski (NJIT)** – Applied Math

**Research:** Mathematical Modeling of Daily Rhythms and Cardiac Arrhythmias

### Lean Startup Accelerator Program

**Mahmoud Alnsour (NJIT)** – Biology

**Research:** Grunt Team

**Fabio Arias (NJIT)** – Interdisciplinary Design Studio—Honors College

**Research:** SenVis

**Matthew Armanious (NJIT)\*\*** – Interdisciplinary Design Studio—

Honors College

**Research:** QuickGraft

**Sheryl Carlson (NJIT)** – Interdisciplinary Design Studio—Honors Col-

lege

**Research:** Koala Band

**Jonathan Colella (NJIT)** – School of Management

**Research:** Better Cloud Hosting & Concierge

**Dena Elmesalamy (Rutgers)** – Mechanical Engineering

**Research:** Elmaronic

**Omar Elmesalamy (NJIT)** – Biomedical Engineering

**Research:** Elmaronic

**Sayali Kulkarni (NJIT)\*\*** – Interdisciplinary Design Studio—Honors

College

**Research:** QuikGraft

**Tamer Marshood (NJIT)** – Mechanical Engineering

**Research:** Feeding by Reading

**Stephen Morrison (NJIT)** – Interdisciplinary Design Studio—Honors

College

**Research:** Koala Band

**Laura Osorno (NJIT)** – Biomedical Engineering

**Research:** S&D: Science and Dermatology

**Ashas Pathan (NJIT)\*\*** – Interdisciplinary Design Studio—Honors Col-

lege

**Research:** QuikGraft

**\*Also participated in the Learn Startup Accelerator Program**

**\*\*Also participated in the TechQuest Innovation Program as Winner**

**\*\*\*Also participated in the Biophysics SRP program**