University at Buffalo The State University of New York

2019
Collegiate Science & Technology Entry Program (CSTEP)

2019 CSTEP Research Interns in Capen Hall Silverman Library

SUMMER RESEARCH PROGRAM
RESEARCH SYMPOSIUM & LUNCHEON

NEW YORK STATE CSTEP
COLLEGIATE SCIENCE & TECHNOLOGY ENTRY PROGRAM
preparing science, technology & licensed professionals since 1986

Wednesday, July 24, 2019
11:00 am – 1:30 pm
University at Buffalo
Jacobs School of Medicine and Biomedical Sciences

PROGRAM ORDER

WELCOME
SHANNA CRUMP-OWENS
Director, Collegiate Science & Technology Entry Program (CSTEP)

OPENING REMARKS
DR. GRAHAM HAMILL
Vice Provost for Graduate Education and Dean of the Graduate School

LUNCHEON & SLIDESHOW NARRATIVE
NELSON RIVERA/KHANYISILE NGALO

STUDENT PERSPECTIVES
ARSH ISSANY, Biomedical Sciences
TAMIJAH LAWTON-STONE, Psychology/Sociology
HEATHER EVANGELISTA, Environmental Engineering
MARCELLUS MIDYETTE, Biological Sciences

POSTER COMPETITION & JUDGES PRESENTATION
LAVONE RODOLPH
Doctoral Student, Computer Science & Engineering

FACULTY MENTOR & STUDENT AWARD PRESENTATION
SHANNA CRUMP-OWENS
Director, Collegiate Science & Technology Entry Program (CSTEP)

CLOSING REMARKS
SHANNA CRUMP-OWENS
Director, Collegiate Science & Technology Entry Program (CSTEP)

University at Buffalo
Collegiate Science and Technology Entry Program
Undergraduate Education

CSTEP MOTTO: "TO WHOM MUCH IS GIVEN, MUCH IS EXPECTED"

CSTEP DIRECTOR'S MESSAGE

Welcome to the 13th Annual CSTEP Summer Research Symposium! Our 8.5-week Summer Research Program enhances the competitiveness of talented underrepresented students pursuing STEM and the allied health professions. I congratulate their dedication to scholarly excellence and research – they are exemplars among their peers. Today, we celebrate the fruition of their hard work as they present their research to peers, faculty and staff; they can look back on their efforts with pride.

Our goal was to structure a holistic, engaging, and transformative experience which provided our students with a fundamental understanding of how research plays an important role in tackling complex societal challenges. I am confident that the structure of our program deepened their understanding of research and how much their respective fields will gain from their knowledge, skills, and experiences.

A significant and effective tool in increasing the enrollment of underrepresented students in graduate programs is to provide them with opportunities to conduct research early in their undergraduate careers. Our research interns have broadened their knowledge and gained insight into critical issues, while developing analytic, leadership, and problem solving skills. In addition, this summer experience allowed them to gain a better perspective of research and its role in society. They also learned the value of teamwork and collaboration which are both essential in today's research and work environments.

To our faculty research mentors, workshop facilitators, udges and research methods seminar instructor which number 40 - thank you for your time, and expertise. We could not successfully execute the summer research program and create community among this diverse group of talented students without the contributions from UB faculty and staff. We value our collaborations with you and look forward to continued collaborations.

We are confident that the research experience, research methods course, seminars, and fieldtrips fostered a sense of community while enhancing undergraduate experiences. I encourage each CSTEP Scholar to continue taking advantage of the resources, opportunities, and services offered by CSTEP to make your UB experience more personal. We hope you found the support, guidance, and nurturing environment we provided to be beneficial. Also, remember the CSTEP motto: "To whom much is given, much is required." It is a pleasure to work with you.

SHANNA CRUMP-OWENS
CSTEP Director

WHAT'S IN IT FOR ME?
THE PERKS OF JOINING UB CSTEP

CSTEP offers valuable tools: advisement, tutoring, paid research internships, scholarships, service learning, specialized courses and travel to conferences and workshops, which empower students to become successful in their chosen profession. Our alumni have made major contributions in both their careers and communities. Many of these same graduates report that CSTEP played a key role in helping to develop the confidence and skills necessary to navigate through their college years and into the profession of their dreams.

UB CSTEP offers the following programs and services for our students:

PAID RESEARCH & INTERNSHIP OPPORTUNITIES

Paid research and internships are an integral part of CSTEP - to introduce talented underrepresented students to the culture of research, provide insight related to their major and expose students to the rigors of graduate study. The CSTEP Research Internship Program exposes selected students to research and career opportunities in their major. CSTEP works with students to identify faculty research mentors or internship supervisors.

ACADEMIC YEAR RESEARCH/INTERNSHIP PROGRAM

During the academic year, interns work for 12 weeks per semester under the guidance of a research mentor or internship supervisor. Students are assigned a research project for up to 10 hours per week, at the discretion of the research or internship supervisor. Students are awarded a research stipend from CSTEP during their research or internship experience.

SUMMER RESEARCH PROGRAM

The CSTEP Summer Research Program is an intensive 8.5-week program designed to enhance the competitiveness of talented underrepresented students pursuing STEM and the allied health professions. The program strengthens participants' research skills and exposes them to the rigors of graduate study. Students are matched with faculty to conduct research for 30 hours per week. In addition to gaining research experience, students participate in a research methods course, seminars, and field trips. As a capstone, at the end of the program, students present their research to their peers, faculty and the University community during our Annual Research Symposium. The summer program takes place from the beginning of June through the end of July. Applications are due in March of each year.

TUTORING

CSTEP students have access to the CPMC Academic Resource Center (ARC) which offers tutoring in courses identified as consistent challenges for students such as anatomy, biology, calculus, chemistry, pharmacology, physiology, physics, and engineering.

FUNDING OPPORTUNITIES FOR CONFERENCES

CSTEP covers travel expenses for selected academic, career, and graduate school conferences and enrichment programs. These opportunities boost students' leadership skills, while building their resumes.

GRADUATE SCHOOL PREPARATION

CSTEP awards scholarships to students for Kaplan Review Courses, which provide preparation for standardized graduate entrance exams, including the GRE, MCAT, LSAT, GMAT, and PCAT exams. Our staff also assists with personal statement preparation and review, and provides mock interviews for students applying to graduate/professional schools. CSTEP also offers a Graduate School Fee Waiver for current CSTEP students applying to graduate or professional school. More details can be found on our website: http://cpmc.buffalo.edu/cstep/grad-school.php.

SERVICE LEARNING CLASS

A cohort of 25 students is selected to engage in a semester-long structured service learning project, becoming a Community Health Educator (CHE). The goal of CHE is to increase the number of individuals participating with the organ donor registry. This goal is achieved by engaging students pursing allied health majors in service learning, and training them to conduct educational workshops for UB students, and facilitating a campus-wide organ donor registry drive. Our partner for the CHE Service Learning Project is Unyts (formerly Upstate New York Transplant Services).

CSTEP SHADOW DAY

CSTEP students serve as mentors to high school students enrolled in the Science Technology Entry Program (STEP). As mentors, CSTEP students allow STEP students to "shadow" them by attending classes with them to get a glimpse of what college classes are like.

CSTEP DAY OF SERVICE

CSTEP students visit local high schools in the Buffalo Public School System to share their collegiate experiences with students in their classrooms. This serves as a vehicle to give students from targeted high schools "college knowledge" while also introducing them to STEM fields and the licensed professions.

HABITAT FOR HUMANITY/GRASSROOTS COMMUNITY GARDENS

CSTEP students team up with Habitat for Humanity Buffalo, a non-profit charitable organization seeking to alleviate the shortage of affordable housing both within the U.S. and abroad. Through volunteer labor and donations, Habitat for Humanity Buffalo has built and rehabilitated over 225 homes for families who have difficulty obtaining a home through other means.

SUPPORT FROM THE CSTEP NETWORK OF STAFF, STUDENTS, AND ALUMNI

We offer academic, career, and personal counseling to assist students in overcoming difficulties, finding solutions, and establishing their priorities. The CSTEP Newsletter, website, and Student Recognition Dinner recognize the achievements of our students and help build the camaraderie that our students have come to rely on.

