2021 Undergraduate Summer Research and Innovation Symposium

July 29-30, 2021

PROGRAM

A Sustainable Future
The 2021 NJIT Undergraduate Summer Research and Innovation Symposium integrated with the Innovation Day will be held on July 29-30, 2021, featuring a distinguished keynote talk from Daniel Henderson followed by URI External Advisory Board (EAB) panel to pay a tribute to Dr. James Stevenson, recognizing his great contributions and support to IDS, TechQuest Innovation URI programs and research presentations from undergraduate students who worked during the summer with various URI programs. More than 130 undergraduate students will present their summer research work at the symposium. Best innovation projects will be awarded Dr. James Stevenson Innovation Award: first, second and third prizes of $1,000, $750 and $500 respectively.

The event will also feature the inauguration of the National Academy of Inventors chapter at NJIT on July 30 from 11.00 AM - 12.30 PM. More than 45 faculty will be inducted as inventor members. Several administrators and technology innovation supporters will be inducted as honorary members. The inaugural ceremony will feature a keynote talk from Ms. Elizabeth Dougherty, Eastern Regional Outreach Director, U.S. Patent and Trademark Office (USPTO), and a member of the NAI Board of Directors.

Programs included:
URI Provost Summer Research Fellowships
McNair Achievement Program
Honors College Summer Scholar Program
NSF REU and iCorps NJIT Site Programs
Other Grant Funded Projects
Other UG Student Summer Researchers
2021 Undergraduate Summer Research and Innovation Symposium

Agenda

July 29, 2021: Ballroom A&B, Student Campus Center

10.00 AM - 10.10 AM: Welcome Remarks
Fadi Deek, Provost and Senior Executive Vice President
Atam Dhawan, Senior Vice Provost for Research

10.10 AM - 10.30 AM: Innovation to Applications
Keynote Speaker: Dan Henderson, NJIT Board of Overseers, Inventor and Entrepreneur

10.30 AM – 11.00 AM: Panel: Remembering Dr. James Stevenson
URI External Advisory Board

11.00 AM - 12.30 PM: URI Summer Research Symposium Session - 1
Bioscience and Bioengineering - 1

12.30 PM - 1.15 PM: Lunch and Networking

1.15 PM – 1.30 PM: Remembering Dr. Angelo J. Perna
Laurent Simon and Durga Misra

1.30 PM – 2.30 PM: URI Summer Research Symposium Session -2
Bioscience and Bioengineering - 2

2.30 PM – 2.45 PM: Coffee Break

2.45 PM – 4.00 PM: URI Summer Research Symposium Session -3
Robotics and Machine Intelligence, and Others: Architecture and Design

July 30, 2021, Ballroom A&B, Student Campus Center

9.30 AM - 11.00 AM: URI Summer Research Symposium Session -4
Data Science and Management

11.00 AM - 12.30 PM: NAI-NJIT Chapter Launch and Induction Ceremony

11.00 AM – 11.15 AM: Opening Remarks
Fadi Deek, Provost and Senior Executive Vice President
Atam Dhawan, Senior Vice Provost for Research

11.15 AM – 11.30 AM: State of the NAI-NJIT Chapter
Atam Dhawan, Senior Vice Provost for Research

11.30 AM – 11.45 AM: Keynote Speaker:
Elizabeth Dougherty, Eastern Regional Outreach Director,
U.S. Patent and Trademark Office (USPTO), and NAI Board of Directors
11.45 AM – 12.00 PM: NAI Chapter Induction Ceremony
12.00 PM – 12.30 PM: Closing Remarks, Networking and Lunch

12.30 PM – 2.00 PM: URI Summer Research Symposium Session -5
Environment and Sustainability

2.00 PM – 3.00 PM: URI Summer Research Symposium Session -6
Material Science and Engineering

July 30, 2021, Atrium, Student Campus Center

3.00 PM- 3.30 PM: Awards and Closing
3.30 PM – 4.30 PM: Reception

Biographical Sketch of Dr. James Stevenson

Jim Stevenson, PhD: Jim Stevenson was a Corporate Fellow at Honeywell International from 1996 until his retirement in March of 2011. His professional work at Honeywell focused on polymer and composite materials and applications for mechanical and electronic structures and enclosures in an aerospace environment. Nine patents and 17 publications followed from this work.

Following a postdoctoral year at Columbia University, Dr. Stevenson joined the Chemical Engineering Department at Cornell University where he earned tenure in 1977. He was a founding member of the Cornell Injection Molding Project, was highly rated for his teaching, and prepared 17 publications. He earned his M.S. and Ph.D. degrees in Chemical Engineering at the University of Wisconsin, Madison and a B.S.Ch.E. from Rensselaer Polytechnic Institute.

Prior to joining Honeywell, Dr. Stevenson was Director of Research at Trexel, a start-up company near Boston commercializing microcellular foam technology. He proposed injection molding as the preferred foaming process, a result that led to nine patents. For the previous 19 years Dr. Stevenson served in technical and management positions with GenCorp, Inc. in Akron, OH. One development of the Extrusion Laboratory, which he supervised, was curved extrusion technology. While at GenCorp, Dr. Stevenson received eight patents and published 23 articles, two book chapters, and a book *Innovation in Polymer Processing: Molding*.

After retirement from Honeywell, Dr. Stevenson founded a consulting company, Stevenson PolyTech LLC, which specializes in polymer material/ process development and industrial short courses with more than 45 presentations worldwide. During his retirement, Dr. Stevenson helped to organize and funded the TechQuest competition which, now in its seventh year, awarded five innovation prizes and fellowships to NJIT undergraduates. He was also instrumental in setting up Innovation Day which celebrates the numerous technical awards won by NJIT undergraduates and hosts electronic presentations of their many innovative projects. Jim served as a member of the URI External Advisory Board and predecessor organizations since 2012. Jim and his wife Steffi also supported endowed undergraduate scholarships for NJIT students primarily from Irvington and Newark high schools. In 2017, Jim received the *Special Friend of the University* award for outstanding contributions by a non-alumnus. He also served on the Board of Directors of the Honeywell retirees association.

Biographical Sketches: Keynote Speakers and Panelists

Daniel Henderson: Daniel Henderson is an American innovator, entrepreneur, and artist. He was Assistant to Kazuo HASHIMOTO, a prolific Japanese inventor with over 1000 patents worldwide and he met and briefly worked with Jack Kilby, inventor of the integrated circuit. Dan’s 1993 prototype objects for wireless picture and video messaging were

Dan’s extensive research for wireless objects also resides there (https://invention.si.edu/daniel-henderson-portable-electronic-devices-documentary-collection-1968-2002). He was named a mobile technology innovator for video sharing in cellular phones when he appeared in a 2012 Super Bowl commercial for Best Buy along with Ray Kurzweil and Neil Papworth. His invention of wireless picture and video messaging in cellular telephones is covered by U.S. Patent 8,160,221, "Cellular telephone with the ability to display and store picture and video messages and Caller ID received from a message originator" and US Patent 8,472,595, "Method and Apparatus for providing a portable communication device with the ability to selectively display picture and video".

His 1993 inventions are utilized today in nearly every cellphone in the world. He has received 30 US Patents that have cumulatively been cited in other patents over 1000 times. He has had extensive experience in intellectual property, licensing to over 170 of the largest companies in the world.

Prior to starting his career at IBM Corporation, Dan received a Bachelor of Science degree in Business from Southern Oregon University, where he is an Emeritus Board member for the Foundation there.

Dan currently serves on the Board of Overseers and the Dorman Honors College Board of Visitors for NJIT. Several of his large-scale stone sculptures may be seen on the NJIT campus. He received an honorary Doctor of Science degree from NJIT in 2012 and remains committed to the importance of innovation to improve society and the world we live in.

