2013

NJIT Sixth International Summer Research Symposium

August 1st

NJIT
New Jersey's Science & Technology University

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New Jersey Institute of Technology
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Ronald E. McNair
Postbaccalaureate Achievement Program

August 1, 2013

Welcome to New Jersey Institute of Technology's Sixth International Summer Research Symposium. It is indeed an honor and a pleasure to be the Chair of the 2013 International Summer Research Symposium and join with Program Directors Dr. Durgamadhab Misra (ECE), Dr. Sunil Saigal (CE), Drs. Bryan Pfister and Raquel Perez-Castillejos (BME), Mr. Balraj Mani (ME), Dr. Michael Ehrlich (SOM), Dr. John Federici (Physics), Dr. J. Meegoda (CE), and Ms. Zara Williams (McNair) in hosting the program.

The 2013 Research Symposium is the sixth such event showcasing the research efforts of undergraduate students from the NJIT Ronald E. McNair Program, Provost Summer Research Program, NSF REU Site on Neural Engineering Program, NJIT Summer Lean Innovation Accelerator Program, Heritage Institute of Technology, Kolkata, West Bengal, India, SKP Engineering College, Tiruvannanmalai, Tamil Nadu, India, Panipat Institute of Engineering Technology, Panipat, Haryana, India, and graduate students from Beijing University of Technology.

Ninety nine participants from the ten (10) programs will present posters describing their research accomplishments under the guidance of NJIT Faculty. This research symposium is 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 strong support of the NJIT faculty and staff in contributing to the success of today's event.

Angelo J. Perna, PhD
Symposium Chair and
McNair Program Director

NJIT
New Jersey's Science & Technology University

New Jersey Institute of Technology
University Heights
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973.596.3102
973.624.2541 fax

Joel Bloom
President

August 1, 2013

In an increasingly complex, global and technological society, it is critical that more students are encouraged to seek post-baccalaureate education in science, engineering and technology fields. NJIT has multiple initiatives of very high quality to achieve this outcome. The Sixth Annual International Summer Research Symposium combines ten excellent summer programs that provide opportunities for post-baccalaureate education and undergraduate research and provides evidence of these hard-wrought outcomes.

Under the very able leadership of the NJIT McNair staff, particularly that of its Director Dr. Angelo J. Perna and the program directors, this program continues to expand and offer opportunities to students to hone their academic and research skills.

With these outstanding achievements as our foundation, I look forward to the Sixth International Summer Research Symposium, the students' presentations and recognition of the faculty mentors. We thank the students for their diligence and hard work and the faculty mentors for the extra effort of our students. NJIT is clearly a leader in the state, nationally and globally in providing highly educated graduate students who are research competent.

Sincerely,

Joel S. Bloom
President

Ronald E. McNair Postbaccalaureate Achievement Program

Dr. Angelo J. Perna and Ms. Zara Williams
Program Directors

Paulina Alvarez (NJIT) – Chemical Engineering
Research: Production of Poorly Water Soluble Drug Nanoparticles via Wet Stirred Media Milling (WSMM) and the Characterization.
Advisor: Dr. Ecevit Bilgili

James Bell (NJIT) – Computer Science
Research: Strengthening Relationship Analysis : A Theory-Based Taxonomy for Software Engineering
Advisor: Dr. Michael Bieber

Alex Dominquez (NJIT) – Chemical Engineering
Research: Design of Chemical Penetration Enhancers for Insulin
Advisor: Dr. Laurent Simon

Yohana Garcia (NJIT) – Chemical Engineering
Research: Hydrogen Production from Solar Water Splitting Using Organic-based Catalysts
Advisor: Dr. Xianqin Wang

Ayad Hussain (NJIT) – Electrical Computer Engineering Technology
Research: Transform Method for the analysis of Electrical and Microelectronic Circuits
Advisor: Dr. Michael Booty