MONTHLY EVENTS, WORKSHOPS, AND ENRICHMENT ACTIVITIES

Monthly meetings help build the community our students have come to rely upon. Students who attend our monthly meetings gain invaluable advice as they have the opportunity to learn from each other's experiences and receive professional advice from alumni and guest speakers. Below is a list of several of this year's workshops and enrichment activities:

CSTEP Welcome Back BBQ
ABC's of Graduate School
CSTEP Shadow Day
Maximize Your Potential
Rx for Success Seminar (Pharmacy School)
CSTEP's Day of Service
Effective Study Skills
Time Management

Graduate School Panel
Money Management
Rx for Success Seminar (Medical School)
Blueprint for Success
Statewide Student Conference
Student Recognition Dinner
Student Research Luncheon
Summer Research Program

CSTEP CAREERS

Architect • Audiologist • Biologist • Dietitian • Certified Public Accountant • Chemist • Chiropractor • Computer Scientist • Dentist • Geologist • Engineer • Lawyer • Mathematician • Medical Doctor • Midwife • Nurse Practitioner • Occupational Therapist • Occupational Therapy Assistant • Optometrist • Pharmacist • Physical Therapist • Physicist • Podiatrist • Psychologist • Physician Assistant • Registered Nurse • Respiratory Therapist • Social Worker • Speech-Language Pathologist • Veterinarian

MAKING A DIFFERENCE IN WNY:

UB CSTEP HIGHLIGHTS

CSTEP addresses the shortages of underrepresented students both in the Science, Technology, Engineering, Mathematics (STEM) and the licensed professions. Resources available to CSTEP students include: paid research with faculty, internships, graduate school preparation, scholarships for standardized test preparation, academic and career advisement, tutorial services, monthly seminars, travel to professional conferences, and a support network to assist promising students in achieving their academic and professional goals.

During our previous grant cycle, CSTEP received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM). This award, administered by the National Science Foundation, recognizes individuals and organizations that have demonstrated a commitment to mentoring students and increasing the participation of minorities and women in Science, Technology, Engineering, and Mathematics (STEM). Awardees serve as exemplars to their colleagues in the national effort to develop the nation's human resources in the STEM professions.

Did You Know...?

- More than 90% of UB CSTEP students have entered into the CSTEP targeted professions or attended graduate school after obtaining their bachelor's degree.
- More than half of all CSTEP Students possess overall GPA's above 3.0.
- Our current enrollment is 374 students.
- Since the program's inception, UB CSTEP has awarded over 170 CSTEP/Kaplan scholarships to students in preparation for standardized graduate school exams (PCAT, MCAT, GMAT, LSAT, and GRE).
- This year, CSTEP and CURCA sponsored 15 students, staff, and alumni, including 3 students who presented their research at the 27th Annual CSTEP Statewide Conference: Journey's Beyond Excellence in Lake George, NY.
- This year, 35 CSTEP students were placed in funded research internships and completed over 7,000 hours.
- To help provide service to our students, CSTEP has hired a cadre of approximately 97 Graduate and Student Assistants to work within our office. This provides funding for the staff during their time as graduate and undergraduate students at UB.

WHY DO RESEARCH? STUDENT PERSPECTIVES
Written by the 2019 Summer Research Cohort

Research exists in many forms. Whether it is a child turning over rocks to look for bugs, or a NASA scientist combing the night sky in search of extraterrestrial life, research and understanding are integral facets of human behavior. For many students, it is an essential part of the undergraduate experience. The Collegiate Science and Technology Entry Program (CSTEP) Summer Research Program is a comprehensive experience which aims to present students with an opportunity to learn from experts in their fields. For eight weeks, students work closely under the guidance of a faculty mentor, while also receiving interpersonal enrichment and professional development. The program prepares students for the laboratory environment and serves as a catalyst for their future endeavors.

Students of the CSTEP Summer Research Program are engaging in research for a medley of reasons. Many of them see it as an invaluable learning experience. Abdulelah Ahmed, a sophomore Biomedical Science major expresses his profound appreciation for his evolving understanding of research. He writes: "I have learned a lot about what goes on during research first hand. I have come to value, respect, and love undergoing research and contributing new knowledge". For Tamijah Lawton-Stone, a junior Psychology major, research is a journey of discovery and this belief echoes clearly in her words: "I believe we do research to better understand the world around us, at which we live in". Biological Science major, Ronique Fletcher sees research as a challenge to propel students forward. She writes: "Research is done to help students gain somewhat of a push towards figuring out what they would like to pursue as a career". Many students see research as a method of interacting with knowledgeable professionals.

The immersion of students in research has provided an opportunity for students catch a glimpse of the day-to-day workings of experts in their fields. Isabelle Linares, a Biomedical Engineering major, sees research as "an opportunity to expand our network with other individuals and teams that are working toward similar goals". A Mechanical Engineering major, Ricardo Martinez, hailing from Port Chester, NY shared a similar view. He states: "Research is a conversation amongst intellectuals that are trying to tackle a problem that has no definitive solution. You contribute to the discussion and shape how those who are willing to continue doing further research think". Heather Evangelista, a junior Environmental Engineering major states "Research allows undergraduates to discover their passion and determine an area of interest to jump start their careers as a researcher".

In addition to networking, many students see research as a nesting ground of innovation. Triniti Fitts, a Biological Sciences major, believes that research fuels progress and innovation in the world. An Environmental Engineering major, Lesly Villanueva, writes: "It is important to conduct research because this is where development and innovation comes from". In a similar line of thought, Julie Campbell, a senior Public Health major from Rochester, NY reminds us "research provides us with revelation, clarity, frustration, and more questions from which we can emerge with life-changing medical breakthroughs or innovative technological solutions".

Through their experiences engaging in research, students feel emboldened to contribute to their fields and society. Arsh Issany, a junior Biomedical Science major, asserts that our pursuit of more knowledge is premised on the idea that "the more knowledge we have of the world the better we can enhance the human condition". As a Chemistry major, Adegoboyega Thompson, foresees his research "helping people feel safer about taking CBD products off the shelves, and trusting that they are ingesting the actual ingredients listed on certain bottles". Sophomore Biomedical Sciences major, Marvelous Adegoke, believes that research allows knowledge to evolve and creates the bedrock for techniques utilized in clinical practice. Biological Sciences student, Marcellus Midyette from Binghamton, NY is clear in his resolve, he challenges us to "use research to push the boundaries of human knowledge to better our lives".

Each student has their own reasons for conducting research. For some, it presents an opportunity to gain invaluable career experience. Others see it as a chance to gain recognition as innovators. Nonetheless, research is an integral part of the undergraduate experience. Through the enrichment of the CSTEP Summer Research program, our students learn the importance of research and gain invaluable skills to use in education, the workforce, and beyond.

-2019 CSTEP Summer Research Cohort

RESEARCH INTERNSHIP SCHOLARS

Marvelous Adegoke

HOMETOWN: Bronx, NY
MAJOR: Pharmacy
INTERNSHIP PLACEMENT: Translational Pharmacology Research Core
SUMMER MENTOR: Dr. Qing Ma
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Pharmacy Practice

SUMMER PROJECT: *The Potential Role of Broadly Neutralizing Antibodies in HIV Suppression and Prevention*
ABSTRACT: Antiretroviral therapy (ART) enables those infected with HIV to live long and healthy lives by suppressing the virus. However, ART requires a daily regimen to be effective. In response to this problem, the Translational Pharmacology Research Core is studying the applications of broadly neutralizing antibodies (bNAbs). bNAbs come with the benefit of treatment that is only applied 2-3 times a year. By combining bNAbs that target different epitopes on HIV's envelope trimer, bNAb application can function as the next breakthrough in HIV treatment.

ACADEMIC AND CAREER GOALS: To obtain a Doctorate of Pharmacy and become a hospital pharmacist.
WORDS TO LIVE BY: "You miss 100% of the shots you don't take." - Wayne Gretzky

Abdulelah Ahmed

HOMETOWN: Lackawanna, NY
MAJOR: Biomedical Sciences
INTERNSHIP PLACEMENT: Dept. of Pharmacology and Toxicology
SUMMER MENTOR: Dr. Arin Bhattacharjee
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Pharmacology and Toxicology

SUMMER PROJECT: *Investigating the Roles of 14-3-3 Zeta/Epsilon Proteins in Nociception*
ABSTRACT: Chronic pain affects 1 in 5 people worldwide. Nociceptors, pain receptors in the peripheral dorsal root ganglion, activate when the body experiences inflammation. There are efficacious treatments for inflammatory pain, however, adverse side effects associated with these drugs limit their long-term use and compromise patient compliance. 14-3-3-mediated protein-protein interaction networks exert critical roles in the regulation of diverse cellular signaling pathways. We have identified 14-3-3 as a target for future development of non-opioid analgesics. We will investigate the biochemical and electrophysiological consequences of inhibiting 14-3-3 action. This research will further our understanding of the cellular processes involved in inflammatory pain.