Elizabeth Dougherty, JD, Eastern Regional Outreach Director, USPTO: As the Eastern Regional Outreach Director for the U.S. Patent and Trademark Office (USPTO), Elizabeth Dougherty carries out the strategic direction of the Under Secretary of Commerce for Intellectual Property and Director of the USPTO, and is responsible for leading the USPTO's East Coast stakeholder engagement. Focusing on the region and actively engaging with the community, Ms. Dougherty ensures the USPTO's initiatives and programs are tailored to the region's unique ecosystem of industries and stakeholders.

Ms. Dougherty has more than 25 years of experience working at the USPTO. She served as the Senior Advisor to the Under Secretary of Commerce for Intellectual Property and Director of the USPTO. In this role, she worked closely across the Agency's leadership to implement the policies and priorities for the USPTO. She began her career at the USPTO as a patent examiner after graduating from The Catholic University of America with a bachelor's degree in physics. While a patent examiner, Ms. Dougherty went on to obtain her J.D. from The Columbus School of Law at The Catholic University of America and served as a Senior Legal Advisor in the Office of Patent Legal Administration for a significant part of her career. Over the years, she has also served in the USPTO's Office of Petitions, the Office of Innovation Development, and the Office of Government Affairs.

Ms. Dougherty has dedicated much of her career to the USPTO's outreach and education programs focusing on small businesses, startups and entrepreneurs. In this effort she has developed, implemented, and supervised programs that support the independent inventor community, small businesses, entrepreneurs, and the intellectual property interests of colleges and universities. Similarly Ms. Dougherty has spearheaded a number of special projects with federal, state and local governments, and private organizations to promote and support invention and innovation in the United States.

Ms. Dougherty is a member of the Virginia Bar, the Giles S. Rich American Inn of Court, the Pauline Newman American Inn of Court, the American Bar Association, the Federal Circuit Bar Association, the American Intellectual Property Law Association, the Patent and Trademark Office Society, the Supervisory Patent Examiners and Classifiers Organization, Women in Science and Engineering, Federally Employed Women, and the Network of Executive Women.

Brian G. Kiernan: Brian Kiernan, retired vice president and chief scientist of InterDigital Communications, LLC, possesses a dynamic combination of technical expertise and leadership savvy that has fueled his outstanding achievements in the development of computer and communication standards and systems. He received a B.S. in electrical engineering from Newark College of Engineering in 1970, and an M.S. in Management Science/Operations Research from Fairleigh Dickinson University. Kiernan, who was recognized at the 2016 NCE Salute to Engineering Excellence for his achievements since graduation, was directly responsible for InterDigital’s worldwide technology and industry standards activities and aided in developing new market, product and technology initiatives by providing strategic technical and marketing support to InterDigital’s sales, marketing and business development efforts as well as the company’s worldwide patent and licensing programs.
Previously, Brian served as the president of USTC World Trade Corporation, an international sales and marketing subsidiary of InterDigital’s predecessor company, International Mobile Machines (IMM). Having full P&L accountability for IMM’s international business, he quadrupled revenues in two years and opened new markets—primarily in Asia and Latin America—that accounted for over 90 percent of InterDigital’s past product revenue. Prior to his sales position, Kiernan was IMM’s vice president of Engineering and Operations. His product line responsibilities covered all areas of product development and sales engineering, manufacturing, product support and quality assurance of IMM’s UltraPhone® TDMA Wireless Local Loop product.

Under Mr. Kiernan’s tutelage, IMM/InterDigital grew from an unknown tiny telecom company with a big idea and zero revenue to an acknowledged worldwide force in mobile communications with some 14,000 patents, annual revenue in excess of $500M and a $2B market cap.

Before joining IMM, Kiernan was a senior staff engineer at GTE Products Corporation, where he generated and evaluated military communications systems concepts that included mobile and fixed station radio, circuit and message switching, and network management and control. Kiernan’s program and technical management experience encompassed TDMA and CDMA voice and data systems, digital and analog switching, and VHF/UHF and microwave radio. He was also active in both communications and non-communications Electronic Warfare systems development. He has been a speaker at numerous industry conferences, published numerous papers and articles, and holds 27 patents.

He was awarded the IEEE Standards Medallion in 2006 and the IEEE Hans Karlsson Award in 2013 for his extraordinary skill and dedication in chairing the complex task groups that developed the IEEE 802.16a, 802.16e, and 802.16m WirelessMAN standards, the world’s first 4G Wireless standards. The Hans Karlsson Award honors outstanding skills and dedication to diplomacy, team facilitation and joint achievement in the development of standards in the computer industry.

After retiring from InterDigital, Mr. Kiernan has put his extensive technical and managerial talents to work, serving as Chair of the Albert Dorman Honors College Interdisciplinary Design Studio (IDS) program which morphed into the NJIT Undergraduate Research and Innovation (URI) Program. In this capacity, Kiernan, along with other URI Board members, evaluates and guides numerous student projects, several of which have developed into student companies. As an active Angel Investor, Kiernan has invested in some of these student companies and continues to guide them as they develop. He is also an active member of the NJIT ECE Industry Advisory Board and the NJIT Highlander Angel Network, where he has invested in several NJIT-related companies.

Govi Rao: Govi has over 25 years of experience globally, across several industries, including specialty chemicals, coatings, building materials, lighting, energy and the rapidly evolving IoT space. As co-founder and Managing Partner of Carbon Group Global (CGG), Govi is currently leading CGG’s vision to scale transformational solutions, specifically to address education, total resiliency of women and resource efficiency. Prior to CGG, Govi was the President and Chief Executive Officer of Noveda Technologies, a pioneer in water and energy management solutions, based in Bridgewater, NJ. In 2007, Govi was instrumental in envisioning and pioneering one of the earliest LED lighting solutions providers, Lighting Science Group Corporation as the Chairman & CEO.

Previously, Govi was Vice President and General Manager of the Philips Solid State Lighting business in North America. He also held several leadership roles at Philips, including Vice President of Business Creation & Brand, where he was responsible for product management, strategic marketing, branding and sustainability. Prior to joining Philips, Govi spent over a decade with specialty chemicals leader Rohm and Haas Company (now part of Dow Chemicals) in various leadership roles across a range of businesses and geographies. In addition to his experience with a wide business portfolio, Govi has extensive functional expertise that includes strategic planning, business innovation, product management, marketing, operations, leadership development and general management. Widely traveled across Asia, Europe and the Americas, Govi has a keen sense of value creation in emerging markets and technologies, grounded on the principles of sustainability. Govi has built winning teams that achieved extraordinary goals in start-ups as well as mature businesses – pioneering and inspiring profitable and sustainable growth.

Govi serves on several boards including the Undergraduate Research and Innovation at NJIT and the department of Chemistry and Chemical Biology at Rutgers University. Govi also serves as an advisor to Hellothinkster, an AI based educational technology company. Govi is active in discussions with various Governments, NGOs and investment groups to drive market adoption of social impact solutions and is a contributing author of the Sustainable Enterprise Fieldbook (AMACOM 2008). Govi has testified to the U.S House of Representatives on IP and Innovation.
Manish Patel: Manish Patel, founder of TrickyWater, a small business advisory firm, is currently Director of Brand Innovation at Princeton Partners, a strategic brand marketing firm.

Manish is a skilled engineer and leader with creative and innovative capabilities. He is a successful entrepreneur with proven consultancy, product development, management, and strategic analysis skills. Analytical skills vital in referencing developmental, production, and supervisory skills across multiple industries to maximize profitability and satisfaction of clients in various technical and creative fields. Produced results for all companies by branding, marketing, and procuring revolutionary designs and enhanced digital developments. He loves challenges and helping clients solve problems. Manish was at Omnicom Agency, Arnell where he was Lead Project Manager reporting directly to Chairman of Arnell Group. He managed Innovation Lab teams comprised of artists, designers and engineers developing innovative brand solutions, strategies and products. Key Client Experience included Project Lead for The Home Depot - OrangeWorks innovation initiative, delivering several product SKUs in key categories in collaboration with senior merchandisers, including the Home Hero brand. While having Chrysler Automotive as a client, he was Project Leader and C-Suite Liaison for innovation programs in the areas of automotive design, NAV system user interface design, and electric vehicle programs. He also managed relationships with leading global design studios Pininfarina and Giugiaro in Italy. He introduced process and stage gate methodology and applied it to creative development process.

