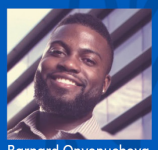
University at Buffalo The State University of New York

2020 CSTEP SUMMER RESEARCH PROGRAM INTERNS

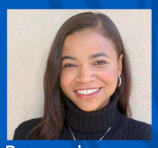
CSTEP STAFF


Shanna Crump-Owens, Director


Tia Greer, Admin. Assistant


Barnard Onyenucheya Research Methods Instructor


Gloria Aidoo-Frimpong


Ruqayyah Batts


Rebecca Borowski


Claudia Flores Monetesinos


Rina Hernandez


Mohammed Abbadi


Malaike Addo


Omolara Adeyemi


Moyofoluwa Rachel Aguda


Mirka Arevalo


Isaac Asante


Jordan Brathwaite

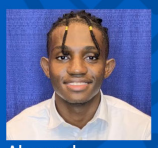

Mahanaz Chowdhury


Paula Costa


Adwoa Dadzie


Waldine Edouard


Michael Edovia Osagiede


Ahamed Fofana


Jerry Ingram

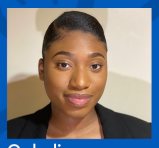

Evelyne Kouya


Chukwudi Nwoke


Ugonna Okafor


Elijah Panayoty


Sonjii Parris


Ophelia Phillips


Brittany Richardson


Nigel Smith Ordain


Dorien Thompson


Samantha Watts


Ean Weise

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

REMOTE SUMMER RESEARCH PROGRAM

ORAL PRESENTATIONS

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

Wednesday, July 29, 2020
Thursday, July 30, 2020
via Zoom | 10:00 am - 3:00 pm
University at Buffalo

CSTEP 2020 SUMMER RESEARCH PROGRAM STAFF

CSTEP Director
Shanna Crump-Owens

CSTEP Administrative Assistant
Patricia “Tia” Greer

Research Methods Course Instructors
Barnard Onyenucheya

Research Program Consultants
Pablo Falca
Bill Grunert
Lavone Rodolph

Graduate Assistants
Gloria Aidoo-Frimpong
Ruqayyah Batts
Rebecca Borowski, PhD
Claudia Flores-Montesinos
Rina Hernandez

Student Assistants
Gregory Adams
Julius Mark
Keiona Nance
Ashley Solomon

CSTEP DIRECTOR'S MESSAGE

Welcome to the 14th Annual CSTEP Remote Summer Research Symposium! Our abridged 7-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, consultants and research methods seminar instructor and program champions which number 35: 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, and seminars 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: 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 Tutoring and Academic Support Services (TASS) 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: https://www.buffalo.edu/cpmc/cstep/signature-offerings/graduate-school-preparation.html.

SERVICE LEARNING CLASS

A cohort of 25 students is selected to engage in a semester-long structured service learning project, becoming a Campus 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 ConnectLife.

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 workshops and enrichment activities we host during the academic year to engage students:

CSTEP Welcome Back BBQ
ABC's of Graduate School
CSTEP Shadow Day
Maximize Your Potential
Pathways to Pharmacy School
CSTEP's Day of Service
Effective Study Groups
Priority Management
Preparing for Graduate School Panel
Keys to Financial Success
Rx for Success (Medical School)
Focused Friday Sessions
Statewide Student Conference
Annual Student Recognition Ceremony
Monthly Research Luncheon
Insights for Engineering
Preparing for Law School

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.

CSTEP has 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 180 CSTEP/Kaplan scholarships to students in preparation for standardized graduate school exams (PCAT, MCAT, GMAT, LSAT, and GRE).
- Last 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.
- Last year, 38 CSTEP students were placed in funded research internships and completed over 7,000 hours.
- To help provide services for and engage our students, CSTEP has hired a cadre of approximately 107 Graduate and Student Assistants to work within our office. This provides funding for our staff during their time as graduate and undergraduate students at UB.

WHY DO RESEARCH? STUDENT PERSPECTIVES

Written by the 2020 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. Mohammed Abbadi, a junior Biological Sciences major expresses his profound appreciation for his evolving understanding of research. He writes: "Research open a window for the individual to gaining an in-depth understanding of a topic. It brings out the curiosity of the individual as well as the need to understand the world around them". For Waldine Edouard, a senior Chemistry major, research is a journey of discovery and this belief echoes clearly in her words: "Research are important since it helps the student land their knowledge on practical things. It helps gaining familiar with the topic. It is much more than what you would expect, and it helps on pretty much every aspect of life". Biochemistry major, Moyofoluwa Rachel Aguda sees research as a challenge to propel students forward. She writes: "if you think you have a limit in any area of your life especially in the professional field, then undergraduate research is for you! It expands you until you break your limit." 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. Mahanaz Chowdhury, a Civil Engineering major, sees research as having "improved my communication and problem solving skills. Not only did it help me develop my technical skills, I was able to grow more resilient and determined as a person". A Biological Sciences major, Omolara Adeyemi, hailing from Hopewell Junction, NY shared a similar view. Stating: "Research helps you develop your critical thinking and problem solving skills while giving you the experience of working with faculty. It's a great way to help you decide your future career path." Ahamed Fofana, a junior Computer Science major states "I believe research is essential because like any new endeavor in life, it brings about unique insight and opportunity as to whether or not this is a career path one would like to pursue."

In addition to networking, many students see research as a nesting ground of innovation. Jerry Ingram, a Biological Sciences major, believes that "research provides the opportunity to discover new information." Ugonna Okafor writes: "You should do research because it enriches your educational experience in many disciplines". In a similar line of thought, Elijah Panayoty, a sophomore Electrical Engineering major from Jamaica, NY reminds us "Students should engage in undergraduate research because it exposes them to professional study. It gives them an opportunity to contribute to graduate level study and gain experience and knowledge not available to them in the classroom."