ACADEMIC AND CAREER GOALS: To obtain a Medical Degree and become an Orthopedic Surgeon.
WORDS TO LIVE BY: "There is nothing better than adversity. Every defeat, every heartbreak, every loss, contains its own seed, its own lesson on how to improve your performance the next time." - Malcolm X

Julie Campbell

HOMETOWN: Rochester, NY
MAJOR: Public Health
INTERNSHIP PLACEMENT: Dept. of Community Health & Health Behaviors
SUMMER MENTOR: Dr. Gregory Homish, Ph.D. Interim Chair CHHB
SUMMER MENTOR TITLE: Professor
DEPARTMENT: Community Health & Health Behaviors

SUMMER PROJECT: *Co-Morbid Symptomatology: A Cross Sectional Analysis of Post-Traumatic Stress Disorder (PTSD) and Chronic Inflammatory Health Conditions in U.S. Army Reserve/National Guard Soldiers*

ABSTRACT: The effects of Post-traumatic stress disorder (PTSD) vary significantly, with emerging literature suggesting strong links between PTSD and chronic inflammatory health conditions such as Hypertension, Cardiovascular Disease and Cerebrovascular Accident. To further this investigation, we assessed the prevalence of inflammatory health conditions in U.S. Army Reserve/National Guard soldiers who are particularly at risk for PTSD, using a survey-based, cross-sectional analysis. We hypothesized that greater PTSD symptomatology would be associated with a greater likelihood of chronic inflammatory conditions. This research will support the necessity of early detection and PTSD treatment to prevent or reduce chronic health comorbidities in military populations.

ACADEMIC AND CAREER GOALS: To become a Infectious Disease Specialist after obtaining a Masters of Public Health and also a Doctor of Medicine.
WORDS TO LIVE BY: "It always seems impossible until it's done." - Nelson Mandela

Taylor Campbell

HOMETOWN: Valley Stream, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Department of Biological Sciences
SUMMER MENTOR: Dr. Shermali Gunawardena
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Biological Sciences

SUMMER PROJECT: *Characterization of ER Channel Protein Sec61B-tomato During Axonal Transport in Drosophila Neurons*

ABSTRACT: Within neurons, bidirectional long-range transport of important cargo occur from cell bodies to synapses. Transport is essential for neuronal functions and when disturbed, neurodegenerative diseases may arise. The endoplasmic reticulum is thought to be present throughout axons, however little is known about how it functions within the axon. Using Drosophila genetics and in vivo microscopy, I have imaged the movement dynamics of the ER channel protein, sec61B-tomato, within larval axons. Investigating the motility dynamics of ER proteins will allow us to isolate the mechanistic details of how the axonal ER aids in the function of long-range transport.

ACADEMIC AND CAREER GOALS: To obtain an MD and become a physician.
WORDS TO LIVE BY: "I can because I'm going to have to."

Heather Evangelista

HOMETOWN: Westbury, NY
MAJOR: Environmental Engineering
INTERNSHIP PLACEMENT: Environmental Engineering
SUMMER MENTOR: Dr. John D. Atkinson
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Civil, Structural and Environmental Engineering

SUMMER PROJECT: *Improving Carbon Disulfide Adsorption in the Presence of Moisture*
ABSTRACT: Moisture is always present in industrial processes. In the gas phase, competitive moisture adsorption decreases capacity for the target contaminant. This research quantifies the impact of moisture on carbon disulfide (CS2) adsorption when applying activated carbons or polymeric adsorbents. Adsorbent performance was compared using breakthrough curves prepared in wet and dry conditions. Understanding adsorption processes, specifically in the presence of moisture will improve industrial air pollution control efforts.

ACADEMIC AND CAREER GOALS: To obtain a Masters in Sustainable Engineering and then seek employment as a Sustainable Consultant for an Environmental Consulting Firm.
WORDS TO LIVE BY: "Whether you think you can or you think you can't ... you're right." - Henry Ford

Florebencia Fils-Aime

HOMETOWN: Springfield Gardens, NY
MAJOR: Computer Engineering
INTERNSHIP PLACEMENT: Department of Computer Science & Engineering
SUMMER MENTOR: Dr. Karthik Dantu
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Computer Science & Engineering

SUMMER PROJECT: *Measuring the Power of SLAM Algorithms against Perceptual Aliasing*
ABSTRACT: Simultaneous Localization and Mapping (SLAM) is the procedure which a robot builds a map and uses that map to navigate itself. It is used in virtual reality and cleaning robots. Some of the challenges in SLAM algorithms are the immense computation costs and perceptual aliasing. To mitigate perceptual aliasing, we use an algorithm called RGBDW. RGBDW uses wireless data to improve the accuracy of visual SLAM algorithm. The objective of this experiment is to test the robustness of RGBDW against perceptual aliasing by collecting data from multiple buildings and sensors.

ACADEMIC AND CAREER GOALS: To go in the industry to study robotics and devices of disabled people, and go back to school to get my Master's degree.
WORDS TO LIVE BY: "Never make someone a priority when all you are to them is an option." - Maya Angelou

Triniti Fitts

HOMETOWN: Rochester, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Department of Exercise and Nutrition Sciences
SUMMER MENTOR: Dr. Blair Johnson
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Exercise and Nutrition Sciences

SUMMER PROJECT: *Peripheral Chemosensitivity in Acutely Concussed Athletes*
ABSTRACT: Evidence indicates that concussed athletes have lower central chemosensitivity compared to healthy controls. The central and peripheral chemoreceptors are necessary to elicit full ventilatory response to hypercapnia. Peripheral chemoreceptors typically become activated when exposed to hypoxia or hypercapnia and stimulate a rise in ventilation, heart rate, and blood pressure. However, it's unknown if peripheral chemosensitivity is impaired in concussed athletes. We hypothesized that peripheral chemosensitivity will be lower in acutely concussed athletes and cardiovascular responses to hypoxia and hypercapnia will be attenuated compared to healthy controls. We will induce hypercapnia and hypoxia in subjects while monitoring ventilatory and cardiovascular responses.

ACADEMIC AND CAREER GOALS: I plan to attend medical school and become a physician, then open a private practice.
WORDS TO LIVE BY: "We are what we repeatedly do. Excellence then, is not an act but a habit." - Aristotle

Ronique C. Fletcher

HOMETOWN: Brookly, NY
MAJOR: Biomedical Sciences
INTERNSHIP PLACEMENT: Department of Obstetrics and Gynecology
SUMMER MENTOR: Dr. Glenna C. Bett
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Biophysics and Physiology

SUMMER PROJECT: *Morpholinos Concentration Effects on hiPSC-CMs*
ABSTRACT: Human induced pluripotent stem cell derived cardiomyocytes (hiPSC-CMs) lack key potassium ion expression disabling operation on a physiological level. Morpholino antisense oligonucleotides (MAO) treatments increases functional human Ether-a-go-go-Related Gene (hERG) expression in human embryonic kidney cells, a gene that codes potassium channels in cells, quantified as inward rectifier potassium channel (IKr). Following treatments of MAO in hiPSC-CMs, we observed an increase IKr expression. Cells were treated with MAO for 6 hours, then incubated for 48 hours. Using patch clamp experiments, a technique used to manipulate cells, we expect to determine if MAO concentration affects IKr expression in hiPSC-CMs.

ACADEMIC AND CAREER GOALS: To obtain an MD/PhD in stem cell research and develop stem cell therapies for spinal injuries.
WORDS TO LIVE BY: "There is a sacredness in tears. They are not the mark of weakness, but of power. They are messengers of overwhelming grief and unspeakable love." - Washington Irving

Allea Frazier

HOMETOWN: Rochester, NY
MAJOR: Psychology
INTERNSHIP PLACEMENT: Research Institute on Addictions
SUMMER MENTOR: Dr. Shannon Shisler
SUMMER MENTOR TITLE: Data Analyst
DEPARTMENT: Psychology

SUMMER PROJECT: *The Relationship Between Prenatal Tobacco/Marijuana Exposure and Internalizing Behavior Problems and the Role of Parenting*

ABSTRACT: Tobacco and marijuana are two of the most commonly used substances among pregnant women. Findings indicate that both prenatal exposure to tobacco (PTE) and co-exposure to tobacco and marijuana (PTME) may have effects on neurological and behavioral development. Both PTE and PTME may be linked to higher rates of internalizing behavioral problems in childhood. The aim of the current study is to examine the associations of PTE and PTME on internalizing behaviors at kindergarten age. Additionally, parenting styles will be examined as a potential moderator of the association between substance exposure and internalizing behaviors.