Manish also worked on the re-brand of the iconic Fontainebleau Hotel and the strategy behind building an experience that once again made the hotel a cornerstone of the Miami high end lifestyle destination. He has also helped small New Jersey businesses maximize their advertising success with the introduction of innovative methods for reaching consumers.

Manish obtained a BSME from Drexel University and an MS Management from NJIT. Now he enjoys giving back to the school by serving on their Undergraduate Research and Innovation External Advisory Board. When he is not working, he can be seen coaching soccer, playing volleyball or managing the family dog’s social media page.

Peggy McHale: Peggy McHale serves as an independent board member for Pariveda Solutions an employee-owned (ESOP), strategy and technology consulting company based in Dallas, Texas. She serves on both the audit and compensation committees. Peggy is also the co-founder and recently retired Managing Director for Blend 360 (Formerly C2G Partners and Consultants 2 Go) a Newark, NJ based consulting firm that provides marketing and data science solutions to Fortune 500 companies in the Financial Services, Fintech, Telecom, CPG, Healthcare, IT and Insurance industries. C2G was acquired in 2016 by Whitegate Capital Partners, a private equity firm. Peggy founded the company with her business partner Sandi Webster in 2002 and grew it into one of the fastest growing businesses in the US. The company was named to the Inc 500 list for seven years. In addition, C2G was recognized twice by Fortune Magazine/ICCC as one of the top 100 Inner City Companies in the US. Peggy was also a two-time finalist for EY’s Entrepreneur of the Year. She was awarded Leading Women of NJ and Top 50 Women Leaders in NJ by NJ Biz.

Peggy is the co-author of Black and White Strike Gold: Practical Nuggets to Grow Your Business. She just recently co-wrote Lessons Beyond the Obvious: An Entrepreneurs Handbook. Before she started her company, she was a Vice President of Marketing at American Express. She holds an MBA in Finance from St. John’s University and a BA from the College of Mount St. Vincent. In addition, Peggy is committed to supporting several non-profit organizations including New Jersey Institute of Technology’s Undergraduate Research and Innovation Board. Peggy served on the State Board of the New Jersey Association of Women Business and the Women’s Center for Entrepreneurship in NJ (WCEC). She is currently a member of the Women Presidents’ Organization (WPO), and the National Association of Corporate Directors (NACD).
# 2021 Undergraduate Summer Research and Innovation Symposium