Through their experiences engaging in research, students feel emboldened to contribute to their fields and society. Dorien Thompson, a senior Biological Science major, asserts that "research is important and it benefits everyone. Whether you do it for the experience or do it to invent a new vaccine; it remains important and benefits everyone." As a Mechanical Engineering major, Ean Weise, sees research as "important because of the experience it provides. It allows you to test your academic skills by solving real world issues." Senior Biological Sciences major, Adwoa Dadzie, believes that research allows the opportunity to foster ideas of what we may want to do later in our own careers and gain the experience to do so. Biomedical Engineering student, Jordan Brathwaite from Brooklyn, NY is clear in his resolve. He challenges that "[undergraduate research] is a challenging but fun experience. It can open doors for you that you didn't know existed in terms of connections with your research mentor."

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.

-2020 CSTEP Summer Research Cohort

Mohammed Abbadi

HOMETOWN: Buffalo, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Clinical Translational Research Center
SUMMER MENTOR: Dr. Brian R. Weil
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Physiology and Biophysics

SUMMER PROJECT: *Anti-inflammatory Effects of Mesenchymal Stem Cells After Resuscitation From Cardiac Arrest*
ABSTRACT: Out-of-Hospital Cardiac Arrest (OHCA) is a critical issue that leads to the death of many. Inflammatory effects exacerbate heart and brain injury after cardiac arrest. Recent studies suggest that MSCs have anti-inflammatory effects on the body that may reduce reperfusion injury. My mentor, Dr. Weil, is taking those results from the Acute myocardial infarction model and applying it to cardiac arrest. He has induced cardiac arrest in pigs and then injected MSCs to see if they reduced brain and heart reperfusion injury. Over the summer I have analyzed journals that gave me an in depth look into this topic as well as helping Dr. Weil perform ELISA tests on serum collected during the experiment detecting brain damage. Understanding the benefits of MSCs may help reduce brain and heart injury after cardiac arrest and eventually save many lives.

ACADEMIC AND CAREER GOALS: To obtain a Doctorate of Medicine and open my own clinic here in Western New York (WNY) as well as working to reform the Yemeni medical and healthcare system.
WORDS TO LIVE BY: "The ink of the scholar is more sacred than the blood of the martyr."

Malaike Addo

HOMETOWN: Bronx, NY
MAJOR: Public Health
INTERNSHIP PLACEMENT: School of Public Health and Health Professions
SUMMER MENTOR: Gloria Aidoo-Frimpong
SUMMER MENTOR TITLE: PhD Candidate
DEPARTMENT: Community Health and Health Behavior

SUMMER PROJECT: *Exploring the Acceptability of Pre-Exposure Prophylaxis among Ghanaian Immigrants in the United States*
ABSTRACT: African immigrants living in the United States are disproportionately and uniquely affected by HIV. Evidence suggests African immigrants have a six-fold HIV risk compared to the general population. (Kingori, Esquivel, Hassan, Elmi, Mukasa & Reece, 2016) Promising biomedical HIV prevention strategies such as the use of oral pre-exposure prophylaxis (PrEP) has been demonstrated to be effective, yet uptake has not matched expectations. PrEP is indicated for groups at substantial risk of HIV acquisition, and while evidence indicates African immigrants are at substantial risk, the potential for PrEP as an HIV prevention strategy among this group is unknown. The purpose of this study was to explore the awareness and perceptions of PrEP among a subgroup of African immigrants- Ghanaians. We conducted qualitative one-on-one interviews on WhatsApp with 40 Ghanaians in twelve US states in March 2020. Interviews were audio recorded, transcribed, and thematically analyzed using template analysis. Findings suggests most participants were unaware of PrEP, and few confused PrEP with Post exposure prophylaxis (PEP). Most participants had a positive attitude towards the PrEP despite not being aware of the medication. There were discordant attitudes towards PrEP users. Participants suggested that while they thought PrEP users were being responsible and taking good care of their health, they perceived that PrEP users will be stigmatized by the Ghanaian community. Findings suggest Ghanaian immigrants view PrEP as an acceptable form of HIV prevention though community perceptions about users may act as a barrier to PrEP use.

ACADEMIC AND CAREER GOALS: To obtain a Masters in Public Health and a Juris Doctorate degree.
WORDS TO LIVE BY: "When you've worked hard, and done well, and walked through that doorway of opportunity, you do not slam it shut behind you. You reach back and you give other folks the same chances that helped you succeed." - Michelle Obama

Omolara Adeyemi

HOMETOWN: Hopewell Junction, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: School of Public Health and Health Professions
SUMMER MENTOR: Amanda Crandall
SUMMER MENTOR TITLE: PhD Candidate
DEPARTMENT: Community Health & Health Behaviors

SUMMER PROJECT: *The Effect of Stress on Reinforcement Pathology*
ABSTRACT: Obesity may be an unintended consequence of stress. One potential mechanism for this is reinforcement pathology, in which one has low impulsive control and a high motivation to eat. This study measured the effect of stress on reinforcement pathology to determine the relationship between them. The relative reinforcing value of food (RRV) and delay discounting (DDT) are both major components of reinforcement pathology. Surveys and tasks assigned over the course of three appointments measured stress among 106 families. The results indicate that there are developmental differences among different age groups. Parents are more likely to develop acute stress related to DDT while adolescents are more likely to develop chronic stress related to RRV. Children were unlikely to develop any stress related to RRV or DDT. Future studies will examine the differences to provide comprehensive explanations.

ACADEMIC AND CAREER GOALS: To become a Doctor of Medicine and become a Neurologist.
WORDS TO LIVE BY: "Victory loves preparation."

Moyofoluwa Rachel Aguda

HOMETOWN: Buffalo, NY
MAJOR: Biochemistry
INTERNSHIP PLACEMENT: School of Dental Medicine
SUMMER MENTOR: Dr. Rosemary Dziak
SUMMER MENTOR TITLE: Professor
DEPARTMENT: Oral Biology

SUMMER PROJECT: *Bone Graft Material; nCS+ As a Delivery System for Antibiotics*
ABSTRACT: Several recent studies are aimed at developing better synthetic bone graft material than the conventional calcium sulfate (CS). Our laboratory developed a novel bone graft material, nCS+. The nCS+ is a composite of nCS and a tri-calcium silicate substance (biodentine). The study of nCS revealed its ability to serve as a delivery system for antibiotics directly at the bone site infection while also serving as a scaffold for new bone formation. The objective of our research is to find out if the new material, nCS+ can effectively serve as a delivery system for antibiotics to bone sites.