ACADEMIC AND CAREER GOALS: To obtain a MD or a PhD in Neuropsychology.
WORDS TO LIVE BY: "Do All Things Well."

Muhanned Ibrahim

HOMETOWN: Rochester, NY
MAJOR: Computer Sciences
INTERNSHIP PLACEMENT: Center for Analytics Research and Applications (CARA), Department of Computer Science and Engineering
SUMMER MENTOR: Dr. Varun Chandola
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Computer Science and Engineering

SUMMER PROJECT: *Blood-glucose Level Prediction for Diabetic Patients Using Machine Learning*

ABSTRACT: Diabetes mellitus is a chronic disease in which the body is unable to regulate its blood- glucose levels (BGL), impacting millions worldwide. A diabetic patient is in a hypoglycemic state when their BGL is low. In contrast, they are in a hyperglycemic state when their BGL is high. We will investigate many strategies for machine learning models that predict future BGL, starting from simple linear-regression models and eventually leading to more complex state-of- the-art deep-learning-based models. Such models are critical as the ability to accurately predict when hyper- or hypoglycemic excursions occur would give patients the ability to take life-saving preventative action.

ACADEMIC AND CAREER GOALS: To obtain a PhD in computer science with a focus in machine learning and become a computer scientist, eventually practicing in industry or academia.
WORDS TO LIVE BY: "Continuous effort - not strength or intelligence - is the key to unlocking our potential." - Winston S. Churchill

Ayesha Ismail

HOMETOWN: Buffalo, NY
MAJOR: Computer Science
INTERNSHIP PLACEMENT: Motor Learning and Neurorehabilitation Lab
SUMMER MENTOR: Dr. Jeanne Langan
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Rehabilitation Science

SUMMER PROJECT: *Experiential Learning Experience for Individuals Working on Technology-development for use by Special Target Population*

ABSTRACT: Engineering students are often taught technical skills when it comes to product development, however, they often lack exposure to interacting with the end users of the product. This can lead to failure in the adoption of the technology for intended-users. In the Motor learning and neurorehabilitation lab, we will be interviewing engineering students who have interacted with end users and comparing with those who lacked such exposure while developing health-related technology for the use of special target population. This research will allow us to understand if interacting with end users of technology has a positive impact on students developing technology.

ACADEMIC AND CAREER GOALS: To obtain a PhD and become an entrepreneur one day. I am really confused what department/area I want to pursue for Masters and PhD but leaning towards either health-related field or engineering.
WORDS TO LIVE BY: "If you're tired, learn to rest, not quit."

Arsh Issany

HOMETOWN: Great Neck, NY
MAJOR: Biomedical Sciences
INTERNSHIP PLACEMENT: Maternal and Child Health Lab, Division of Behavioral Medicine, Department of Pediatrics, Jacobs School of Medicine and Biomedical Science
SUMMER MENTOR: Dr. Xiaozhong Wen
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Pediatrics

SUMMER PROJECT: *Bi-Directional Analysis of Smoking and Breastfeeding*

ABSTRACT: Previous Research supports the potential of bi-directional association between smoking and insufficient breastfeeding. We aimed to identify 1) the effect of smoking cessation on breastfeeding initiation among smoking mothers, and 2) the effect of breastfeeding duration on postpartum smoking relapse among quitters. We found that 71% of mothers who quit smoking initiated breastfeeding vs 0% of mothers who didn't quit (p=0.0031). Our survival analysis suggests smoking mothers wean earlier (p=<.0001).We found 16.7% mothers who breastfed for 1 month relapsed at 3 months vs 75% of mothers who did not breastfeed (p=.0293).

ACADEMIC AND CAREER GOALS: To obtain an MD and practice medicine.
WORDS TO LIVE BY: "It's not whether you get knocked down, it's whether you get up." - Vince Lombardi

K'Von Jones

HOMETOWN: Mt. Vernon, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Department of Community Health and Behavior
SUMMER MENTOR: Amanda K. Crandall
SUMMER MENTOR TITLE: PhD Candidate
DEPARTMENT: Community Health and Health Behavior

SUMMER PROJECT: *Children's Self-efficacy for Healthy Eating*
ABSTRACT: Juvenile obesity is a public health crisis that results in higher risk for chronic diseases later on in life. A determinant for one's risk for obesity is their food security, or access to affordable, nutrient-rich food. Additionally, food insecurity would also hinder one's confidence in eating healthy and increase their personal risk for obesity. In the Snack Study, we assessed the self-efficacy of 234 adolescent's eating habits from different food security levels by posing different scenarios. We found that food insecure children's self-efficacy was associated with their parent's food security.

ACADEMIC AND CAREER GOALS: To obtain a Master's in Public Health and become a Community Health Educator.
WORDS TO LIVE BY: "I'd rather be happy being myself than sad trying to please everyone else." - J. Cole

Charles Lafargue

HOMETOWN: Westbury, NY
MAJOR: Pharmacology & Toxicology
INTERNSHIP PLACEMENT: Jacobs School Of Medicine And Biomedical Sciences
SUMMER MENTOR: Dr. David Dietz
SUMMER MENTOR TITLE: Associate Professor; Chair
DEPARTMENT: Pharmacology and Toxicology

SUMMER PROJECT: *Effects Of KDM6B On Opioid-Induced Behavioral Plasticity*
ABSTRACT: Opioid addiction is a chronically recurrent and debilitating disease that is characterized by uncontrollable drug-seeking behavior. One of the persistent changes underlying neuroadaptive mechanisms during abstinence from drugs of abuse is epigenetic modifications of DNA and histones in the nucleus accumbens (NAc). Lysine specific demethylase 6B (KDM6B) is a histone demethylase which mediates removal of repressive histone trimethylation marks at lysine 27 residue (H3K27) of histone tails. The aim of this study is to investigate the role of accumbal KDM6B in mediating heroin-induced cellular and behavioral plasticity following prolonged withdrawal.

ACADEMIC AND CAREER GOALS: My long-term career goal is to become a research physician after I obtain a Master's in Pharmacology and Toxicology and an M.D./Ph.D in Anesthesiology.
WORDS TO LIVE BY: "Tell me and I forget. Teach me and I remember. Involve me and I learn." - Benjamin Franklin

Tamijah Lawton-Stone

HOMETOWN: Watkins Glen, NY
MAJOR: Psychology
INTERNSHIP PLACEMENT: Behavioral Neuroendocrinology Laboratory
SUMMER MENTOR: Dr. Matthew Paul
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Psychology

SUMMER PROJECT: *Role of Prepubertal Estradiol in Juvenile Social and Affective Behavior*
ABSTRACT: The juvenile period is often considered a time of gonadal quiescence. Research in our laboratory has uncovered a novel, inhibitory role for the ovary in juvenile social and affective behaviors. The mechanism which the ovary inhibits behaviors, however, is unknown. The present experiment, tests whether estradiol mediates actions of the ovary on juvenile behavior. Male/female juvenile Siberian hamsters received a daily letrozole injection, an inhibitor of aromatase the precursor to estradiol synthesis by interrupting the biosynthetic pathway, following social behavior and light/dark box tests. The research will uncover a novel mechanism through which hormones regulate juvenile behavioral development.

ACADEMIC AND CAREER GOALS: To serve my community as a trauma surgeon.
WORDS TO LIVE BY: "The Greatest Act of Patriotism is Love."

Isabelle Linares

HOMETOWN: Penfield, NY
MAJOR: Biomedical Engineering
INTERNSHIP PLACEMENT: Biomaterials and Regenerative Therapeutics Laboratory
SUMMER MENTOR: Dr. Debanjan Sarkar
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Biomedical Engineering

SUMMER PROJECT: *Characterizing Polyurethane Colloidal Gel Microstructures for the Application of Tissue Engineering Scaffolds*
ABSTRACT: Colloidal gels are promising biomaterials in the design of bioactive scaffolds for tissue regeneration. However, the distinct morphology of polyurethane-based colloidal gels has not been elucidated. In the Biomaterials and Regenerative Therapeutics Laboratory, we used a bottom-up approach to create gels by dispersing ionic polyurethane particles in water and adding electrolyte to initiate aggregation. Varying the ionic character and particle fraction, we compared the microstructures and mechanism of aggregation using fluorescence microscopy. The kinetics of aggregation using UV-Vis spectroscopy was also assessed. Characterizing the gel microstructures will allow us to create 3D-structured scaffolds to control the morphological organization of cells.