Sana Nasim (NJIT) – Biomedical Engineering
Research: Electrospinning the mimic of fibrous protein of the extracellular matrix of articular cartilage using a sulfated polysaccharide and gelatin
Advisor: Dr. George Collins and Dr. Bruno Mantilla

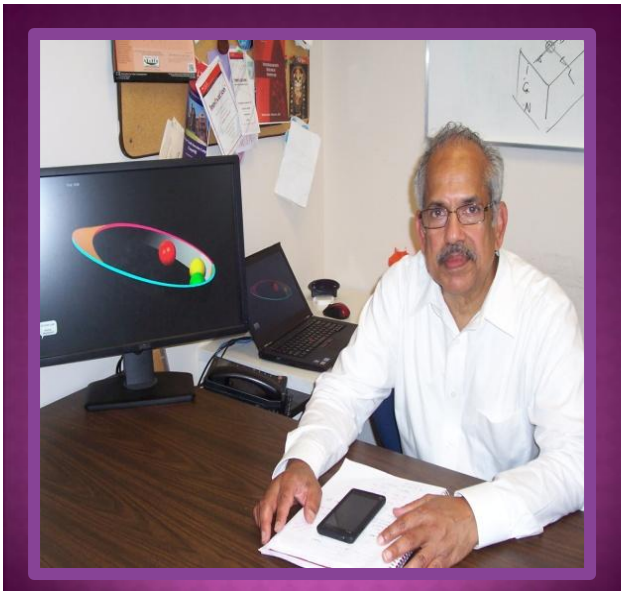
Warren Negron (NJIT) – Civil Engineering Department
Research: Correlation Study of Cell Phone and Safety Belt Usage
Advisor: Dr. Janice Daniel

Mohsin Shabbir (NJIT) – Electrical Computer Engineering Technology
Research: Developing a Low-Cost Precise GPS Receiver
Advisor: Dr. John Miima

Steve Susanibar (NJIT) – Applied Physics
Research: Vibration Powered Impact Recorder (VPIR) for Measurement of Ammunition Integrity
Advisor: Dr. Gordon Thomas

Carmen Webb (NJIT) – Chemical Engineering
Research: Development of a New Batch Reactor Experiment for Chemical Engineering Undergraduates
Advisor: Dr. Robert Barat

Summer Undergraduate Research Program



Dr. Sunil Saigal and Prof. Balraj Mani
Program Directors

Arianit Agushi (NJIT) – Mechanical Industrial Engineering
Research: A Repository of Animations of Mechanism Simulations
Advisor: Prof. Balraj Mani (Design Well)

Timothy Barnes (NJIT) – Mathematical Science
Research: Mathematical Modeling of Magnetic Particles in Blood Flow Applied to Magnetic Drug Targeting
Advisor: Dr. Shahriar Afkhami

Margaret Christian (NJIT) – Biomedical Engineering
Research: Optimizing Alginate Microfiber Scaffolds for Controlling Stem Cell Proliferation and Differentiation
Advisor: Dr. Cheul H.Cho

Dillon Collins (NJIT) – Civil and Environmental Engineering
Research: Prediction of Sediment Erosion using Optical Granulometric Methods
Advisor: Dr. John Schuring and Dr. Norbert Elliot

Amanda Cronce (NJIT) – College of Architecture and Design
Research: Haptic Feedback Technologies for User Interfaces
Advisor: Prof. Augustus Wendell

Nadhiesky Dos Santos (NJIT) – Engineering Technology
Research: Utilizing Infrared and Near-Infrared Interpolation Techniques to Analyze Passive Radiation as a Foundation of a Hand Held Medical Scanner
Advisor: Dr. David Lubliner

Sean Fisher (NJIT) – College of Computing Sciences
Research: Collaborative Learning through Assessment: User Studies and Pilot Planning
Advisor: Dr. Michael Bieber

Sunil Jethwa (NJIT) – College of Computing Sciences
Research: Hyper-Local Social-Activity Group Recommendations
Advisor: Dr. Quentin Jones