ACADEMIC AND CAREER GOALS: To obtain an MD and ultimately become an Orthopedic Surgeon; to explore other academic and career goals pertaining to medicine, research, and counseling.
WORDS TO LIVE BY: "Every idea comes as a 2-in-1 package of visions and actions; it is your duty to not lose the action in your idea to the vision of that idea."

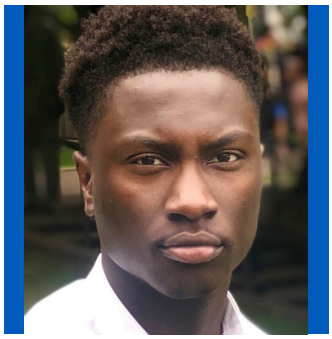
Mirka Arevalo

HOMETOWN: Astoria, NY
MAJOR: Mechanical and Aerospace Engineering
INTERNSHIP PLACEMENT: Decision, Risk , and Data Laboratory
SUMMER MENTOR: Dr. Jun Zhuang
SUMMER MENTOR TITLE: Professor
DEPARTMENT: Industrial and Systems Engineering

SUMMER PROJECT: *Investigating FEMA's effectiveness in mitigating the propagation of false COVID-19 rumors on Twitter*

ABSTRACT: During natural disasters including the COVID-19 worldwide pandemic, false rumors have been seen to cause negative effects on society, from loss of life to economical loss. The Federal Emergency Management Agency (FEMA) handles a rumor control page to counteract rumors. This study investigates FEMA's effectiveness in mitigating the propagation the false COVID-19 rumor, 5G causes COVID-19, on Twitter. FEMA's effectiveness is investigated by filtering, organizing, and labeling original COVID-19/5G/FEMA related tweets for the months of March and April. Relevant labeled tweets are then further examined in order to quantify FEMA's reach, and method of use by the public.

ACADEMIC AND CAREER GOALS: Pursue a Masters of Science in either Supply Chain Engineering or Supply Chain Management.
WORDS TO LIVE BY: "Lo que fácil viene, fácil se va" / "What comes easy, leaves easy" - My Mother



Isaac Asante

HOMETOWN: New York City, NY
MAJOR: Public Health
INTERNSHIP PLACEMENT: Brain Function and Recovery Lab
SUMMER MENTOR: Dr. Ghazala Saleem
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Rehabilitation Science

SUMMER PROJECT: *Assessing Motor Dysfunction in Female Survivors of Intimate Partner- Related Brain Injury*

ABSTRACT: Mild traumatic brain injury (mTBI) or concussion is a frequent but unrecognized consequence of intimate partner violence (IPV) affecting about three out of every four female survivors of IPV (Valera et al, 2019). Compounding this problem are the unique IPV-related circumstances that could prevent access to health care. As a result, most survivors are left undiagnosed and at higher risk for repeat brain injury. This research will investigate the effects of mTBI in IPV. We used literature review to search and extract information about the consequences of mTBI in IPV. Findings suggest mTBI is common in IPV. Some female survivors of IPV are at risk of repeat mTBI. mTBI negatively affects functioning in several health domains. Results and various methodologies are discussed.

ACADEMIC AND CAREER GOALS: To obtain a bachelors degree in Public Health and attend medical school.
WORDS TO LIVE BY: "I can, I will, I must."

Jordan Brathwaite

HOMETOWN: Brooklyn, NY
MAJOR: Biomedical Engineering
INTERNSHIP PLACEMENT: Molecular Engineering Lab
SUMMER MENTOR: Dr. Marina Tsianou
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Chemical and Biological Engineering

SUMMER PROJECT: *Calcium Phosphate Mineralization in Hydrogel Media*
ABSTRACT: Biominerals are inorganic minerals manufactured by living organisms for their essential survival. Calcium phosphate (CaP) is a biomineral that plays a role in the structural components of humans and animals as it is the main constituent of bones and teeth. In this work, we will investigate the formation of CaP in hydrogels, as excellent mimics of the biomineralization process. We will also examine the effects of the hydrogel type and strength and ion concentration on the morphology and type of CaP formed. The results of such research can aid in the design of biomaterials with well-defined properties for damaged and diseased bone therapies.

ACADEMIC AND CAREER GOALS: My academic goals are to obtain a Masters Degree in Biomedical Engineering and possibly a Doctoral Degree to ultimately create a company that designs and manufacture prosthesis for army veteran amputees.
WORDS TO LIVE BY: "Make it happen."

Mahanaz Chowdhury

HOMETOWN: Brooklyn, NY
MAJOR: Civil Engineering
INTERNSHIP PLACEMENT: Department of Civil Engineering
SUMMER MENTOR: Dr. Pinar Okumus
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Civil Engineering

SUMMER PROJECT: *Analysis of Flexural Capacity of Unbonded and A Combination of Unbonded and Bonded Tendons*
ABSTRACT: Post-tensioned concrete bridge girders have many benefits such as improved durability and efficient use of construction materials. However it can cause problems with grouting, inspection, and replaceability. To address these issues, usage of unbonded or a combination of bonded and unbonded tendons is needed. Extensive research is needed to develop better designs for flexural capacity of unbonded tendons. This research will propose revisions to the current AASHTO (American Association of State Highway and Transportation Officials) Design specification in regards to the usage of unbonded, and a combination of bonded and unbonded tendons by identifying any potential gaps in the equations.

ACADEMIC AND CAREER GOALS: To obtain a Masters in Engineering Management.
WORDS TO LIVE BY: "Every master was once a beginner."