ACADEMIC AND CAREER GOALS: To attend graduate school in the field of biomedical engineering and pursue a career in regenerative medicine.
WORDS TO LIVE BY: "Success usually comes to those who are too busy to be looking for it." - Henry David Thoureau


GROUP SALES
Six Flags







Connect Four


REACHING












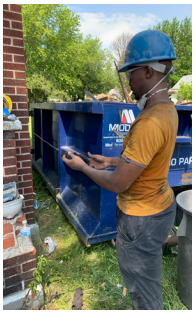

Julius Mark

HOMETOWN: Brooklyn, NY
MAJOR: Mathematics
INTERNSHIP PLACEMENT: Department of Geostatstics
SUMMER MENTOR: Dr. Eun-Hye Yoo
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Geostatistcs

SUMMER PROJECT: *Capturing Human Spatial Behavior using Network Motifs*
ABSTRACT: Network motifs are patterns of nodes and edges with a certain geometric structure that reoccur more frequently in complex networks than in randomized networks. These specific patterns are used in networks such as ecological food webs to explain certain frequencies between specific genetic connections. Using this concept, the purpose of this research is to find a more efficient way of detecting human movement using network motifs, with the focus being to find a connection between the motifs and human mobility.

ACADEMIC AND CAREER GOALS: To become an actuary.
WORDS TO LIVE BY: "If you believe it, you shall receive it."

Ricardo Martinez

HOMETOWN: Port Chester, NY
MAJOR: Mechanical Engineering
INTERNSHIP PLACEMENT: Department of Mechanical and Aerospace Engineering
SUMMER MENTOR: Dr. Aaron Estes
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Mechanical and Aerospace Engineering

SUMMER PROJECT: *Design of a Fiber- Reinforced Actuator for Virtual Reality*
ABSTRACT: Virtual reality gloves are typically made of rigid materials which are large and heavy. This increases user fatigue and hinder upper-limb movement. Implementing a soft actuator consisting of an elastomer bladder reinforced with a strain-limiting layer and inextensible fibers would eliminate these issues. The placement of the reinforced material defines the type of motion achieved when the bladder is inflated, which can be suitable as a force feedback mechanism for a virtual reality glove. By using a flex sensor attached to the actuator and Arduino we can determine the joint angles of the finger to interact with virtual objects.

ACADEMIC AND CAREER GOALS: To obtain a Masters in Mechanical Engineering and work in the industry afterwards.
WORDS TO LIVE BY: "Moving Forward."

Marcellus G. Midyette

HOMETOWN: Binghamton, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Department of Community Health and Behavior
SUMMER MENTOR: Amanda K. Crandall
SUMMER MENTOR TITLE: PhD Candidate
DEPARTMENT: Community Health and Behavior

SUMMER PROJECT: *Brain Game Study*
ABSTRACT: Over recent years, there has been a growing amount of research about poverty and eating behaviors and their effects on obesity rates. However, prior studies have not investigated the correlation between Food Insecurity, Stress, and Power of Food. My goal was to find the correlation between these three factors and identify if it leads to higher risks for obesity. We measured BMI and administered surveys to 244, 12-14 year olds. The data showed, adolescent's Food Insecurity relates to behavior, while parent Food Insecurity predicts adolescents' BMI.

ACADEMIC AND CAREER GOALS: To graduate from UB with a Bachelors in Biology and then Obtain my Masters in either Public Health or Biology. After I receive my Master I plan on going to Med School and becoming an MD. After School I plan to work as a pediatrician in an underprivileged community.
WORDS TO LIVE BY: "Love is the most powerful tool in this world use it everyday. Keep your head in the clouds and your feet on the ground."

Chidubem Okorozo

HOMETOWN: Rosedale, NY
MAJOR: Chemical Engineering
INTERNSHIP PLACEMENT: Department of Chemical & Biological Engineering
SUMMER MENTOR: Dr. Mark Swihart
SUMMER MENTOR TITLE: UB Distinguished Professor, Chair
DEPARTMENT: Chemical and biological Engineering

SUMMER PROJECT: *Laser Pyrolysis Synthesis of Zinc Sulfide Nanoparticles*
ABSTRACT: Laser pyrolysis is an important vapor phase method to synthesize nanomaterials which has advantages including synthesis of nanomaterials with narrow size distribution, high purity, and high specific surface area with various size and distribution, no reactor corrosion, no product contamination, and localized heating and cooling with a very high rate. We employ this method using the precursor solution mixture of zinc acetate and thioacetamide which both have a high vapor pressure to produce zinc sulfide (ZnS) nanoparticles. ZnS with a wide band gap of 3.65ev exhibits optical and transport properties which makes it a promising candidate for optoelectronic applications.

ACADEMIC AND CAREER GOALS: To obtain my MBA.
WORDS TO LIVE BY: "Only you can stop you."

Kyle Pierre

HOMETOWN: Brooklyn, NY
MAJOR: Electrical Engineering
INTERNSHIP PLACEMENT: Energy System Institute
SUMMER MENTOR: Dr. Jennifer Zirnheld
SUMMER MENTOR TITLE: Maxwell Technologies Inc. Professor
DEPARTMENT: Electrical Engineering

SUMMER PROJECT: *Vehicle Air Quality: Second hand smoke pollution*
ABSTRACT: Second hand smoke (SHS) pollution from cigarettes raises concerns around the deleterious impacts on health, environment, and the economy. This work will monitor the temporal response of the PMS5003 sensor to determine its accuracy in quantifying particulate matter (PM) sizes in the range of 0.5 to 2.5 microns, from cigarettes. The output of this sensor will be correlated to the response of a sensor array consisting of six metal oxide gas sensors that quantifies the concentration of SHS pollution. Experiments were conducted in a controlled chamber, to verify that the data from both devices demonstrate a linear correlation.

ACADEMIC AND CAREER GOALS: To obtain my BA in electrical engineering and seek a job in industry.
WORDS TO LIVE BY: "Every blessing ignored becomes a curse."

Adegboyega Thompson

HOMETOWN: Buffalo, NY
MAJOR: Chemistry
INTERNSHIP PLACEMENT: Roswell Park Cancer Institute
SUMMER MENTOR: Dr. Binnian Wei
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Oncology

SUMMER PROJECT: *The Analysis and Confirmation of the Contents Within Cannabidiol Products*
ABSTRACT: Cannabidiol has many potential uses, and has slowly been considered for clinical care. However, there have been roadblocks. Under the "New Drugs" section of the Federal Food, Drug, and Cosmetic Act, it claims that any new drug has not been confirmed by researchers in terms of quality, safety and efficacy. As of 2019, CBD products fall into this category. My research goal is to analyze CBD products and ensure their contents. This will be accomplished through acquiring 10-15 samples of different potencies, cross checking contents through 3rd parties , then using LC-mass spectroscopy to obtain new data.

ACADEMIC AND CAREER GOALS: To enter medical school and pursue studies in the oncology field.
WORDS TO LIVE BY: "There's a lot on my plate, but it's my favorite food."

Lesly Villanueva

HOMETOWN:
MAJOR:
INTERNSHIP PLACEMENT: Department of Civil, Structural, and Environmental Engineering
SUMMER MENTOR: Dr. Ning Dai
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Environmental Engineering

SUMMER PROJECT: *The Effect of Bromide Concentrations on the Formation of Disinfection Byproduct Precursors*
ABSTRACT: Disinfection byproducts (DBPs) are contaminants that form in wastewater treatment plants due to chlorination of natural organic matter. Brominated and nitrogen containing DBPs have shown to be more toxic, yet little research has been done. Model precursors are used to investigate the mechanistic pathway of brominated haloacetonitriles (HANs) and halonitromethanes (HNMs). Tryptophan contains two nitrogen, as a primary amine and imbedded in an indole moiety. By investigating the formation potential of tryptophan and indole in the absence and presence of bromide, we can determine the importance of each nitrogen functional group in the formation pathway of brominated HANs and HNMs.

ACADEMIC AND CAREER GOALS: To enter industry promoting sustainable practices, such as product stewardship, and to obtain a Masters Degree in Sustainable Engineering.
WORDS TO LIVE BY: "Follow your passion and do what makes you happy."