Theodore Karakosmas (NJIT) – Mathematical Science
Research: Exploring the Effects of Regenerative Inward Currents on Bursting Properties
Advisor: Dr. Amitabha K. Bose

Krzysztof Kozak (NJIT) – Civil and Environmental Engineering
Research: Growing Algal Biomass for Wastewater Nutrient Recovery and Biofuel Production
Advisor: Dr. Wen Zhang

Lucas Lamb (NJIT) - Physics
Research: The Effect of Atmospheric Conditions on Terahertz Wireless Communications
Advisor: Dr. John Federici

Summer Undergraduate Research Program

Summer Undergraduate Research Program

Hannelore MacDonald (NJIT) - Biology
Research: Blob Breaks Bank: An Amoeboid Organism's Strategy for Solving the Two-Armed Bandit Problem
Advisor: Dr. Simon Garnier

Kyle Magera (NJIT) - School of Management
Research: Cloud Business Intelligence
Advisor: Dr. Jerry Fjermestad

Matthew Marsh (NJIT) – Biomedical Engineering
Research: The Effect of Electrospun Piezoelectric Scaffolds on Endothelial Cell Growth
Advisor: Dr. Eun Jung Lee

Stephanie Maruca (NJIT) - Physics
Research: Artificial Pancreas
Advisor: Dr. Gordon Thomas

Kabir Mitra (NJIT) - Mechanical Industrial Engineering
Research: A Repository of Animations of Mechanism Simulations
Advisor: Prof. Balraj Mani (Design Well)

Glenn Monroe (NJIT) – Mechanical Industrial Engineering
Research: A Repository of Animations of Mechanism Simulations
Advisor: Prof. Balraj Mani (Design Well)

Christopher Moyer (NJIT) – Mechanical Industrial Engineering
Research: A Repository of Animations of Mechanism Simulations
Advisor: Prof. Balraj Mani (Design Well)

Nicholas Nalywako (NJIT) - College of Computing Science
Research: Understanding Requirements for Coalescing Social Support Systems
Advisor: Dr. Quentin Jones

Kevin Nipal (NJIT) - College of Computing Science
Research: Collaborative Learning through Assessment: User Studies and Pilot Planning
Advisor: Dr. Michael Bieber

Nkemjika Ojini (NJIT) - College of Computing Science
Research: Differential Expression Analysis of Next-Generation Sequencing Data using Open-Source Software
Advisor: Dr. Zhi Wei

Jeffrey Pablo (NJIT) - Mechanical Industrial Engineering
Research: A Repository of Animations of Mechanism Simulations
Advisor: Prof. Balraj Mani (Design Well)

Krupal Patel (NJIT) - Mechanical Industrial Engineering
Research: A Repository of Animations of Mechanism Simulations
Advisor: Prof. Balraj Mani (Design Well)

Katrina Rak (NJIT), Gabriela Dory (PhD Candidate) and Christina Qiu (Livingston High School) - Chemistry
Research: The Dump of New Jersey: Emotional Experiences of Living in an Environmental Justice Community
Advisor: Dr. Zeyuan Qiu and Dr. Mei Fu (NYU)

Melanie Rodrigues (NJIT) - Chemistry
Research: Optimizing the Efficiency of Biofuel Cells
Advisor: Dr. Iqbal Zafar

Andrea Roeser (NJIT) - Biology
Research: The Role of Linear Currents in Neural Oscillations
Advisor: Dr. Farzan Nadim

Faidy Rusinque (NJIT) - Chemical Engineering
Research: Hydrogen Production from solar water splitting over TiO2-based catalysts
Advisor: Dr. Xianqin Wang

Brian Taylor (NJIT) – Mechanical Industrial Engineering
Research: A Repository of Animations of Mechanism Simulations
Advisor: Prof. Balraj Mani (Design Well)

David (Nic) Thibodeaux (NJIT) - Biomedical Engineering
Research: Quantitative Instrumentation to Study Neural Control and Variability of Vergence Facility
Advisor: Dr. Tara L. Alvarez