Paula Costa

HOMETOWN: Clarence, NY
MAJOR: Neuroscience
INTERNSHIP PLACEMENT: Department of Pharmacology and Toxicology
SUMMER MENTOR: Dr. Stewart Clark
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Pharmacology and Toxicology

SUMMER PROJECT: *The Effects of Neuropeptide S in Female Mice*
ABSTRACT: The neuropeptide S (NPS) system has shown promise as a target for anxiety treatment. Central brain administration of NPS in mice produces anxiolytic-like effects, hyperlocomotion and memory enhancement. However, no current research has investigated the female NPS system, despite females showing a higher prevalence in anxiety disorders. This study investigated baseline behavior of female C57BL/6 mice in three behavioral paradigms. While males and females exhibited similar locomotion, they showed significant differences in the anxiety paradigms. In order to effectively test for anxiolytic action of NPS in females, anxiety paradigms need to be optimized.

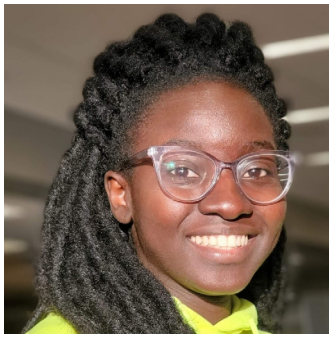
ACADEMIC AND CAREER GOALS: To obtain a PhD in Neuroscience and become a researcher in psychiatric diseases.
WORDS TO LIVE BY: "Education is the most powerful weapon which you can use to change the world." - Nelson Mandela

Adwoa Dadzie

HOMETOWN: Bronx, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Child Health and Behavioral Lab (HABLAB), School of Medicine and Biomedical Sciences
SUMMER MENTOR: Dr. Stephanie Anzman-Frasca
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Pediatrics

SUMMER PROJECT: *Examining Responsive Parenting, Structure, and Routines during Infancy by Coding Behavior and a Literature Search*
ABSTRACT: The purpose of The Intervention Nurses Start Infants Growing on Health Trajectories (INSIGHT) study is to examine how responsive parenting interventions affect their children's weight outcome and the secondary implications on Parent Sensitivity. The Responsive Parenting Techniques focused on child-centered practices of feeding, sleep, interactive play, and emotion regulation. My research focus is on the hypothesized secondary effects of this intervention on parenting sensitivity. Our methods include observing parent-child interactions as they play with a box of toys in a free play task. Additionally, I am working on a literature review to determine the outcomes of implementing routines during infancy.

ACADEMIC AND CAREER GOALS: To obtain an MD/JD after my Masters, and eventually work in medical law and policy as well as hospital management to reform and address disparities in the health system.
WORDS TO LIVE BY: "If we wait until we are ready, we'll be waiting the rest of our lives." - Lemony Snicket



Waldine Edouard

HOMETOWN: Brooklyn, NY
MAJOR: Chemistry
INTERNSHIP PLACEMENT: Departement of Chemistry
SUMMER MENTOR: Dr. Janet Morrow
SUMMER MENTOR TITLE: UB Distinguished Professor, Larkin Professor
DEPARTMENT: Chemistry

SUMMER PROJECT: *Contrast agents in MRI with a focus on Chemical Exchange Saturation Transfer Agents*
ABSTRACT: Over a decade, contrast agents have been used to enhance MRI imaging in vivo. Gadolinium based contrast agents are currently commercially available in the market. Gadolinium used in MRI is proven to be the cause of deposits of residues in the brain. The purpose of this research is to create transition metals-based contrast agents. More specifically focusing on metals such as Iron and Cobalt. The body is familiar with transition metals, therefore using them in the complexes would reduce deposits in the brain. Complexes are created using the metal ch elates or in a cage. The intention is to create a smart contrast agent that can be turned on and off using the red ox chemistry of the body. Techniques like NMR , Z spectra, CV on Lanthanide-based compounds such as gadolinium and metal-based agents were subject to similar Red-ox environment tests encountered in the body. The results are being compared with the literature. Cobalt and Iron complexes "smart contrast agents" are able to access a specific area in the body without it being accumulated in the brain or spread to other tissues. RED-OX Chemistry in the body is the basis principle used to create the smart agents mentioned in this research.

ACADEMIC AND CAREER GOALS: To obtain a PhD in Biomedical Engineering, Prosthetic Research.
WORDS TO LIVE BY: "To whom much is given, much is expected."

Michael Edovia Osagiede

HOMETOWN: Bronx, NY
MAJOR: Public Health
INTERNSHIP PLACEMENT: Hydration, Exercise, and Thermoregulation (HEAT) Laboratory
SUMMER MENTOR: Dr. Riana Pryor
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Exercise and Nutrition Sciences

SUMMER PROJECT: *Fatigue in Varying Hot Environments*
ABSTRACT: Throughout this research project, we will investigate the rate of perceived exertion (RPE) within two different hot environments which consist of hot/dry and warm/humid conditions. We will be focusing on the wet bulb globe temperature (WBGT), a calculation from the following variables: air temperature, humidity, and solar radiative heat. We believe our study will ultimately aid the current research that relates to the correlation between solar fatigue and the traumatic impact it may have on safety workers, athletes, etc. These impacts may include musculoskeletal injury and reduced cognition during physical activity.