## Presentation Schedule At-A-Glance

**July 29, 2021**

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>Major</th>
<th>Title of Project</th>
<th>Presentation Session</th>
<th>Tentative Presentation Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>David</td>
<td>Akonga</td>
<td>Computer Science</td>
<td>Using Deep Hybrid Modeling To Determine Treatment Strategies for COVID-19 Patients</td>
<td>Bioscience and Bioengineering</td>
<td>11:00 AM</td>
</tr>
<tr>
<td></td>
<td>Anyn</td>
<td>Biomedical Engineering</td>
<td>Effect of acute conductive hearing loss on clip lashing</td>
<td>Bioscience and Bioengineering</td>
<td>11:03 AM</td>
</tr>
<tr>
<td>Abdulrahman</td>
<td>Azzogli</td>
<td>Biology BS</td>
<td>Computational Design of CCL2 Sequencing Anti-inflammatory Hydrogels</td>
<td>Bioscience and Bioengineering</td>
<td>11:06 AM</td>
</tr>
<tr>
<td>Tham</td>
<td>Babti</td>
<td>Biology</td>
<td>ESSENCE</td>
<td>Bioscience and Bioengineering</td>
<td>11:09 AM</td>
</tr>
<tr>
<td>Thermo</td>
<td>Carlos</td>
<td>Biomedical engineering</td>
<td>ESSENCE POC Device – A Shear-Enhanced, flowthrough Nanoporous Capsule Electrochemical Sensor for the selective and selective detection of different Biomolecules</td>
<td>Bioscience and Bioengineering</td>
<td>11:12 AM</td>
</tr>
<tr>
<td>Mina</td>
<td>Chekhalji</td>
<td>Chemical Engineering</td>
<td>The Impact of Aggregation and Surface Hydrophobicity on the Dislodgement Rate of Dry Coated Poorly Water Soluble and Cytotoxic Drugs</td>
<td>Bioscience and Bioengineering</td>
<td>11:15 AM</td>
</tr>
<tr>
<td>Gabriella</td>
<td>De Carvalho</td>
<td>Biomedical Engineering</td>
<td>Quantifying Gait Abnormalities in Children with Cerebral Palsy through 3-D Motion Analysis Techniques Before and After Functional Electrical Stimulation</td>
<td>Bioscience and Bioengineering</td>
<td>11:18 AM</td>
</tr>
<tr>
<td>Michael</td>
<td>De La Cruz</td>
<td>Mechanical Engineering</td>
<td>Concept design of a lightweight, modular, and adjustable lowerextremity exoskeleton</td>
<td>Bioscience and Bioengineering</td>
<td>11:21 AM</td>
</tr>
<tr>
<td>Michael</td>
<td>Duncan</td>
<td>Biology, Concentration of</td>
<td>Using the Oral/Mucosal and Vaginal Endurance Screening (OVES) on a Pediatric Population</td>
<td>Bioscience and Bioengineering</td>
<td>11:24 AM</td>
</tr>
<tr>
<td>Sheikh</td>
<td>Hassan</td>
<td>BME</td>
<td>Modeling Spinal Cord Injury and Repair with Nd:YAG-1</td>
<td>Bioscience and Bioengineering</td>
<td>11:30 AM</td>
</tr>
<tr>
<td>Christopher</td>
<td>Henni</td>
<td>Biomedical Engineering</td>
<td>Pain Biosensors in Forensic Identification</td>
<td>Bioscience and Bioengineering</td>
<td>11:33 AM</td>
</tr>
<tr>
<td>Arunsiwka</td>
<td>Kamad</td>
<td>Biomedical Engineering</td>
<td>Device For Rehab: Design and Development for Older Adult Rehabilitation</td>
<td>Bioscience and Bioengineering</td>
<td>11:36 AM</td>
</tr>
<tr>
<td>Ashish</td>
<td>Kokreta</td>
<td>Biomedical Engineering</td>
<td>Study of Titania Nanoparticles as Treatment for Triple Positive Breast Cancer</td>
<td>Bioscience and Bioengineering</td>
<td>11:39 AM</td>
</tr>
<tr>
<td>Sahya</td>
<td>Kulkarni</td>
<td>Biology BS</td>
<td>Temperature Entrainment of Cytobacterial Calcium Clocks</td>
<td>Bioscience and Bioengineering</td>
<td>11:42 AM</td>
</tr>
<tr>
<td>Dylan</td>
<td>Lederman</td>
<td>Biology (B.S.)</td>
<td>Examining Parameter Estimation Unidentifiability in Oscillatory Systems</td>
<td>Bioscience and Bioengineering</td>
<td>11:45 AM</td>
</tr>
<tr>
<td>Thomas</td>
<td>Martinez</td>
<td>Mechanical Engineering</td>
<td>Design of an Adjustable Instrumented Clutch for Compressive Force Analysis</td>
<td>Bioscience and Bioengineering</td>
<td>11:48 AM</td>
</tr>
<tr>
<td>Stuji</td>
<td>Mohan</td>
<td>Biomedical Engineering</td>
<td>Pure-Tone Audiometric Clinical Testing of the Mapping Auditory</td>
<td>Bioscience and Bioengineering</td>
<td>11:51 AM</td>
</tr>
<tr>
<td>Jason</td>
<td>Geng</td>
<td>Chemistry</td>
<td>Bacterial Inactivation by Ultrasonor Spectral LEDs</td>
<td>Bioscience and Bioengineering</td>
<td>11:54 AM</td>
</tr>
<tr>
<td>Sovaj</td>
<td>Padhi</td>
<td>Biomedical Engineering</td>
<td>The effect of mirtazapine NRI1 in Foremost on axolotl Piez1 expression and IL-1β levels</td>
<td>Bioscience and Bioengineering</td>
<td>11:57 AM</td>
</tr>
<tr>
<td>Sheetal</td>
<td>Padhi</td>
<td>Biomedical Engineering</td>
<td>Neuronal Cell Death in Repeated Low-Level Blast Induced Traumatic Brain Injury</td>
<td>Bioscience and Bioengineering</td>
<td>12:00 PM</td>
</tr>
<tr>
<td>Dalia</td>
<td>Pandhari</td>
<td>Biology</td>
<td>Peptide-based Therapeutics for COVID-19</td>
<td>Bioscience and Bioengineering</td>
<td>12:03 PM</td>
</tr>
<tr>
<td>Nalisha</td>
<td>Pappachen</td>
<td>Biology</td>
<td>Role of De制品 in Zebrafish Retinal Ectopia</td>
<td>Bioscience and Bioengineering</td>
<td>12:06 PM</td>
</tr>
<tr>
<td>Ryan</td>
<td>Radhika</td>
<td>Mechanical Engineering</td>
<td>Mechanics and Deformation of Cell Membranes</td>
<td>Bioscience and Bioengineering</td>
<td>12:09 PM</td>
</tr>
<tr>
<td>Sneha</td>
<td>Sampi</td>
<td>Biology &amp; History</td>
<td>Optimization of SARS-CoV-2 to develop a COVID-19 antiviral</td>
<td>Bioscience and Bioengineering</td>
<td>13:30 PM</td>
</tr>
<tr>
<td>Esha</td>
<td>Shah</td>
<td>Biology</td>
<td>Can Cost Atmospheric Spaces improve Neural Regeneration?</td>
<td>Bioscience and Bioengineering</td>
<td>1:33 PM</td>
</tr>
<tr>
<td>Will</td>
<td>Suarez Amaro</td>
<td>Biomedical Engineering</td>
<td>NOSG (Reduced Oxygen and Gravity Emulating Resistance) Device</td>
<td>Bioscience and Bioengineering</td>
<td>1:36 PM</td>
</tr>
<tr>
<td>John</td>
<td>Takhi</td>
<td>Biology</td>
<td>Using BORF-pairing Photobase Generators to Delete</td>
<td>Bioscience and Bioengineering</td>
<td>1:39 PM</td>
</tr>
<tr>
<td>Nalita</td>
<td>Vindikri</td>
<td>Biochemistry</td>
<td>Exocytosis of Catecholamines as Related to Microbial Intestine</td>
<td>Bioscience and Bioengineering</td>
<td>1:42 PM</td>
</tr>
<tr>
<td>Pranati</td>
<td>Ambati</td>
<td>Biology</td>
<td>Investigating the Role of Developmental Environment and Mautnera Cell Morphology on Neuronal Plasticity and Escapa Behavior</td>
<td>Bioscience and Bioengineering</td>
<td>1:45 PM</td>
</tr>
<tr>
<td>Roan</td>
<td>Back</td>
<td>Biomedical Engineering</td>
<td>Application of a Weighted Simple Kalman Filter for Improved Photo Reconstruction</td>
<td>Bioscience and Bioengineering</td>
<td>1:48 PM</td>
</tr>
<tr>
<td>Aliya</td>
<td>Bil</td>
<td>Biomedical Engineering</td>
<td>Utilizing MRI to Examine Functional Brain Changes in COVID-19 Patients</td>
<td>Bioscience and Bioengineering</td>
<td>1:51 PM</td>
</tr>
<tr>
<td>Edgar</td>
<td>Canario</td>
<td>Biomedical Engineering</td>
<td>Global Network Analysis of Alzheimer's with Minimum Spanning Trees</td>
<td>Bioscience and Bioengineering</td>
<td>1:54 PM</td>
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<tr>
<td>Harris</td>
<td>Hugo</td>
<td>Biomedical Engineering</td>
<td>High-density with Ankle Braces</td>
<td>Bioscience and Bioengineering</td>
<td>1:57 PM</td>
</tr>
<tr>
<td>Sean</td>
<td>Larmore</td>
<td>Chemistry</td>
<td>Structures of Highly Substituted Cyclopropynylphosphines Nonclassical Conformations</td>
<td>Bioscience and Bioengineering</td>
<td>2:00 PM</td>
</tr>
<tr>
<td>Kaylin</td>
<td>McGuillan</td>
<td>Biomedical Engineering</td>
<td>Nanoparticle Tracking Analysis of Polymer Particles in Blood Plasma</td>
<td>Bioscience and Bioengineering</td>
<td>2:03 PM</td>
</tr>
<tr>
<td>Shiva</td>
<td>Somnithnar</td>
<td>Biology B.A.</td>
<td>Dynamics of Generalized Half-Center Oscillator Neuronal Networks</td>
<td>Bioscience and Bioengineering</td>
<td>2:06 PM</td>
</tr>
<tr>
<td>Nikesh</td>
<td>Shethra</td>
<td>Mechanical Engineering</td>
<td>Contact Angle Measurement for Implementation in Passive Plasma Separation</td>
<td>Bioscience and Bioengineering</td>
<td>2:09 PM</td>
</tr>
<tr>
<td>Julene</td>
<td>Silver</td>
<td>Biomedical Engineering</td>
<td>A MATH lexicon for Quality Validation of Functional Near-Infrared Spectroscopy (NIRFS) Data Collected from the Human Brain</td>
<td>Bioscience and Bioengineering</td>
<td>2:12 PM</td>
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<tr>
<td>Kevin</td>
<td>Yolosinos</td>
<td>Mathematical Sciences</td>
<td>SEIR/QRin Model of Spread of Covid-19 with cGAN Parameter Estimation</td>
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<tr>
<td>Rebecca</td>
<td>Zaki</td>
<td>Biology B.A.</td>
<td>Evaluation of a Phase-Transfer Catalyst Toward the Synthesis of Chiral Aromatic Esters</td>
<td>Bioscience and Bioengineering</td>
<td>2:18 PM</td>
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</table>

### Additional Categories

- **Architecture**: Bauhaus Meditation: Gropius’ Medieval Ideals and their Manifest in Bauhaus Pedagogy
- **Architecture & Design**: Designing the Challenges of Housing from the Architect’s Perspective
- **Robotics and Machine Intelligence**: Exploring Image Compression Using Deep Neural Networks
- **Architecture**: Visualizing Space and Place: Lessons for the Young Architect
- **Architecture & Design**: Others: Architecture and Design
- **Robotics and Machine Intelligence**: Others: Architecture and Design"
### July 30, 2021