Katherine Uske (NJIT) - Biomedical Engineering
Research: Characterizing the Controlled Release of Bioactive Proteins From a Composite Biomimetic Material
Advisor: Dr. Treena L. Arinzeh

Esther Zipori (NJIT) – Chemistry
Research: Anticipating Post-Automobility : The Role of Sustainable Systems Innovation
Advisor: Dr. Maurie Cohen

NSF REU Site on Neural Engineering

Dr. Bryan Pfister and Dr. Raquel Perez-Castillejos
Program Directors

Eric Apgar (Harding University) – Electrical Engineering
Research: Visual and Haptic Feedback for Manual Control of Ambulation in Virtual Enviornments
Advisor: Dr. Richard Foulds

Scott Cole (Clemson University) - Bioengineering
Research: Effects of Stereoscopic Vision Training on the Vergence System Towards Therapeutic 3D Gaming
Advisor: Dr. Tara Alvarez

Isaac DuPree (University of Illinois Urbana Champaign) – Bioengineering
Research: Visual and Haptic Feedback for Manual Control of Ambulation in Virtual Environments
Advisor: Dr. Richard Foulds

Devon Mason (Virginia Commonwealth University) - Biomedical Engineering
Research: Encapsulation of Schwann cells for Neurite Differentiation in a Microfluidic Model
Advisor: Dr. Cheul Cho

Joalene Mason (Hampton University) - Electrical Engineering
Research: Effects of Stereoscopic Vision Training on the Vergence System Towards Therapeutic 3D Gaming
Advisor: Dr. Tara Alvarez

Dana Mathews (TCNJ) - Biomedical Engineering
Research: Guided Axonal Growth for Nerve Repair using Novel Fibrous Collagen Conduit with GAG Mimetic
Advisor: Dr. Treena Arinzeh and Dr. Bryan Pfister

Daniel Meshoyrer (NJIT) - Biomedical Engineering
Research: Guided Axonal Growth for Nerve Repair using Novel Fibrous Collagen Conduit with GAG Mimetic
Advisor: Dr. Treena Arinzeh and Dr. Bryan Pfister

Luis Morales (Middlesex County College) - Biology and Engineering Science
Research: Visual and Haptic Feedback for Manual Control of Ambulation in Virtual Environments
Advisor: Dr. Richard Foulds

Bhavika Patel (Lawrence Technological University) - Biomedical Engineering
Research: Encapsulation of Schwann cells for Neurite Differentiation in a Microfluidic Model
Advisor: Dr. Cheul Cho

Caitlyn Ryan (Mercer University) - Biomedical Engineering
Research: Encapsulation of Schwann cells for Neurite Differentiation in a Microfluidic Model
Advisor: Dr. Cheul Cho

NSF REU Site on Neural Engineering

NJIT Summer Lean Innovation Accelerator Program

Dr. Michael Ehrlich
Program Director

Margaret Christian (NJIT) – Biomedical Engineering
Research: MSP – Multiple Stitch Producing Device
Advisor: Dr. William Hunter and Dr. Ronald Chamberlain

Isaac Daudelin (NJIT) – Biology
Research: TouchCare Technologies
Advisor: Dr. Atam Dhawan, Dr. Cesar Bandera, Dr. Jorge Golowasch and Dr. Nadmin

Amira Esseghir (NJIT) – Biology / Dental
Research: AutisMInd – Therapeutic Device for Autistic Children
Advisor: Dr. Cesar Bandera and Dr. Atam Dhawan

Ruth Fombrun
Research: Sahshe
Advisor: Dr. Michael Ehrlich

William Heberling (NJIT) – Electrical Engineering
Research: TouchCare Techonogies
Advisor: Dr. Atam Dhawan, Dr. Cesar Bandera, Dr. Jorge Golowasch and Dr. Nadmin

Jeremy Jen (NJIT) – Biology
Research: TouchCare Technologies
Advisor: Dr. Atam Dhawan, Dr. Cesar Bandera, Dr. Jorge Golowasch and Dr. Nadmin