ACADEMIC AND CAREER GOALS: To obtain a Masters Degree in Physician Assistant studies, which will ultimately focus on orthopedics.
WORDS TO LIVE BY: "Life can only be understood backwards; but it must be lived forwards." - Soren Kierkegaard

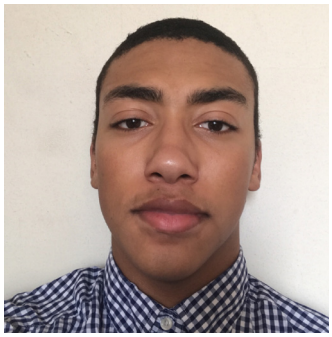
Ahamed Fofana

HOMETOWN: Bronx, NY
MAJOR: Computer Science
INTERNSHIP PLACEMENT: Department of Computer Science and Engineering
SUMMER MENTOR: Dr. Kenneth Joseph
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Computer Science and Engineering

SUMMER PROJECT: *A Thematic Analysis of Mainstream Media's Coverage of the Black Lives Matters Movement in 2020*

ABSTRACT: Through the use of Black Lives Matters (BLM) articles and a machine learning model (Natural Language Processing) we will understand how depictions of the BLM movement have changed over time in major local and national news outlets in the United States. We will analyze the text and retrieve data using a machine learning model. This data will display trends in how articles and media sources report on topics in regards to Black people during times of social turmoil, while there will be a noticeable decline during other time periods. This research builds upon prior research pertaining to how Black Lives Matters (BLM) articles have shaped what mass media chooses to produce and the topics that are focused on during times of social turmoil.

ACADEMIC AND CAREER GOALS: To graduate from the Department of Computer Science and branch off into my entrepreneurial passions.
WORDS TO LIVE BY: "With success comes sacrifice."



Jerry Ingram

HOMETOWN: Rochester, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: School of Public Health and Health Professions
SUMMER MENTOR: Dr. Heather Orom
SUMMER MENTOR TITLE: Associate Dean for Equity, Diversity and Inclusion
DEPARTMENT: Community Health and Health Behavior

SUMMER PROJECT: *Information Avoidance of Colorectal Cancer*

ABSTRACT: Colorectal cancer, the fourth most common cancer in the US, is highly preventable when individuals engage in preventative measures yet many people avoid learning the risk. Fatalism and other beliefs tend to make individuals feel like they have no control over their health and believe that learning about colorectal cancer may cause unmanageable stress (low self-efficacy). Our research suggests that reducing information avoidance can improve health interventions by identifying an intervention strategy that will reduce avoidance of colorectal cancer. An improvement with intervention strategies will reduce colorectal cancer cases which is a highly preventable disease.

ACADEMIC AND CAREER GOALS: To obtain a master's degree and become a Physician Assistant.
WORDS TO LIVE BY: "I will not lose, for even in defeat, there's a valuable lesson learned, so it evens up for me."

Evelyne Kouya

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

SUMMER PROJECT: *Axonal Endoplasmic reticulum and its role in neurodegeneration*
ABSTRACT: The axonal ER is a multi-component structure that exists within a neuron and is needed for proper neural function. Investigators have specifically discovered sites of communication between the ER and the mitochondria at domains known as mitochondria associated membranes (MAMs) and alterations to these sites have been linked to pathophysiological changes that are observed in neurodegenerative diseases. Our research involves doing a deep literature search to investigate the roles of MAMs and the various components within it. With this data investigators can better understand the role MAMs play in neurodegeneration and raise the possibility that MAMs may be a site for therapeutic treatment following nerve injury.

ACADEMIC AND CAREER GOALS: To obtain a Master's degree in Physician Assistant studies followed by a fellowship in surgery, then work for a non-profit hospital.
WORDS TO LIVE BY: "The worst they can say is no."

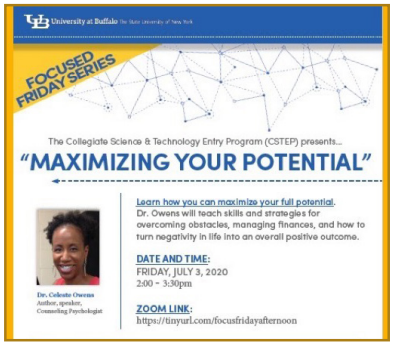
Chukwudi Nwoke

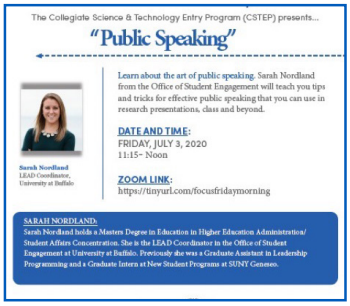
HOMETOWN: New York City, NY
MAJOR: Aerospace Engineering
INTERNSHIP PLACEMENT: University at Buffalo Nanosatellite Laboratory
SUMMER MENTOR: Dr. John Crassidis
SUMMER MENTOR TITLE: Professor
DEPARTMENT: Mechanical and Aerospace Engineering

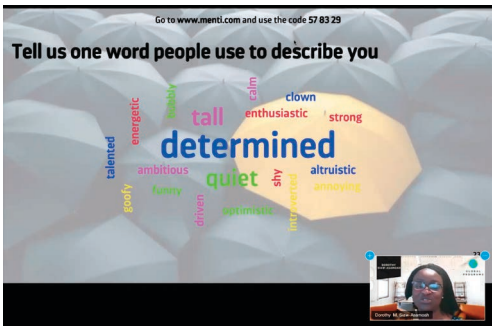
SUMMER PROJECT: *Designing the Nanosatellite (The FALCON)*
ABSTRACT: The Falcon is a 6U nanosatellite. The main objective is to be launched into space and undergo an experiment. Once it is in space, the Falcon will use a laser and aim it at both nanosatellites. The spacecraft will generate an image and we can determine the relative and absolute altitude of each nanosatellite. The second objective is to use line of site rather than a laser beam to find nanosatellite altitudes. My role is to create components and structures of the satellite that has not yet been constructed. Structures mainly focus on the design and building of the nanosatellite. We use a software called Autodesk fusion 360 that allows us to design the nanosatellite with specific engineering details. I was given the tasks to find a way to mount the antenna onto the spacecraft with making the antenna touch any metal parts on the satellite surfaces. Another task I was given was to place the laser onto the spacecraft while also securing it the base on the satellite.