<table>
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<tr>
<th>First Name</th>
<th>Last Name</th>
<th>Major</th>
<th>Title of Project</th>
<th>Presentation Session</th>
<th>Tentative Presentation Time</th>
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<tr>
<td>Bhai</td>
<td>Advya</td>
<td>Mechanical Engineering</td>
<td>DataLazer, Millimeter-Core, Coil-Wrapping Machine</td>
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<td>Lazer</td>
<td>Agnav</td>
<td>Computer Engineering</td>
<td>Biophysical Study of Film-Melt Fractures</td>
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<td>Elizabeth</td>
<td>Bhanja</td>
<td>Biomedical Engineering</td>
<td>The Impact of Glutathione in Multiple Ovary Search in Nanotechnology</td>
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<td>Hao</td>
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<td>Redhvi</td>
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<td>Jason</td>
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<td>University for Spatial Research</td>
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<td>Rushi</td>
<td>Shank</td>
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<td>Visual Memory and Shifting Ability in Chess Players</td>
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<td>Allison</td>
<td>Woon</td>
<td>Digital Design</td>
<td>Developing Interactive Educational Animation to Visualize Financial Correlations for Students</td>
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<td>Establishment of an Algorithm for Advanced Space Weather Research</td>
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<td>Ashley</td>
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<td>Chemical Engineering</td>
<td>spDGC: Model-based device embedding with highly constrained nearest neighbor for single-cell RNA sequencing clustering analysis</td>
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<td>Pedro</td>
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<td>Corrected Effect Bias in Finance/Patient Decisions Based on Industry Structures</td>
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<td>Jada</td>
<td>Evans</td>
<td>Law, Technology and Co</td>
<td>Indigenous Data Sovereignty and Accessibility in Rwanda, an Awar of Xavier Scientific Autism</td>
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<td>Kaur</td>
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<td>Quantified Customer Requirement Analysis</td>
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<td>Whira</td>
<td>Laura</td>
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<td>Ethan</td>
<td>Lee</td>
<td>Math</td>
<td>Customer Churn Prediction in Grocery Store Setting</td>
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<td>Ishm</td>
<td>Patel</td>
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<td>David</td>
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<td>MS, Web Application to Proactively Protect Consumer Data and Privacy</td>
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<td>Ruiz Jairimani</td>
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<td>Samantha</td>
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<td>Examining the Impact of Energy Entrepreneurship Courses on Students</td>
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<td>Jeffrey</td>
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<td>Inhibition of M6P Bacteria for Water Distillation via Microwave Irradiation in the Presence of Microwave-Adapting Catalysis</td>
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<td>Hybrid Powering Solar and Hydro Power System</td>
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<td>Samuel</td>
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<td>Polymer Engineering and Mechanism in Template Assisted Cytokinesis for Hardness Removal</td>
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<td>Biology, BA</td>
<td>Biodiversity and the Importance of Forests in a Hot Planet</td>
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<td>Designing Competitive Strength of Films Hydrotalcite of Yarling</td>
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<td>Angel</td>
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<td>Alexander</td>
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<td>Christopher</td>
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<td>Andreas</td>
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<td>Engineering the Carrier Dynamics in II-VI Ultraviolet Nanowires</td>
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<td>Jason</td>
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<td>Design of LED Strucure with Novel Photonic Electodes</td>
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<td>Justin</td>
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<td>Moxon</td>
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<td>Chemical Engineering</td>
<td>Designing Organic Solar Cells Using ESSENCE</td>
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<td>Venkati</td>
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<td>Chemical Engineering</td>
<td>Hybrid Monte Carlo Molecular Dynamics Scheme for Simulating Adsorption-Induced Deflection in Staphylococcal Pore</td>
<td>Material Science and Engineering</td>
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<td>Nicolaas</td>
<td>Wittay</td>
<td>Chemical Engineering</td>
<td>In a Supercritical Solution with Capillary Forces</td>
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<td>Bhaam</td>
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<td>Ruby</td>
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<td>Feasibility Study on Building a Stand-Alone Community Monogamy in the United States</td>
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<td>Condensate Regen Concrete Pavement</td>
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</table>

**Notes:** Team Project Presenters:
1. David Alonge, Francis Kamwaya-Nyanje, Aaron Kowal, Chinonye Uzowuru
2. Elifizbah Braga, Sophia Ideyusk
3. Jada Evans, Pakyana
4. Ashley Ahmed, Nathan Whitener

The time schedule is tentative subject to adjustments due to time-gap between the presentations.
2021 Undergraduate Summer Research and Innovation Symposium

Schedule of Presentations

Research Presentation Area

Bioscience and Bioengineering
Name: David Alonge  
**Department:** Computer Science  
**Project Title:** Using Deep Hybrid Modeling To Determine Treatment Strategies for COVID-19 Patients  
**Faculty Advisor:** Casey Diekman  
**URI Program:** NSF Community College Biomathematical Research Initiation Program

Name: Arun Aryal  
**Department:** Biomedical Engineering  
**Project Title:** Effect of acute conductive hearing loss on dip listening  
**Faculty Advisor:** Antje Ihlefeld  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Abdul-Rahman Azizogli  
**Department:** Biology BS  
**Project Title:** Computational Design of CCL2 Sequestering Anti-Inflammatory Hydrogels  
**Faculty Advisor:** Vivek Kumar  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Thara Balaji  
**Department:** Biology  
**Project Title:** ESSENCE  
**Faculty Advisor:** Yu Hsuan Cheng and Sagnik Basuray  
**URI Program:** NSF Funded Project

Name: Abdul-Rahman Azizogli  
**Department:** Biology BS  
**Project Title:** Computational Design of CCL2 Sequestering Anti-Inflammatory Hydrogels  
**Faculty Advisor:** Vivek Kumar  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Theresa Carlos  
**Department:** Biomedical engineering  
**Project Title:** ESSENCE POC Device – A Shear-Enhanced, flow-through Nanoporous Capacitive Electrochemical Sensor for the sensitive and selective detection of different Biomolecules  
**Faculty Advisor:** Sagnik Basuray and Yu-Hsuan Cheng  
**URI Program:** NSF Funded Project

Name: Mirna Cheikhali  
**Department:** Chemical Engineering  
**Project Title:** The Impact of Agglomeration and Surface Hydrophobicity on the Dissolution Rate of Dry Coated Poorly Water Soluble and Cohesive Drugs  
**Faculty Advisor:** Rajesh Dave  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Gabriela De Carvalho  
**Department:** Biomedical Engineering  
**Project Title:** Quantifying Gait Abnormalities in Children with Cerebral Palsy through 3-D Motion Analysis Techniques Before and After Functional Electrical Stimulation  
**Faculty Advisor:** Saikat Pal  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Michael De La Cruz  
**Department:** Mechanical Engineering  
**Project Title:** Concept design of a lightweight, modular, and adjustable lower-extremity exoskeleton  
**Faculty Advisor:** Xianlian Zhou  
**URI Program:** McNair Scholar Program