The 2019 CSTEP Summer Research Program expresses thanks & appreciation to the following workshop & tour facilitators for their contributions & support:

DR. KEVIN AHUNA
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INTERCULTURAL AND DIVERSITY CENTER

TRACY ARCHIE
CHIEF DIVERSITY OFFICER,
SUNY ERIE COMMUNITY COLLEGE

DR. BILL BAUER
DIRECTOR, HAUPTMAN-WOODWARD
INSTITUTE (HWI)

DR. KATE BEZRUKOVA
ASSOCIATE PROFESSOR,
ORGANIZATION AND HUMAN RESOURCES,
SCHOOL OF MANAGEMENT

DR. PIERO BIANCO
ASSOCIATE PROFESSOR,
MICROBIOLOGY AND IMMUNOLOGY

DR. HANS BOATENG
INVESTMENT 101, INVESTMENT TUTOR

HADAR BORDEN
DIRECTOR, BLACKSTONE LAUNCHPAD

ED BRODKA
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UNDERGRADUATE EDUCATION,
ELECTRICAL ENGINEERING

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STUDENT ENGAGEMENT

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DIRECTOR, FELLOWSHIPS & SCHOLARSHIPS,
OFFICE OF THE GRADUATE SCHOOL

JAMIL CREWS
DIRECTOR OF SOCIAL MEDIA & PRESS INFOR-
MATION OFFICER, CITY OF BUFFALO

RACHEL DI DOMIZIO
STUDENT ACTIVITIES ASSOCIATE
DEPARTMENT, OFFICE OF
STUDENT ENGAGEMENT

DR. FOLARIN EROGBOGBO
ASSISTANT PROFESSOR,
BIOMEDICAL ENGINEERING,
SAN JOSE STATE UNIVERSITY

PABLO FALCA
INTERNATIONAL BUSINESS MANAGER,
ECOLOGY AND ENVIRONMENT, INC.

DR. THOMAS FEELEY
PROFESSOR, DEPARTMENT OF
COMMUNICATION

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ASSOCIATE DIRECTOR, DEPUTY TITLE IX
COORDINATOR

LINDSAY GORMAN
SPECIAL AGENT

WILLIAM GRUNERT
ATA PRACTITIONER, SCHOOL OF
ENGINEERING AND APPLIED SCIENCE

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VICE PROVOST FOR GRADUATE EDUCATION
AND DEAN OF THE GRADUATE SCHOOL

DR. ELAINE HAMMOND
SCHOOLS OF SOCIAL WORK & LAW

DR. MARA HUBER
ASSOCIATE DEAN, UNDERGRADUATE
RESEARCH AND EXPERIENTIAL LEARNING

DR. JAMES JENSEN
PROFESSOR, DIRECTOR OF UNDERGRADUATE
STUDIES - ENVIRONMENTAL ENGINEERING

DR. RICHARD KARALUS
DIRECTOR.
OFFICE OF RESEARCH COMPLIANCE

DR. JEFFREY KOETJE
DIRECTOR, EDUCATION AND RESEARCH AT
AMERICAN MEDICAL STUDENT ASSOCIATION
(AMSA)

DR. ADAM KISAILUS
ASSISTANT DEAN, DIVISION OF EDUCATIONAL
AFFAIRS, ROSWELL PARK CANCER INSTITUTE

DR. AMY MARSCHILOK
RESEARCH ASSOCIATE PROFESSOR,
STONY BROOK UNIVERSITY

SHARON MENTKOWSKI
COMMUNITY OUTREACH SPECIALIST

MICHAEL MCDOWELL
CAREER COUNSELOR, CAREER SERVICES

TOM MURDOCK
MANAGER, UB INCUBATOR NETWORK

SARAH NORDLAND
LEADERSHIP PROGRAMMING COORDINATOR,
OFFICE OF STUDENT ENGAGEMENT

SUSAN O'ROURKE
EXPERIENTIAL LEARNING COORDINATOR,
OFFICE OF STUDENT ENGAGEMENT

DR. CELESTE OWENS
CLINICAL PSYCHOLOGIST, AUTHOR

JASMINE RAND
ESQUIRE, RAND LAW L.L.C

NELSON RIVERA
STUDENT SUCCESS SPECIALIST,
MEDAILLE COLLEGE

ERIN ROWLEY
SENIOR ASSISTANT LIBRARIAN,
UNIVERSITY LIBRARIES

DR. DORTHY M. SIAW-ASAMOAH
CLINICAL ASSISTANT PROFESSOR
ORGANIZATION AND HUMAN RESOURCES
DEPARTMENT

CAROL SCHMEIDLER
MANAGER, UNIVERSITY FACILITIES
ENVIRONMENT, HEALTH & SAFETY SERVICES

DR. CLAYTON STEEN
VICE PRESIDENT FOR ENROLLMENT
MANAGEMENT, SUNY EMPIRE STATE COLLEGE

RYAN TAUGHRIN
ASSISTANT DIRECTOR OF GRADUATE
RECRUITMENT

DR. CHRISTINE GRAY TINNESZ
ASSOCIATE DIRECTOR, METHODS OF INQUIRY

JIM ULRICH
PHOTOGRAPHER

OLIVIA WEST
MONEY MANAGEMENT,
WEST ADVISORY GROUP

THANK YOU to our 2019 CSTEP Summer Syposium Judges!

NAME	DEPARTMENT
DR. JESSY ALEXANDER	Dept. of Medicine
DR. LAURA ANDERSON	School of Nursing
DR. JOAN BAIZER	Dept. of Physiology and Biophysics
DR. ROBERT BAKER	Dept. of Pediatrics
DR. CEMAL BASARAN	Dept. of Civil, Structural, and Environmental Engineering
DR. MARY BISSON	Dept. of Biological Sciences
DR. ELSA BOU GHANEM	Dept. of Microbiology and Immunology
DR. SHERRY CHEMLER	Dept. of Chemistry
DR. MICHAEL DWYER	Dept. of Neurology/Biology Informatics
DR. ARTHUR EDELMAN	Dept. of Pharmacology and Toxicology
DR. DONNA FABRY	School of Nursing
DR. MICHAEL FARKAS	Dept. of Ophthalmology
DR. MINGCHEN GAO	Dept. of Computer Science and Engineering
DR. JOHANNES HACHMANN	Dept. of Chemical and Biological Engineering
DR. ALAA ELDEEN HASSAN ALI	Dept. of Mechanical and Aerospace Engineering
DR. TRACEY IGNATOWSKI	Dept. of Pathology and Anatomical Sciences
DR. JOBAIDUR KHAN	Dept. of Mechanical and Aerospace Engineering
DR. KAI LING KONG	Dept. of Pediatrics
DR. JUN-XU LI	Dept. of Pharmacology and Toxicology
DR. HUAMIN LI	Dept. of Electrical Engineering
DR. JONATHAN LOVELL	Dept. of Biomedical Engineering
DR. SUPRIYA MAHAJAN	Dept. of Medicine
DR. BAISHAKHI MAZUMDER	Dept. of Materials Design and Innovation
DR. MOSTAFA NOUH	Dept. of Mechanical and Aerospace Engineering
DR. ATRI RUDRA	Dept. of Computer Science and Engineering
DR. PINAKI SARDER	Dept. of Pathology and Anatomical Sciences
DR. CHRISTINE SCHANER TOOLEY	Dept. of Biochemistry
DR. NITASHA SEHGAL	Dept. of Biological Sciences
DR. SPYRIDON STAVROU	Dept. of Microbiology and Immunology
DR. LINDA STEEG	School of Nursing
DR. ALBERT TITUS	Dept. of Biomedical Engineering (Chair)
DR. XIAOZHONG WEN	Dept. of Pediatrics
DR. BETH WOHLFERT	Dept. of Microbiology and Immunology
DR. JEROME YATES	Dept. of Epidemiology