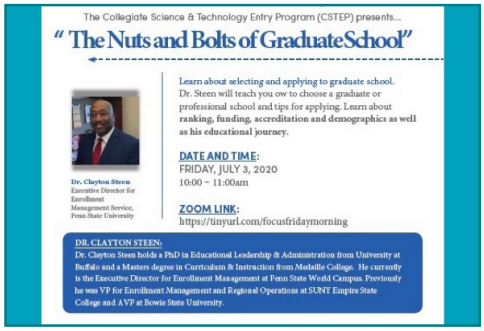
ACADEMIC AND CAREER GOALS: To get my bachelors degree in Aerospace Engineering.
WORDS TO LIVE BY: "Turn your L's to lessons."

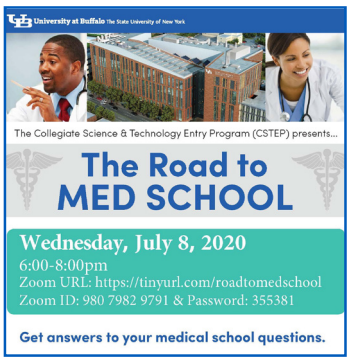
FOCUSED FRIDAY SESSIONS

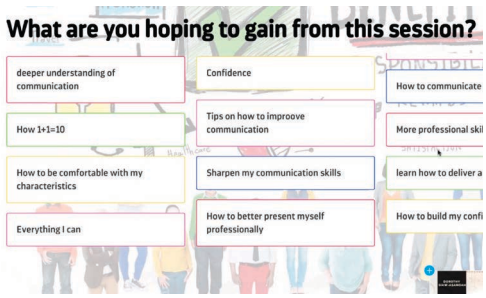


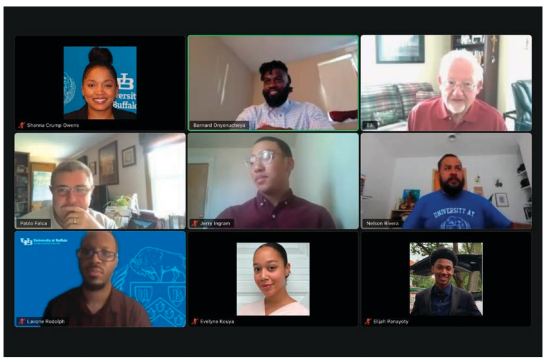


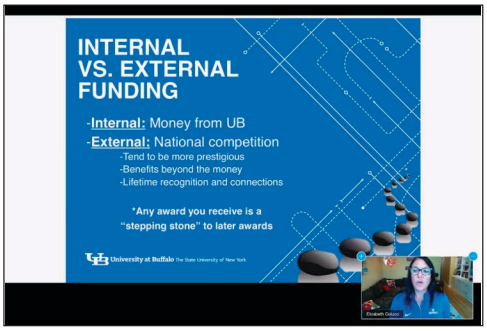


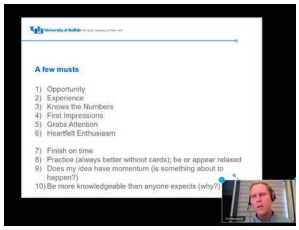


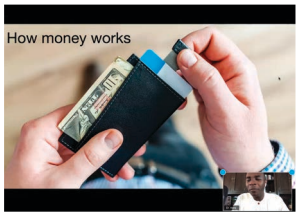


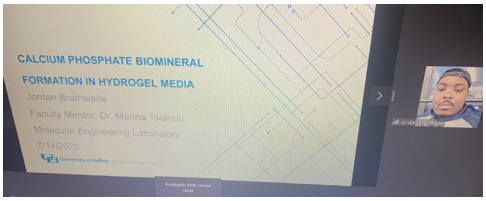


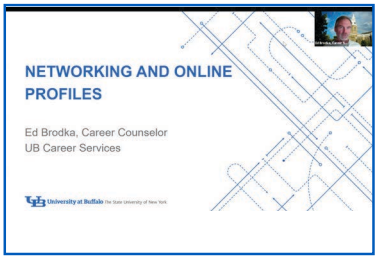






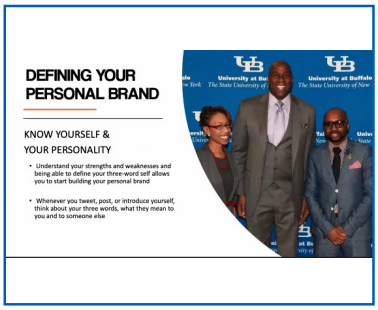


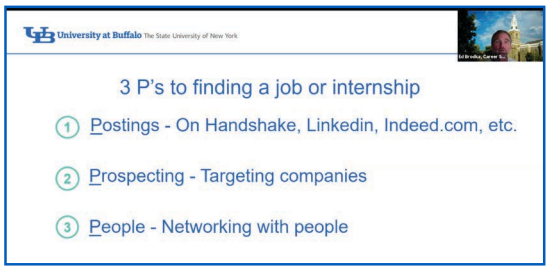


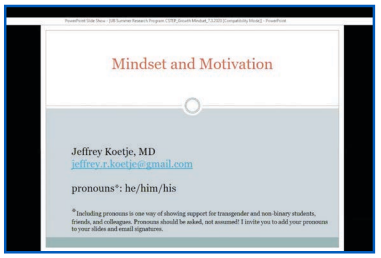

NETWORKING AND ONLINE PROFILES
Ed Brodka, Career Counselor
UB Career Services

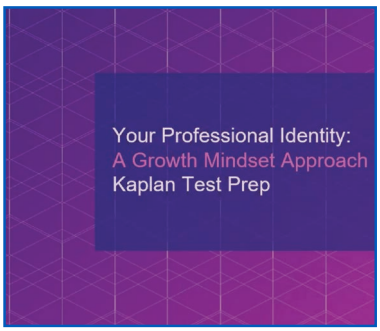

University at Buffalo The State University of New York
A Faculty Mentor's Perspective of Research
Mostafa Nouh, PhD
Assistant Professor, Mechanical and Aerospace Engineering
Director, Sound & Vibrations Laboratory
University at Buffalo, SUNY
mnouh@buffalo.edu

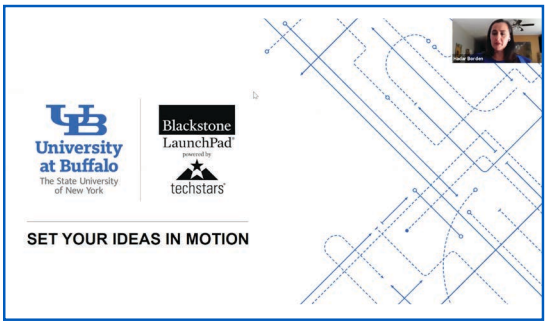

Think like an innovator and entrepreneur
Creative Problem Solving is listed among the top job skills desired in employees.
Despite this need, it is the skill that is the second most difficult to find in employees.