Name: Michaela Dungan  
**Department:** Biology, Concentration of Neurobiology  
**Project Title:** Using the OculoMotor and Vestibular Endurance Screening (MoVES) on a Pediatric Population  
**Faculty Advisor:** Chang Yaramothu  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Jonathan Grabiel-Pabon  
**Department:** Mechanical Engineering  
**Project Title:** Modelling Complex Mechanism Simulations on Creo: Toothbrush Attachment  
**Faculty Advisor:** Balraj Mani  
**URI Program:** McNair Scholar Program
<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Project Title</th>
<th>Faculty Advisor</th>
<th>URI Program</th>
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<tr>
<td>Shaikh Hassan</td>
<td>BME</td>
<td>Modeling Spinal Cord Injury and Repair with Nidogen-1</td>
<td>Jonathan Grasman</td>
<td>URI Provost Summer Research Fellowship Program</td>
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<tr>
<td>Christopher Henni</td>
<td>Biomedical</td>
<td>Pain Biosensors in Forensic Identification</td>
<td>Omowunmi Sadik</td>
<td>URI Provost Summer Research Fellowship Program</td>
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<tr>
<td>Francis Kanwanya-Nwajuebo</td>
<td>Biomedical Engineering</td>
<td>Using Deep Hybrid Modeling To Determine Treatment Strategies for COVID-19 Patients</td>
<td>Casey Diekman</td>
<td>URI Provost Summer Research Fellowship Program</td>
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<tr>
<td>Anoushka Karnad</td>
<td>Biomedical</td>
<td>Dance For Rehab: Dance Pad for Lower Limb Rehabilitation</td>
<td>Alev Erdi</td>
<td>URI Provost Summer Research Fellowship Program</td>
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<tr>
<td>Ashish Kokkula</td>
<td>Biomedical</td>
<td>Study of Targeted Platinum Nanoparticles as Treatment for Triple-Negative Breast Cancer</td>
<td>Kathleen McEnnis</td>
<td>NSF Community College Biomathematical Research Initiation Program</td>
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<tr>
<td>Karolina Kowal</td>
<td>Computer Science</td>
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<td>Casey Diekman</td>
<td>NSF Community College Biomathematical Research Initiation Program</td>
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<tr>
<td>Sahitya Kulkarni</td>
<td>Biology BS</td>
<td>Temperature Entrainment of Cyanobacterial Circadian Clocks</td>
<td>Yong-Ick Kim</td>
<td>URI Provost Summer Research Fellowship Program</td>
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<tr>
<td>Dylan Lederman</td>
<td>Biology (B.S.)</td>
<td>Examining Parameter Estimation Unidentifiability in Oscillatory Systems</td>
<td>Horacio Rotstein</td>
<td>URI Provost Summer Research Fellowship Program</td>
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<tr>
<td>Thomas Martinez</td>
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<td>Design of an Adjustable Instrumented Crutch for Compressive Force Analysis</td>
<td>Saikat Pal</td>
<td>McNair Scholar Program</td>
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<tr>
<td>Stuti Mohan</td>
<td>Biomedical</td>
<td>Pure-Tone Audiometric Clinical Testing of the Mapping Auditory Processing Disorder (MAPD) Application</td>
<td>Antje Ihlefeld</td>
<td>Honors College Summer Research Program</td>
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<td>Department: Computer Science</td>
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<td>Name: Sahitya Kulkarni</td>
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<td>Faculty Advisor: Antje Ihlefeld</td>
<td>URI Program: Honors College Summer Research Program</td>
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</table>
Name: Jason Ong  
Department: Chemistry  
Project Title: Bacterial Inactivation by Ultranarrow Spectrum LEDs  
Faculty Advisor: Mengyan Li  
URI Program: URI Provost Summer Research Fellowship Program

Name: Seejal Padhi  
Department: Biomedical Engineering  
Project Title: The effect of microglial NLRP3 inflammasome on astrocyte Piezo1 expression and IL-1β levels  
Faculty Advisor: Bryan Pfister  
URI Program: URI Provost Summer Research Fellowship Program

Name: Sheetal Padhi  
Department: Biomedical Engineering  
Project Title: Neuronal Cell Death in Repeated Low-Level Blast Induced Traumatic Brain Injury  
Faculty Advisor: Ying Li  
URI Program: URI Provost Summer Research Fellowship Program

Name: Disha Panchal  
Department: Biology  
Project Title: Peptide-based Therapeutic for COVID-19  
Faculty Advisor: Vivek Kumar  
URI Program: URI Provost Summer Research Fellowship Program

Name: Nikitha Pappachen  
Department: Biology  
Project Title: Role of Dmrt3a in Zebrafish Pectoral Fins  
Faculty Advisor: Kristen Severi  
URI Program: Honors College Summer Research Program

Name: Ryan Retino  
Department: Mechanical Engineering  
Project Title: Mechanics and Deformation of Cell Membranes  
Faculty Advisor: Fatemeh Ahmadpoor  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics

Name: Sreya Sanyal  
Department: Biology & History  
Project Title: Opsonization of SARS-CoV-2 to develop a COVID-19 antiviral  
Faculty Advisor: Vivek Kumar  
URI Program: URI Provost Summer Research Fellowship Program

Name: Esha Shah  
Department: Biology  
Project Title: Can Cold Atmospheric Plasma Improve Neural Regeneration?  
Faculty Advisor: Gal Haspel  
URI Program: URI Provost Summer Research Fellowship Program

Name: Will Suero Amparo  
Department: Biomedical Engineering  
Project Title: ROGER (Reduced Oxygen and Gravity Emulating Rotation) Device  
Faculty Advisor: Eun Jung Lee  
URI Program: NSF iCorps NJIT Site Program

Name: John Tobia  
Department: Biology  
Project Title: Using BODIPY-based Photobase Generators to Create Physiologically-Compatible Hydrogel Photopolymerization Systems  
Faculty Advisor: Yuanwei Zhang  
URI Program: URI Provost Summer Research Fellowship Program
Name: Chinonye Uzowuru  
Department: Computer Science  
**Project Title:** Using Deep Hybrid Modeling To Determine Treatment Strategies for COVID-19 Patients  
**Faculty Advisor:** Casey Diekman  
**URI Program:** NSF Community College Biomathematical Research Initiation Program

Name: Nishita Vootukuru  
Department: Biochemistry  
**Project Title:** Effects of Osteopontin on Cardiomyocytes as Related to Myocardial Infarction  
**Faculty Advisor:** Alice Lee  
**URI Program:** Honors College Summer Research Program

Name: Pranati Ambati  
Department: Biology  
**Project Title:** Investigating the Role of Developmental Environment and Mauthner Cell Morphology on Neuronal Plasticity and Escape Behavior  
**Faculty Advisor:** Severi Kristen  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Roan Back  
Department: Biomedical Engineering  
**Project Title:** Application of a Weighted Simple Kalman Filter for Improved Phase Reconstruction  
**Faculty Advisor:** Xuan Liu  
**URI Program:** NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics

Name: Alicja Bil  
Department: Biomedical Engineering  
**Project Title:** Utilizing fMRI to Examine Functional Brain Changes in COVID Patients  
**Faculty Advisor:** Bharat Biswal  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Edgar Canario  
Department: Biomedical Engineering  
**Project Title:** Global Network Analysis of Alzheimer’s with Minimum Spanning Trees  
**Faculty Advisor:** Bharat Biswal  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Hans Elijah Hugo  
Department: Biomedical Engineering  
**Project Title:** Highlander Ankle Brace  
**Faculty Advisor:** Alex Zhou  
**URI Program:** NSF iCorps NJIT Site Program

Name: Sean Larmore  
Department: Chemistry  
**Project Title:** Structures of Highly Substituted Cyclopropylcarbinyl Nonclassical Carbocations  
**Faculty Advisor:** Pier Alexandre Champagne  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Kaylin McQuillan  
Department: Biomedical Engineering  
**Project Title:** Nanoparticle Tracking Analysis of Polymer Particles in Blood Plasma  
**Faculty Advisor:** Kathleen McEnnis  
**URI Program:** NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics

Name: Shiva Senthilkumar  
Department: Biology B.A.  
**Project Title:** Dynamics of Generalized Half-Center Oscillator Neuronal Networks  
**Faculty Advisor:** Horacio Rotstein  
**URI Program:** URI Provost Summer Research Fellowship Program
Name: Nikesh Shrestha  
Department: Mechanical Engineering  
Project Title: Contact Angle Measurement for implementation in Passive Plasma Separation  
Faculty Advisor: Eon Soo Lee  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics

Name: Jailene Silveri  
Department: Biomedical Engineering  
Project Title: A MATLAB toolbox for Quality Validation of Functional Near-Infrared Spectroscopy (fNIRS) Data Collected from the Human Brain  
Faculty Advisor: Xiaobo Li  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics

Name: Kevin Yotongyos  
Department: Mathematical Sciences  
Project Title: SEIAQRVn Model of Spread of Covid-19 with cGAN Parameter Estimation  
Faculty Advisor: Casey Diekman  
URI Program: Math 451 Capstone Research Project

Name: Rebecca Zaki  
Department: Biology B.A  
Project Title: Evaluation of a Phase-Transfer Catalyst Toward the Synthesis of Chiral Alkylboronic Esters  
Faculty Advisor: Pier Alexandre Champagne  
URI Program: URI Provost Summer Research Fellowship Program
Research Presentation Areas