WHERE ARE THEY NOW?
An Update On Previous CSTEP Summer Research Interns

First Name	Last Name	Summer Research Program Year	UB Major(s)	Where are they now?	What's their title?
Brianna	Acheampong	2007	Electrical Engineering	City of Monroe (North Carolina)	Engineer
Frank	Acheampong	2007	Pharmacy	UMass Memorial Medical Center	Clinical Pharmacist - Informatics
Geraldene	Agbasionwe	2007	Pre-Pharmacy	Live Good Pharmacy INC	Supervising Pharmacist
Ernestine	Brown	2007	Nursing	University of Rochester Medical Center	Nurse Practitioner
Dr. Corie	Ellison	2007	Pharmacology & Toxiology	Procter & Gamble	Toxicologist
Moses	Farley	2007		PPL Corporation	Engineer
Mark	Glasgow	2007	Biotechnology	Univera Healthcare	Business Process Intelligence Analyst
Dr. Richard	Linares	2007		Completed doctoral studies at SUNY at Buffalo in Mechanical and Aerospace Engineering	Aerospace Engineering
David	Louis	2007	Psychology	Canarsie Recovery Coalition	Project Director
Shiny	Thomas	2007	Pharmacy	CVS Pharmacy; Touro College	PharmD
Kevin	Bryant	2008	Electrical Engineering	Bechtel Plant Machinery, Inc	Electrical Engineering Project Manager
Toni-Shay	Chandon	2008	Pharmacy		PharmD
Dr. Daivon	Garrick	2008	Pharmacology & Toxicology	M&T Bank	VP Credit Risk Analyst
Marda	Hailu	2008	Biological Sciences	Western New England University College of Pharmacy	
Dr. Jessica	Isaac	2008	Pharmacy		PharmD
Dr. Aggrey	Jacobs	2008		UB school of engineering	Doctoral Student
Anthony	Jones	2008	Biomedical Sciences	UB Jacobs School of Medicine and Biomedical Science	Doctoral Student
Micah	McCurty	2008	Exercise Science		DPT
Hieu	Nguyen	2008	Biochemistry	UB Dental School	Dental Student
Wilberforce	Osei	2008	Chemistry/ Pharmacology		PharmD
Francis	Perez	2008	Chemical & Biological Engineering	Completed MS in Chemical Engineering from SUNY at Buffalo	Chemical Engineer
Souleymane	Sow	2008	Aerospace Engineering	Completed MS in Aerospace Engineering from Purdue University	Aerospace Engineer

Dr. Franklin	Yeboah	2008	Medical Technology	Massachusetts College of Pharmacy and Health Sciences	PharmD
Dr. Hans	Boateng	2009	Biomedical Sciences	Riverside Health System	PharmD/MBA
Corinna	Joseph	2009	Engineering	Bechtel Marine Propulsion Corporation (Bechtel Plant Machinery Inc.)	Engineer
Dr. Jean	Mandat	2009	Psychology	New York College of Osteopathic Medicine	Medical Doctor
Dr. Jasmine	May	2009	Biological Sciences	Completed MD/PhD at Northwestern University	Medical Student
Christopher	Williams	2009	Engineering	Lam Research Corp./ IBM Corp.	Field Service Engineer II, (FSE)
Bruck	Adam	2010	Mathematics	IPRO, NYS Department of Health, Office of Quality and Patient Safety, Bureau of Health Informatics	Data Analyst
Dr. Priscilla	Adjei-Baffour	2010	Pharmacy	Marshall University School of Pharmacy	PharmD
Chiamaka	Agbasionwe	2010	Biological Sciences	Biological Deparment	PharmD
Derek	Brim	2010	Engineering		Engineer/Professional Football Player
Joseph	Diehl	2010	Civil Engineering	MS Department of Civil, Structural, and Environmental Engineering, SUNY at Buffalo	Engineer
Ian	Duncan	2010	Mechanical Engineering	Suspension & Steering Dynamics at Honda R&D	Engineer
Christina	Garcia	2010	Biomedical Sciences	Ross University	Medical Student
Ron	Heichman	2010	Engineering	University at Buffalo	Mechanical & Aerospace Engineering PhD Student
Thao	Nguyen	2010	Engineering	University of Rochester	Engineer with Panasonic
Dr. Adonis	Pimienta-Penalver	2010	Aerospace Engineering	Completed doctoral studies at UB	Doctoral Student
Antonio	Upia	2010	Completed MS Engineering	Mass Electric Construction Co.	Eletrical Field Engineer
Keelan	Chu For	2011	Mechanical and Aerospace Engineering	University at Buffalo	Engineer with Moog
Hector	Coco	2011	Mathematics	City of Buffalo Police Dept., JetBlue	Police Officer, Engineer
Belle	Cunningham	2011	Engineering	Pepsi	Project Supervisor
Jonathan	Feliciano	2011	Psychology	NBC Universal, Inc.	Research Analyst
Dr. Tavia	Garvey	2011	Pharmacy	Wegman Food Market	PharmD
Paul	Glenn	2011	Physics		Doctoral Student

Isabel	Gonzalez	2011	Civil Engineering	Completed MS Engineering	Civil Engineer
Richard	Hunte	2011		University of Florida	Doctoral Student
Jordan	Jorgensen	2011	Engineering	Global Foundries	Advanced Manufacturing Engineer
Gael	Lamothe	2011	Engineering	Hunter Roberts Construction Group	Assistant Project Manager
Millicent	Nwankwo	2011	biological Sciences	Shire Pharmaceuticals	R&D Global Health Economic, Outcomes Research, Epidemiology
Damian	Ogbonna	2011	Computer Engineering	Computer Science and Engineering	Graduate Student - University of Buffalo
Gino	An	2012	Biological Sciences	UB Dental School	Dental Student
Barinaepkee	Banuna	2012	Pre-Med/Biomedical Sciences	Hofstra Medical School	Medical Student
Sharece	Blake	2012	Electrical Engineering	Roswell Park Comprehensive Cancer Center	Research Associate
Nuris	De La Cruz	2012	Completed MS program	Columbia Presbyterian	Psychological Counseling
Dr. Keith	Dolcy	2012	Pharmacy	University at Buffalo School of Pharmacy	PharmD
Brandon	Durant	2012	Engineering	University at Buffalo	Graduate Student
Dr. Ashley	Narain	2012		University of Bridgeport College of Chiropractic	Doctor of Chiropractic
Dr. Khalif	Osson	2012	Pharmacy	Completed University at Buffalo School of Pharmacy	PharmD
Frank	Segui	2012	Engineering	Western Michigan University	Graduate Student, Electrical Engineering
Theresa	Yera	2012	Anthropology, Pre-Med	Syracuse University	Grad Student, Researcher
Yun	Zheng	2012	Biological Sciences	Albany Molecular Research, Inc. (AMRI)	Research Scientist I
Jonathan	Ahmedu	2013	Mechanical & Aerospace Engineering	Kohasa Engineering Company Ltd. in Port Harcourt, Nigeria; Cornell University	Pipeline Engineer; Masters student
Dr. Summar	Amin	2013	Biomedical Sciences	Completed University at Buffalo Dental School	Dentist
John	Brito	2013	Biological Sciences	Columbia University	Graduate Student
Dr. Nicholas	Costable	2013	Biological Sciences	UB Medical School	Doctor
Akeem	Francis	2013	Electrical Engineering	University at Buffalo	Graduate Student

Johnathan	Goodrum	2013	Electrical Engineering	Amazon	Software Engineer Internship
John	Habert	2013	Biological Sciences	United States Marine Corps	
Dr. Christ Ange	Katche	2013	Pharmacy/MBA	Completed University at Buffalo School of Pharmacy	PharmD/MBA
Muhammad	Khan	2013	Mechanical & Aerospace Engineering	Northrop Grumman	Reliability Engineer (Florida)
James	Lopez	2013	Psychology	Power U Center for Social Change (Miami, Fla)	Community Activist
Dr. Ayo	McKenzie	2013	Chemistry	Temple University	PharmD
Dr. Andrews	Obeng-Ayarkwah	2013	Pharmaceutical Sciences	Completed University at Buffalo School of Pharmacy	Pharmacy Student
Michael	Singletary	2013	Electrical Engineering (Mathematics-minor)	United States Army	Officer/ Helicopter Pilot
Alexandria	Trujillo	2013	Biological Sciences	University at Buffalo	PhD Student - Pharmacology & Toxicology
Dr. Uzoamaka	Aniagba	2014	Biological Sciences	Indiana University School of Medicine	Medical Resident
Warren	Barrett	2014	Chemistry	University at Buffalo School of Pharmacy	PharmD/MBA Student
Leatrice	Bennett	2014	Biological Sciences	UB School of Public Health	Graduate Student
David	Bratton	2014	Biological Sciences	Jacobs School of Medicine & Biomedical School	Medical Student
Kevin	Carpio	2014	Mechanical & Aerospace Engineering	Northrop Grumman (California)	Aerospace Engineer (Palmdale, California)
Kemji	Eke	2014	Biology	Roswell Park Comprehensive Cancer Center	Clinical Regulatory Associate
Robert	Ferguson	2014	Biology	University at Buffalo Dental School	Dental Student
Akunne	Kanu	2014	Public Health	University at Albany	Graduate Student - Public Health, Epidemiology
Jacob	Milling	2014	Biology	UB Jacobs School of Medicine & Biomedical Science	Medical Student
Abas	Omar	2014	Biology	Physician Assistant program at D'Youville College	PA Student
Austin	Price	2014	Biology	UB Jacobs School of Medicine & Biomedical Science	Medical Student
Timothy	Semon	2014	Anthropology	Marquette University	Dental Student
Hamlet	Spencer	2014	Mechanical Engineering	University at Buffalo	Completed MS program