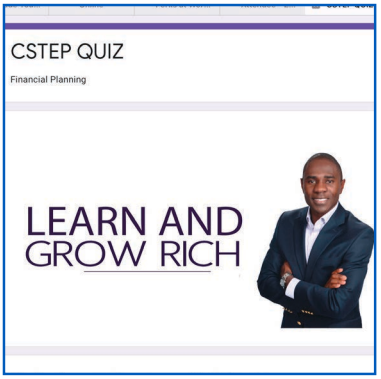

DEFINING YOUR PERSONAL BRAND
KNOW YOURSELF & YOUR PERSONALITY
Understand your strengths and weaknesses and being able to define your three-word self allows you to start building your personal brand
Whenever you tweet, post, or introduce yourself, think about your three words, what they mean to you and to someone else

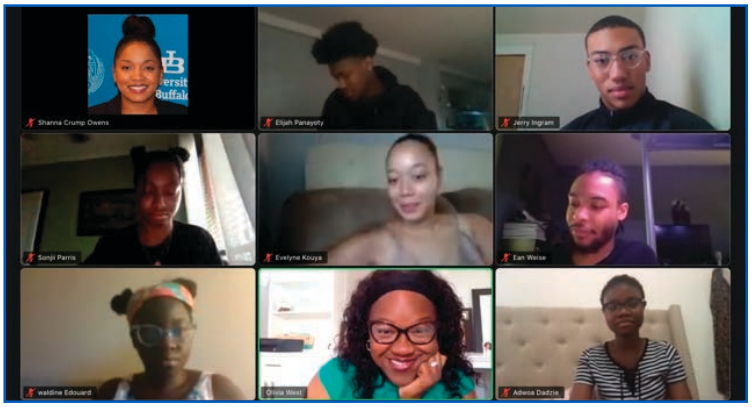

University at Buffalo The State University of New York
3 P's to finding a job or internship
1 Postings - On Handshake, Linkedin, Indeed.com, etc.
2 Prospecting - Targeting companies
3 People - Networking with people

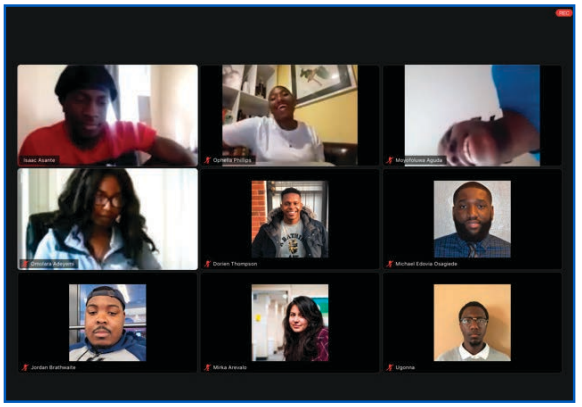

Mindset and Motivation
Jeffrey Koetje, MD
jeffrey.r.koetje@gmail.com
pronouns*: he/him/his

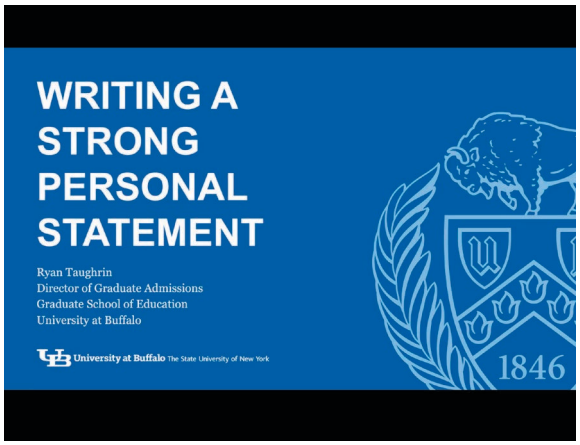

Your Professional Identity:
A Growth Mindset Approach
Kaplan Test Prep

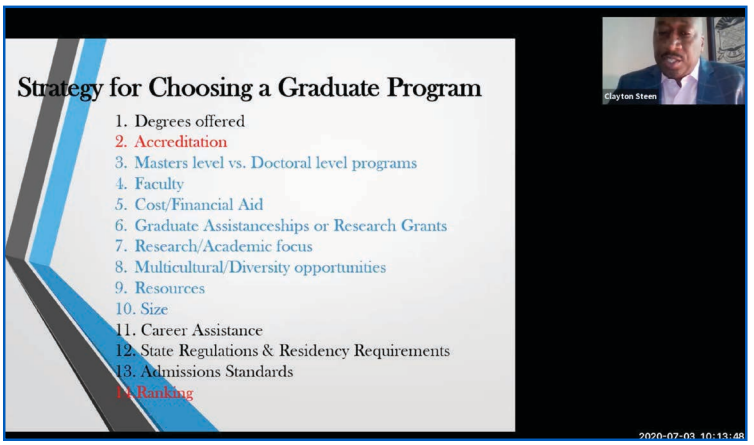

University at Buffalo The State University of New York
Blackstone LaunchPad powered by techstars
SET YOUR IDEAS IN MOTION


CSTEP QUIZ
Financial Planning
LEARN AND GROW RICH






WRITING A STRONG PERSONAL STATEMENT
Ryan Taughrin
Director of Graduate Admissions
Graduate School of Education
University at Buffalo
University at Buffalo The State University of New York
1846