Robotics and Machine Intelligence

Architecture and Design

Name: Carlos Maranon  
Department: Electrical Engineering  
Project Title: Securing Deep Learning: Attack/Defense Implementations on Federated Learning  
Faculty Advisor: Abdallah Khreishah  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics

Name: Elizabeth Kowalchuk  
Department: B. Architecture  
Project Title: Bauhaus Medievalism: Gropius' Medieval Ideals and their Manifestation in Bauhaus Pedagogy  
Faculty Advisor: Louis Hamilton  
URI Program: URI Provost Summer Research Fellowship Program

Name: Dhruvi Rajpopat  
Department: Architecture  
Project Title: Visualizing Space and Place: Lessons for the Young Architect  
Faculty Advisor: Dr. Gabrielle Esperdy  
URI Program: URI Provost Summer Research Fellowship Program

Name: Jacob Swanson  
Department: Architecture  
Project Title: The Challenges of Cohousing from the Architect's Perspective  
Faculty Advisor: Maurie Cohen  
URI Program: URI Provost Summer Research Fellowship Program

Name: Aaron Gibbs  
Department: Computer Engineering  
Project Title: Exploring Image Compression Using Deep Neural Networks  
Faculty Advisor: Qing Liu  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics
Name: Bilal Adra  
**Department:** Mechanical Engineering  
**Project Title:** Dual-Layer, Millimeter-Core, Coil Wrapping Machine  
**Faculty Advisor:** Professor Balraj S. Mani, Dr. Nuggehalli Ravindra  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Lazar Agoev  
**Department:** Computer Engineering  
**Project Title:** Statistical Study of Mini-filament Eruptions  
**Faculty Advisor:** Haimin Wang  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Elizabeth Brogna  
**Department:** Biomedical Engineering  
**Project Title:** The Impact of Clutter on Multiple Object Search in Naturalistic Settings  
**Faculty Advisor:** Yelda Semizer  
**URI Program:** Honors College Summer Research Program

Name: Hao Massimo Chen  
**Department:** Computer Science  
**Project Title:** Eruption of Polar Crown Filaments  
**Faculty Advisors:** Yan Xu, Li Qin and Haimin Wang  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Reesha Gandhi  
**Department:** Human-Computer Interaction & Business Information Systems Dual Degree, Minor in Psychology  
**Project Title:** An Exploration of Intern Socialization During Remote Internships  
**Faculty Advisor:** Yvette Wohn  
**URI Program:** Honors College Summer Research Program

Name: Cindy Gonzalez  
**Department:** Human-Computer Interaction  
**Project Title:** YouMatter: Doctor-patient matching application designed for the LGBTQ+ community  
**Faculty Advisor:** Shrutika Madda  
**URI Program:** NSF iCorps NJIT Site Program
Name: Sophie Jedrysek  
**Department:** Biomedical Engineering  
**Project Title:** The Impact of Clutter on Multiple Object Search in Naturalistic Settings  
**Faculty Advisor:** Yelda Semizer  
**URI Program:** Honors College Summer Research Program

Name: Jason Kurzer  
**Department:** Information Technology  
**Project Title:** Unity for Spatial Research  
**Faculty Advisor:** Burcak Ozludil  
**URI Program:** Honors College Summer Research Program

Name: Ruchi Shah  
**Department:** Biomedical Engineering  
**Project Title:** Visual Memory and Shifting Ability in Chess Players  
**Faculty Advisor:** Yelda Semizer  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Meredith Westrich  
**Department:** Computer Science  
**Project Title:** Interface Science  
**Faculty Advisor:** Vincent Oria  
**URI Program:** Honors College Summer Research Program

Name: Allison Wong  
**Department:** Digital Design  
**Project Title:** Developing Interactive Educational Animation to Visualize Financial Concepts for Students  
**Faculty Advisor:** Hyejin Hannah Kum-Biocca  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Rui Zhang  
**Department:** Computer Science  
**Project Title:** Establishing Flare Database for Advancing Space Weather Research  
**Faculty Advisor:** Nian Liu, Ju Jing and Haimin Wang  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Ashley Ahmed  
**Department:** Chemistry and Biological Sciences  
**Project Title:** spDCC: Model-based deep embedding with spatially constrained k-nearest neighbor for single-cell RNA sequencing clustering analysis  
**Faculty Advisor:** Zhi Wei  
**URI Program:** NSF Research Experience of Undergraduate (REU) Program for Computational Data Analytics

Name: Pedro D’Avila  
**Department:** Business  
**Project Title:** Contrast Effect Bias in Finance: Pattern Deviations Conditioned on Industry Structures  
**Faculty Advisor:** Zhipeng Yan  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Jada Evans  
**Department:** Law, Technology and Culture  
**Project Title:** Indigenous Data Sovereignty and Accessibility in Rowasu’u, an A’uwē-Xavante Scientific Archive  
**Faculty Advisor:** Rosanna Dent  
**URI Program:** Honors College Summer Research Program

Name: Larissa Gao  
**Department:** Computer Science  
**Project Title:** Social Media Deplatforming Effects on User Interest in Alternative Platforms  
**Faculty Advisor:** Cody Buntain  
**URI Program:** NSF Research Experience of Undergraduate (REU) Program for Computational Data Analytics
Name: Pia Kapoor  
Department: Biology  
Project Title: Indigenous Data Sovereignty and Accessibility in Rowasu’u, an A’uwē-Xavante Scientific Archive  
Faculty Advisor: Rosanna Dent  
URI Program: Honors College Summer Research Program

Name: Gagandeep Kaur  
Department: Global Project Management  
Project Title: Quantified Customer Requirement Analysis  
Faculty Advisor: Paul Ranky  
URI Program: NSF iCorps NJIT Site Program

Name: Wara Laura  
Department: Computer science  
Project Title: Social Media Misinformation in Covid19  
Faculty Advisor: Cody Buntain  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Computational Data Analytics

Name: Ethan Lee  
Department: Math  
Project Title: Customer Churn Prediction in Grocery Store Setting  
Faculty Advisor: Lian Duan, Zhi Wei  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Computational Data Analytics

Name: Bhumi Patel  
Department: Industrial Engineering  
Project Title: Determining Conditions for the Optimal Immunization Strategy: Ring or Mass Vaccination  
Faculty Advisor: Esra Büyüktahtakin Toy  
URI Program: URI Provost Summer Research Fellowship Program

Name: David Preciado  
Department: MS, Information Systems  
Project Title: SecurList: Web Application to Proactively Protect Consumer Data and Privacy  
Faculty Advisor: Sameh Sabet  
URI Program: NSF iCorps NJIT Site Program

Name: Carlos Ruiz Justiniano  
Department: Industrial Engineering  
Project Title: Quantified Customer Requirement Analysis  
Faculty Advisor: Paul Ranky  
URI Program: NSF iCorps NJIT Site Program

Name: Joseph Schaedler  
Department: Computer Science  
Project Title: Blockchain-enabled Standardized Testing Design  
Faculty Advisor: Jasmine Chang  
URI Program: URI Provost Summer Research Fellowship Program

Name: Austin Westbrook  
Department: Masters Business Administration  
Project Title: Quantified Process Risk Analysis  
Faculty Advisor: Paul Ranky  
URI Program: NSF Grant

Name: Nathan Whitener  
Department: Computer Science, Mathematical Statistics  
Project Title: spDCC: Model-based deep embedding with spatially constrained k-nearest neighbor for single-cell RNA sequencing clustering analysis  
Faculty Advisor: Zhi Wei  
URI Program: NSF REU Program for Computational Data Analytics
Name: Peggy Yin
Department: N/A
Project Title: Predicting Priority and Information Types in Twitter Incident Streams
Faculty Advisor: Cody Buntain
URI Program: NSF Research Experience of Undergraduate (REU) Program for Computational Data Analytics