Livia Kuruvila (NJIT) – Biomedical Engineering
Research: AutisMind – Therapeutic Device For Autistic Children
Advisor: Dr. Cesar Bandera and Dr. Atam Dhawan

Dean Munley
Research: BandBox
Advisor: Dr. Michael Ehrlich

Cheryl Allen- Munley
Research: BandBox
Advisor: Dr. Michael Ehrlich

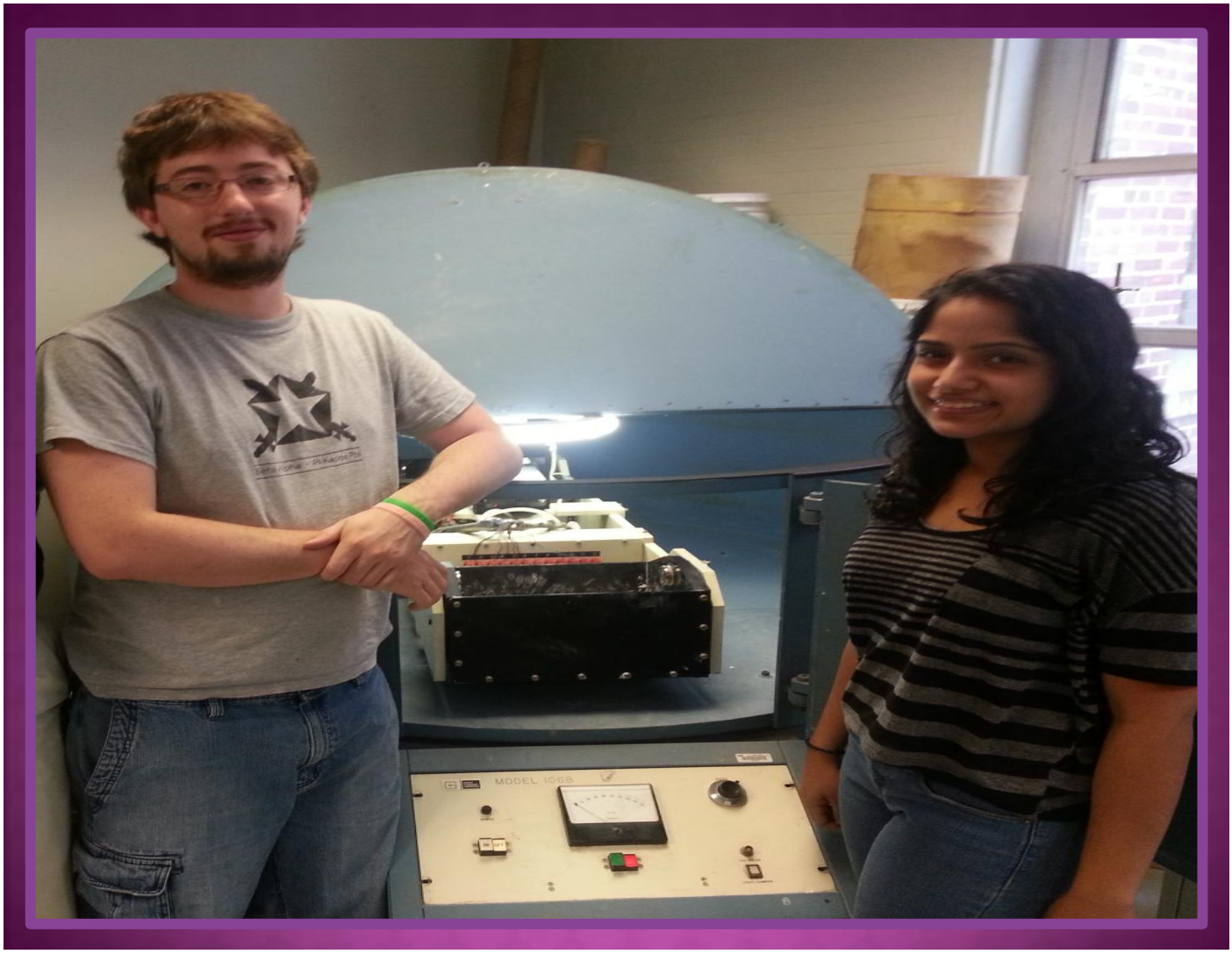
Ellika Salari (NJIT) – Biology
Research: Swim Safe Systems
Advisor: Dr. Atam Dhawan and Dr. Cesar Bandera