Bethany	Walton	2014	English	University at Buffalo	Graduate Student – School of Social Work
Christina	Aponte	2015	Biomedical Sciences	Meharry Medical College School of Dentistry	Dental School Student
Kwame	Boakye-Yiadom	2015	Biological Sciences	University at Buffalo School of Pharmacy	PharmD/MBA Student
Kelly	Boamah	2015	Pharmacology & Toxicology	D'Youville School of Pharmacy	Pharmacy Student
Joaquin	Canay	2015	Biotechnology	Thermo Fisher Scientific	Graduate Student
Jennifer Lynn	Donato	2015	Biotechnology	Oishei Children's Hospital	Biotechnologist
Mark	Estudillo	2015	Mechanical Engineering	New York University	Graduate Student
Shawn	Gibson	2015	Biomedical Sciences	UB Jacobs School of Medicine and Biomedical Science	Medical Student
Hoda	Moussa	2015	Biological Sciences	University at Buffalo Law School	Law Student
Peter	Okorozo	2015	Pharmaceutical Sciences	University at Buffalo School of Pharmacy	PharmD/MBA Student
Folake	Olaleye	2015	Biological Sciences	D'Youville School of Pharmacy	PharmD Student
Oluwatosin	Oniyide	2015	Biological Sciences	Albert Einstein College of Medicine	Medical Student
Rasheen	Powell	2015	Pharmacology & Toxicology	University at Buffalo	PhD Student
Valeria	Prieto	2015	Civil Engineering	UB School of Engineering	Graduate Student
Zakiya	Rhodie	2015	Pharmacology & Toxicology	UB School of Pharmacy	PharmD Student
I'Yanna	Scott	2015	Biological Sciences	Chatham University	Graduate Student
Naza	Abdelrahman	2016	Biomedical Sciences	UB Graduate School Biological Sciences	Graduate Student
Ali	Al Qaraghuli	2016	Electrical Engineering	School of Engineering & Applied Sciences	PhD Student
Andrew	Alegria	2016	Mechanical Engineering	University of Minnesota Mechanical Engineering	Graduate Student
Barituziga	Banuna	2016	Chemical Engineering	Chemical Engineering at Cornell University	PhD Student
Emmanuel	Cott	2016	Computer Sciences	UB Dept. of Computer Engineering	Graduate Student
Abdul-Malik	Davies	2016	Chemical Engineering		
Tanahiry	Escamilla	2016	Chemical Engineering	University at Buffalo Chemical Engineering	Graduate Student
Alejandro	Falca	2016	Medicinal Chemistry	Applying to Medical School	
Jarrett	Franklin	2016	Electrical Engineering	University at Buffalo School of Engineering & Applied Sciences	Graduate Student

Chris	Gnam	2016	Mechanical Engineering	UB School of Engineering & Applied Sciences	Graduate Student
Dominique	Hickson	2016	Computer Engineering	UB School of Engineering & Applied Sciences	Graduate Student
Anna	Huang	2016	Social Sciences Interdisciplinary	Weill Cornell Medical College in New York City	Staff
Mohammed	Karim	2016	Biomedical Sciences	Jacobs School of Medicine & Biomedical Sciences	Medical Student
Jalisa	Kelly	2016	Biomedical Sciences	Jacobs School of Medicine & Biomedical Sciences	Medical Student
Kaytlan	LoCicero	2016	Social Sciences Interdisciplinary	University at Buffalo, School of Public Health	Graduate Student
Anthony	Lopez	2016	Biological Sciences	University at Buffalo Dept. of Biological Sciences	Graduate Student
Jillian	Naylor	2016	Biological Sciences	New York City	Dental Student
Aaron	Nimako	2016	Biomedical Sciences	Applying to Medical School	
Lee-Mary	Njoku	2016	Biomedical Sciences		
Ndidiamaka	Okorozo	2016	Biomedical Sciences	Drexel University	Medical Student
Iyamu	Osazuwa	2016	Electrical Engineering	UB School of Engineering & Applied Sciences	Engineer
Lucas	Rugar	2016	Civil Engineering	Completed Columbia University's Master of Management Science and Engineering program	Graduate Student
Diamile	Tavarez	2016	Biology/Biological Sciences	Weill Cornell Medicine	Research Technician
Douglas	Tsahey	2016	Biomedical Sciences	Applying to Medical School	
Marcus	Ashford	2017	Electrical Engineering	University at Buffalo	Continuing Student
Leon	Butcher IV	2017	Psychology	Accepted to Dental School	Dental Student
Kennedy	Colon	2017	Civil, Structural & Environmental Engineering	University at Buffalo	Engineer
Leonardo	Gobbato	2017	Chemical Engineering	MS University at Buffalo	Graduate Student
Blessing	Hunsu	2017	Chemistry	University of Binghamton School of Pharmacy	Pharmacy Student
Starr	Johnson	2017	Pharmacology & Toxicology	University at Buffalo	Continuing Student
Coral	Lopez-Jimenez	2017	Chemistry	University at Buffalo, GSE	Graduate Student
Neneyo	Mate-Kole	2017	Pharmacology & Toxicology	UB Jacobs School of Medicine and Biomedical Science	Medical Student
Lawrence	Owusu	2017	Chemistry	University at Buffalo	Continuing Student

Ariana	Roman	2017	Psychology	Chicago, IL	Graduate Student
Godfrey	Sakyi	2017	Electrical Engineering	University at Buffalo	Continuing Student
Sameer	Shakur	2017	Electrical Engineering	University at Buffalo	Continuing Student
Tyree	Singleton	2017	Industrial Engineering	University at Buffalo	Continuing Student
Ashley	Solomon	2017	Nursing	University at Buffalo	Continuing Student
Cassandra	Ware	2017	Computer Science & Engineering	New Era Cap	Computer Scientist
Makayla	Watson-Wales	2017	Speech & Hearing Science	University at Buffalo	Graduate Student
Annakay	Adamson	2018	Biological Sciences	University at Buffalo Master's student in Biological Sciences	Graduate Student
Gregory	Adams, Jr.	2018	Psychology	Applying to Graduate School in Public Health	
Abshiro	Ali	2018	Biology/Biological Sciences	University at Buffalo Master's student in Biological Sciences	Graduate Student
Deborah	Amponsah	2018	Pre-Law/Philosophy		Applying to graduate and law programs
Michael	Banjoko	2018	Biomedical Engineering	University at Buffalo	Continuing Student
Gerardo	Barrera Giron	2018	Environmental Engineering	University at Buffalo	Continuing Student
Kwaku	Bonsu	2018	Biological Sciences	University at Buffalo Master's in Biological Sciences	Graduate Student
Tanzania	Bussey	2018	Pharmacology & Toxicology	University at Buffalo	Continuing Student
Edgar	Claudio	2018	Pharmacology & Toxicology	University at Buffalo	Continuing Student
Temara	Cross	2018	Biomedical Sciences	University at Buffalo	Continuing Student
Chimaobi	Ezeilo	2018	Computer Sciences	University at Buffalo	Continuing Student
Jhanna	Flora	2018	Biological Sciences	University at Buffalo Master's student in Medical Technology	Graduate Student
Steven	Herrera	2018	Mechanical Engineering	UB School of Engineering & Applied Sciences, Master's Student	Graduate Student
Charitie	Hill	2018	Chemistry		Applying to Pharmacy School
Nasiah	Johnson	2018	Electrical Engineering	UB School of Engineering & Applied Sciences, Master's in Electrical Engineering	Graduate Student
Brianna	Kinley	2018	Psychology	University at Buffalo Master's student in Psychology	Graduate Student
Jessica	Maxwell	2018	Biochemistry	University at Buffalo	Continuing Student
Shelbi	Molin	2018	Political Sciences	UB Law School	Law Student
Keiona	Nance	2018	Exercise Science	UB School of Public Health/ MS Athletic Training Program	Graduate Student

Nailah	Oronde	2018	Nursing	University at Buffalo	Continuing Student
Priya	Persaud	2018	Aerospace Engineering	University at Buffalo	Continuing Student
William	Phillips	2018	Computer Sciences	University at Buffalo	Continuing Student
Elizabeth	Quaye	2018	Pharmacology & Toxicology	UB Jacobs School of Medicine & Biomedical Sciences	Postbaccalaureate Student
Aliaya	Williams	2018	Biological Sciences	University at Buffalo	Continuing Student

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2019 CSTEP SUMMER RESEARCH INTERNS

2019 CSTEP Research Interns in the Hauptman-Woodward Institute with Dr. Bill Bauer

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