The last part of the proposed project includes development and demonstration of a modern, fully digital user interface providing real-time data and recommendations regarding the car optimum speed, acceleration, battery status, updated time of arrival, etc. This includes the car power management and self-explanatory, efficient, and
Research Presentation Area

Environment and Sustainability

Name: Salma Alami Yadri  
Department: Electrical Engineering  
Project Title: Building A Self-Sustaining Community Microgrid Using 100% Renewable Energy Resources  
Faculty Advisor: Philip Pong  
URI Program: McNair Scholar Program

Name: Samantha Augustin  
Department: Computer Engineering  
Project Title: Examining the Impact of Engineering Entrepreneurship Courses on Students  
Faculty Advisor: Prateek Shekhar  
URI Program: McNair Scholar Program

Name: Egor Demidov  
Department: Chemical Engineering  
Project Title: Enhanced Light Scattering and Absorption by Processed Soot Aerosols  
Faculty Advisor: Alexei Khalizov  
URI Program: URI Provost Summer Research Fellowship Program

Name: Manal Desai  
Department: Computer Science & Applied Mathematics  
Project Title: Analysis of Flux Rope Events and Their Effect on Earth’s Magnetosphere  
Faculty Advisor: Hyomin Kim  
URI Program: URI Provost Summer Research Fellowship Program

Name: Ian Horstkamp-Vinekar  
Department: Chemical Engineering  
Project Title: Synthesizing Biomimetic Water Splitting Catalysts  
Faculty Advisor: Michael Eberhart  
URI Program: URI Provost Summer Research Fellowship Program

Name: Manav Guzraty  
Department: Mechanical Engineering  
Project Title: Schooling of Tandem Flapping Swimmers  
Faculty Advisor: Anand Oza  
URI Program: NSF LSAMP Program
Name: Jeffrey Luk  
**Department:** Biology  
**Project Title:** Inactivation of MS2 Bacteriophage for Water Disinfection via Microwave Irradiation in the presence of Microwave-Adsorbing Catalysts  
**Faculty Advisor:** Wen Zhang  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Alan Lundi  
**Department:** Civil Engineering  
**Project Title:** Remediation of PFAS Contaminated Soil and Sediment  
**Faculty Advisor:** Jay Meegoda  
**URI Program:** McNair Scholar Program

Name: Areej Qamar  
**Department:** Biomedical Engineering  
**Project Title:** Electrochemical Studies of Catalysts Developed From RuPd Nanoparticles for the Breakdown of PFAS  
**Faculty Advisor:** Omowunmi Sadik  
**URI Program:** BioSensor Materials for Advanced Research and Technology (BioSMART Center) Undergraduate Summer Research

Name: Vishva Rana  
**Department:** Mechanical Engineering  
**Project Title:** Determination of the Ultrafine Porosity of Shale  
**Faculty Advisor:** Jay Meegoda  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Lara Rios  
**Department:** Civil Engineering (minor in Computer Science)  
**Project Title:** Open-Source, Low-Cost Lead Sensor  
**Faculty Advisor:** William Pennock  
**URI Program:** McNair Scholar Program

Name: Akhilesh Kootala  
**Department:** Mechanical Engineering  
**Project Title:** Hybrid Floating Solar and Hydro Power System  
**Faculty Advisor:** Lin Dong  
**URI Program:** NSF iCorps NJIT Site Program

Name: Samuel Solomon  
**Department:** Civil Engineering  
**Project Title:** Polymer Engineering and Mechanisms in Template Assisted Crystallization for Hardness Removal  
**Faculty Advisor:** Wen Zhang  
**URI Program:** URI Provost Summer Research Fellowship Program

Name: Shafia Talat  
**Department:** Biology, BA  
**Project Title:** A Food Forest for a Hot Planet  
**Faculty Advisor:** Maria Stanko  
**URI Program:** Honors College Summer Research Program

Name: Xin Yin  
**Department:** Environmental engineering  
**Project Title:** Enhancing Natural Source Zone Degradation Processes  
**Faculty Advisor:** Lisa Axe  
**URI Program:** NSF iCorps NJIT Site Program
Research Presentation Area

Material Science and Engineering

Name: Simone Bishara  
Department: Biochemistry  
Project Title: Observing Compressive Strength of Fibrin Hydrogels of Varying Concentrations  
Faculty Advisor: Jonathan Grasman  
URI Program: McNair Scholar Program

Name: Angel Guzman  
Department: Environmental Science  
Project Title: Flavonoid derived metal nanoparticles  
Faculty Advisor: Francis Osonga  
URI Program: Academic Summer research

Name: Alexander Hanna  
Department: Biochemistry  
Project Title: Photosensitizers for Multi-Step Excited State Electron Transfer Reactions  
Faculty Advisor: Michael S. Eberhart  
URI Program: URI Provost Summer Research Fellowship Program

Name: Christopher Leong  
Department: Physics  
Project Title: Uncooled Mid-wavelength Infrared Photoconductive Photodetectors Based on Silver Selenide Colloidal Quantum Dot  
Faculty Advisor: Dong Ko  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics

Name: Andressa Marangon  
Department: ECET  
Project Title: Engineering the Carrier Dynamics of III-Nitride Ultraviolet Nanowire Light-Emitting Diodes  
Faculty Advisor: Hieu Pham Trung Nguyen  
URI Program: McNair Scholar Program

Name: Jason Ogbebor  
Department: Chemical Engineering  
Project Title: Compressibility of Water Confined in Carbon Nanopores Via Molecular Dynamics Simulations  
Faculty Advisor: Gennady Gor  
URI Program: McNair Scholar Program
Name: Justin Pace  
Department: Chemical Engineering  
Project Title: Experimental Determination of Mixing Time in the USP Dissolution Apparatus 1  
Faculty Advisor: Piero Armenante  
URI Program: URI Provost Summer Research Fellowship Program

Name: Maryom Rahman  
Department: Chemical Engineering  
Project Title: Detection of Perfluorooctanoic Acid (PFOA) Using ESSENCE Electrochemical Sensors and Metal-Organic Frameworks  
Faculty Advisor: Sagnik Basuray  
URI Program: Other Undergraduate Student Summer Researcher

Name: Vincent Tews  
Department: Chemical Engineering  
Project Title: Hybrid Monte Carlo-Molecular Dynamics Scheme for Simulating Adsorption-Induced Deformation in Spherical Pores  
Faculty Advisor: Gennady Gor  
URI Program: URI Provost Summer Research Fellowship Program

Name: Nicholas Winay  
Department: Chemical Engineering  
Project Title: Numerical Solution for the Non-Steady-State Growth of a Gas Bubble in a Supersaturated Solution with Capillary Forces  
Faculty Advisor: Gennady Y. Gor  
URI Program: Summer Undergraduate Research with Dr. Gor

Name: Ihsaam Al-Shehab  
Department: Mechanical Engineering  
Project Title: Design of LED Structure with Negligible Electron Leakage  
Faculty Advisor: Hieu Nguyen  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics

Name: Ruby Burgess  
Department: Physics  
Project Title: Feasibility Study on Building a Stand-Alone Community Microgrid in the United States  
Faculty Advisor: Philip Pong  
URI Program: NSF Research Experience of Undergraduate (REU) Program for Optics and Photonics

Name: Fnu Mujeebu Rahman  
Department: CET and CIM  
Project Title: Conductive Rigid Concrete Pavement  
Faculty Advisor: Ahmed Omran  
URI Program: NSF iCorps NJIT Site Program

Name: Vignesh Sridhar  
Department: Mechanical Engineering  
Project Title: Magnetorheological (MR) Fluids of mixtures of micron-sized ferromagnetic and diamagnetic particles  
Faculty Advisor: Pushpendra Singh  
URI Program: Undergraduate Research Assistant