Brian Taylor (NJIT) – Mechanical Engineering
Research: TouchCare Technologies
Advisor: Dr. Atam Dhawan, Dr. Cesar Bandera, Dr. Jorge Golowasch and Dr. Nadmin

Caron White
Research: Sahshe
Advisor: Dr. Michael Ehrlich

NJIT Summer Lean Innovation Accelerator Program

Civil Engineering Summer Research Program 2013



Dr. Jay Meegoda
Program Director

Chase Johnson (NJIT) - Civil Engineering / Environmental Engineering
Research: Physical modeling of Increase in Bearing Capacity due to Geo-fabrics
Advisor: Dr. Jay Meegoda

Christal Kuriakose (NJIT) - Civil Engineering
Research: Numerical modeling of Increase in Bearing Capacity due to Geo-fabrics
Advisor: Dr. Jay Meegoda

New Jersey Space Grant Consortium Researchers

Dr. John Federici
Program Director

Andrew deStefan (Ramapo College) - Engineering Physics
Research: Exploring the Properties of Nanoscale Ferroelectric Oxides
Advisor: Dr. Trevor Tyson

Constantino Stavrou (Ramapo College) - Engineering Physics
Research: Characterization of Chromic Sensors/Hyperspectral Imaging Camera
Advisor: Dr. John Federici

Jilliam Hauck (Ramapo College) – Engineering Physics
Research: Resonance Measurements of Smart Shunt To Help Treat Brain Injuries
Advisor: Dr. Gordon Thomas

Beijing University of Technology

Dr. Sanchoy Das
Program Director

Zhixin Huang (Beijing University of Technology) – Engineering Management
Research: Application Case Study of MS-Project Solution For A Construction Project in China
Advisor: Dr. Xuanqi Zhang and Dr. Sanchoy Das

Yubi Lin (Beijing University of Technology) – Engineering Management
Research: Application Case Study of MS-Project Solution For A Construction Project in China
Advisor: Dr. Xuanqi Zhang and Dr. Sanchoy Das

Wenke Sun (Beijing University of Technology) – Engineering Management
Research: Design of a Reorder Policy For A N-Store Single Warehouse Supply Chain
Advisor: Dr. Xuanqi Zhang and Dr. Sanchoy Das

Tenglong Zhang (Beijing University of Technology) – Engineering Management
Research: Design of a Reorder Policy For A N-Store Single Warehouse Supply Chain
Advisor: Dr. Xuanqi Zhang and Dr. Sanchoy Das

Heritage Institute of Technology, SKP Engineering College, Panipat Institute of Engineering Technology, India

Dr. Durgamadhab Misra
Program Director

Utsav Agarwal (HIT) – Chemical Engineering
Research: Desalination of water through membrane Technology
Advisor: Dr. Kamalesh Sirkar

Indu Priyadharshini Ambikapathy (SKPEC) – Electrical Computer Engineering
Research: High-K Gate Stack Characterization
Advisor: Dr. Durgamadhab Misra

Anik Bhattacharya (HIT) – Computer Science
Research: An efficient algorithm to improve content-based image search in the world wide web
Advisor: Prof. Chengjun Liu

Shuvodip Bhattacharya (HIT) – Electrical Computer Engineering
Research: High-K Gate Stack Characterization
Advisor: Dr. Durgamadhab Misra

Abhishek Chakraborty (HIT) – Civil Engineering
Research: Effects of Road Maintenance Projects on Highway Network
Advisor: Dr. Steven Chien

Joy Ghosh (HIT) – Civil Engineering
Research: Improving the bearing capacity of foundation by geo-synthetics
Advisor: Dr. Jay Meegoda

Rajdeep Ghosh (HIT) – Civil Engineering
Research: Analysis of Relationship between weather and traffic accidents
Advisor: Dr. Steven Chien

Vaibhav Gulati (PIET) – Computer Science
Research: Speech to Text Conversion: Application to Learning Videos Desprition
Advisor: Dr. Vincent Oria

Nivesh Gupta (PIET) – Computer Science
Research: Mobile Distributed Computing In The Cloud
Advisor: Dr. Cristian Borcea

Sonal Handa(PIET) – Computer Science
Research: Cloud Computing
Advisor: Dr. Reza Curtmola

Shruti Mangla (PIET) – Computer Science
Research: Cloud Computing
Advisor: Dr. Reza Curtmola

Satyam Mishra (HIT) – Civil Engineering
Research: A Simple Test Method For Rapid Measurement of Fine content in Soils
Advisor: Dr. Mohamed Mahgoub

Heritage Institute of Technology, SKP Engineering College, Panipat Institute of Engineering Technology, India

Ananthi Mohan (SKPEC)- Electrical Computer Engineering
Research: High-K Gate Stack Characterization
Advisor: Dr. Durgamadhab Misra

Aupal Mondal (HIT) – Civil Engineering
Research: Optimization of Modulus of Elasticity Through Empirical Blending
Advisor: Dr. Mohamed Mahgoub

Anchita Mukherjee (HIT) – Electrical Computer Engineering
Research: Video and Image Forensics
Advisor: Dr. Yun Shi

Bharath Narayanasamy (SKPEC) – Electrical Computer Engineering
Research: Video Coding for multi-rate multimedia streaming
Advisor: Dr. Abdallah Khreishah

Neeti (PIET) – Computer Science
Research: Cloud Computing
Advisor: Dr. Reza Curtmola

Ankit Kumar Poddar (HIT) – Electrical Computer Engineering
Research: Video and Image Forensics
Advisor: Dr. Yun Shi

Tanika Roychowdhury (HIT) – Civil Engineering
Research: Improving the bearing capacity of foundation by geo-synthetics
Advisor: Dr. Jay N Meegoda

Sagnik Saha (HIT) – Mechanical Industrial Engineering
Research : Automobile Assembly Line Simulation using "Flexsim Software"
Advisor: Dr. Sanchoy Das

Oshin Sangwan (BRCM CET) – Electrical Computer Engineering
Research: Video Coding for multi-rate multimedia streaming
Advisor: Dr. Abdallah Khreishah

Hemalatha Santhini Devi Raju (SKPEC) – Electrical Computer Engineering
Research: Video Coding for multi-rate multimedia streaming
Advisor: Dr. Abdallah Khreishah

Balakrishanan Venkatasubramanian (SKPEC) – Mechanical Industrial Engineering
Research: Automobile Assembly Line Simulation using "Flexsim Software"
Advisor: Dr. Sanchoy Das

Sumidha Verma(PIET) – Computer Science
Research: Sensing Game
Advisor: Dr. Cristian Borcea

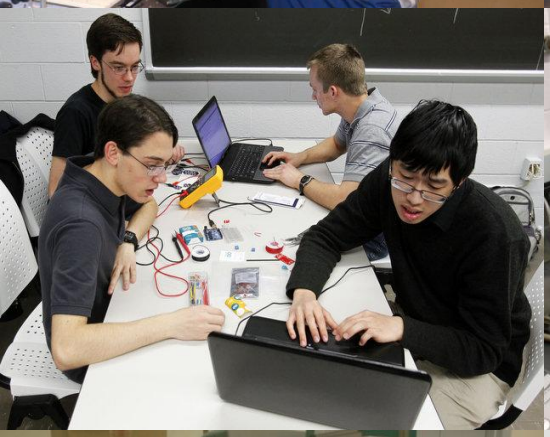
Dr. Nuggehalli Ravindra
Program Director

Name: **Mahindra Bandari (Science Park), Elisa Liang (JFK Memorial High School), Shushumitha Priadeep (JFK Memorial High School), Srimangala Selvaganapathi (JFK Memorial High School)**
Research: Magnetic Fields - Fundamentals
Advisor: Dr. Nuggehalli Ravindra

Name: **Chukwuebuka Dike (Newark Bridges High School), Willear Gimniene (Union City High School), Steven Li (Union City High School), Danielle Peart (RU)**
Research: Magnetic Fields – Applications
Advisor: Dr. Nuggehalli Ravindra

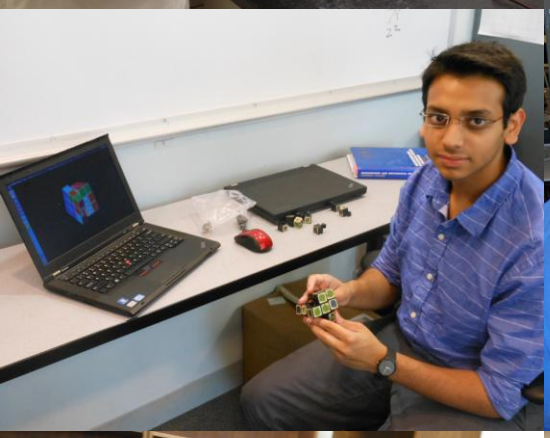
CDWMESSS

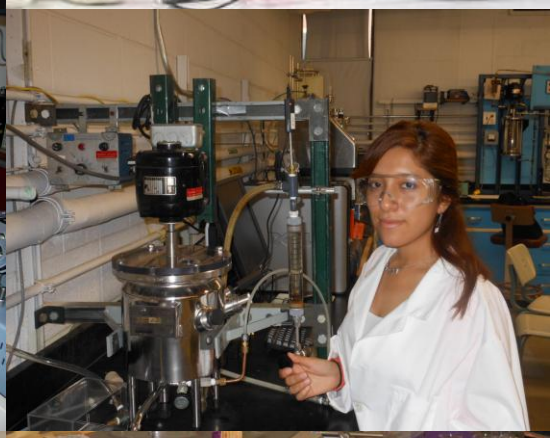


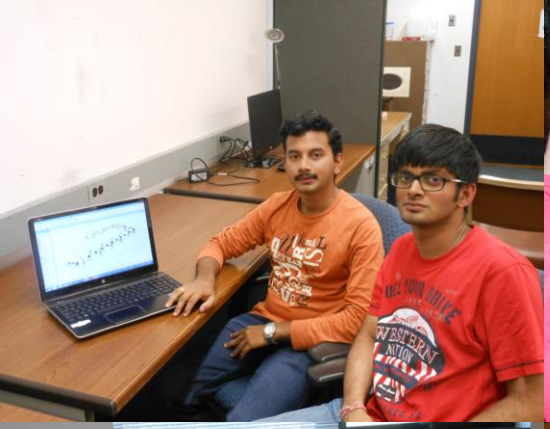













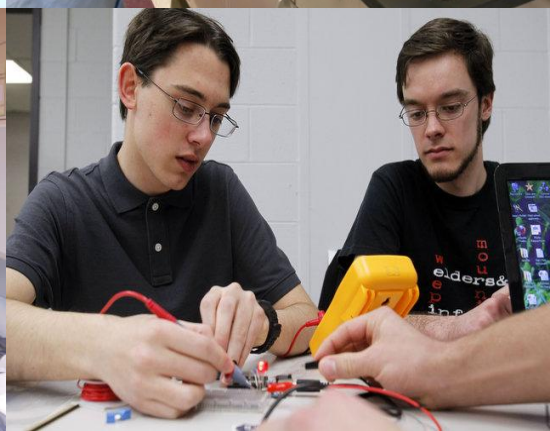












Booklet Created by:
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