Strategy for Choosing a Graduate Program
1. Degrees offered
2. Accreditation
3. Masters level vs. Doctoral level programs
4. Faculty
5. Cost/Financial Aid
6. Graduate Assistanceships or Research Grants
7. Research/Academic focus
8. Multicultural/Diversity opportunities
9. Resources
10. Size
11. Career Assistance
12. State Regulations & Residency Requirements
13. Admissions Standards
14. Ranking
Clayton Steen

Ugonna Okafor

HOMETOWN: Brooklyn, NY
MAJOR: Chemistry and Biological Sciences
INTERNSHIP PLACEMENT: Maternal and Child Health Lab, Division of Behavioral Medicine, Department of Pediatrics, Jacob School of Medicine and Biomedical Sciences
SUMMER MENTOR: Dr. Xiaozhong Wen
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Pediatrics

SUMMER PROJECT: *Dynamic changes in E-cigarette use and Cigarette smoking around pregnancy and their effects on Maternal and Infant Health*
ABSTRACT: The education and effects of using e-cigarettes compared to conventional cigarettes remains fairly minimal. Our research focuses on seeing the common trajectories of pregnant women using e-cigarettes compared to conventional cigarettes before, after, and during their pregnancy. We also seek to know what are some of the health effects of using e-cigarettes, and conventional cigarettes in the duration of their pregnancy, and effects of small gestational age birth in infants. We used two national data sets, Population Assessment of Tobacco and Health, and Pregnancy Risk Assessment Monitor Systems, PATH and PRAMS respectively, to analyze the population size and health effects.

ACADEMIC AND CAREER GOALS: To attend medical school and become a physician.
WORDS TO LIVE BY: "People who are crazy enough to think they can change the world are the ones who do."- Steve Jobs

Elijah Panayoty

HOMETOWN: Jamaica, NY
MAJOR: Electrical Engineering
INTERNSHIP PLACEMENT: Department of Electrical Engineering
SUMMER MENTOR: Barnard Onyenucheya
SUMMER MENTOR TITLE: PhD Candidate
DEPARTMENT: Electrical Engineering

SUMMER PROJECT: *Minimizing Voltage Input of Dielectric Elastomer Actuators While Maintaining Actuation Levels*
ABSTRACT: Dielectric Elastomer Actuators (DEAs) are soft, elastomer materials with electrodes on both sides. These electrodes are subject to oppositely charged voltage, resulting in contraction of thickness and expansion of surface area. This behavior is called actuation. In order for DEAs to actuate, high voltage levels are required which limits real life applications due to safety concerns. My role throughout this research is to identify ways to maintain DEA actuation levels while minimizing the voltage input. We have found that decreasing the DEA's thickness can do this. A 3-micrometer thick DEA reported an actuation strain of 7.5% at 245 V. Another 30 micrometer thick DEA reported the same actuation level at 3.3 kV. This method provides a possible approach in lowering voltage input, making DEA use safer and more efficient.

ACADEMIC AND CAREER GOALS: To obtain a PhD in electrical engineering and become a senior electrical engineer at Tesla, Inc.
WORDS TO LIVE BY: "Opportunities don't happen. You create them." - Chris Grosser

Sonjii Parris

HOMETOWN: Brooklyn, NY
MAJOR: Industrial Engineering
INTERNSHIP PLACEMENT: Department of Industrial Engineering and Systems Engineering
SUMMER MENTOR: Dr. Lora Cavuoto
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Industrial Engineering and Systems Engineering

SUMMER PROJECT: *Wearable Technology in the Workplace*
ABSTRACT: Wearable technology has the capability to transform workplaces by evaluating physical burdens endured by employees. These advantages can be realized after two concepts are considered: sensor validity, and worker buy-in. First, it is important to answer whether the sensors in wearable technology can measure worker fatigue. An experiment was conducted to determine how individuals modified their walking when fatigued. The results showed the wearable sensor was successful for measurement. Second, characteristics employees desire in the wearables must be determined. A developed survey will gather employee input at two manufacturing companies. Results from the previous experiment and employee survey responses will be used to develop an acceptable form of wearable technology for manufacturing environments.

ACADEMIC AND CAREER GOALS: To obtain a Master's of Industrial and Systems Engineering, gain industry experience, and move on to mentor minority youth and inspire them to join the STEM field.
WORDS TO LIVE BY: "Your quality of life is determined by your quality of thinking."

Ophelia Phillips

HOMETOWN: Brooklyn, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Jacobs School of Medicine and Biomedical Sciences
SUMMER MENTOR: Dr. Xiaozhong Wen
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Pediatrics

SUMMER PROJECT: *Bidirectional Relationships Between Postpartum Depression and Breastfeeding*
ABSTRACT: Postpartum depression is a common health problem that a lot of women experience after childbirth. This mental health condition can negatively affect breastfeeding practices, which can consequently disturb the normal development of the child. Struggles experienced with breastfeeding can often trigger postpartum depression. On the other hand, successful breastfeeding can protect against postpartum depression. By using a systematic literature review, this research aims to highlight the reasons as to why these two components affect each other and how it specifically alters the biological and social functions of both mother and child. With this research, the bidirectional associations are clarified and will help to enhance the relationship between a mother and her child.

ACADEMIC AND CAREER GOALS: To obtain a PhD in Developmental Psychology and possibly earn my MD.
WORDS TO LIVE BY: "Trust in the Lord with all thine heart; and lean not unto thine own understanding. In all thy ways acknowledge him, and he shall direct thy paths." - Proverbs 3:5-6

Brittany Richardson

HOMETOWN: Tonawanda, NY
MAJOR: Psychology
INTERNSHIP PLACEMENT: Clinical and Research Institute on Addiction
SUMMER MENTOR: Dr. Peter Thanos
SUMMER MENTOR TITLE: Senior Research Scientist
DEPARTMENT: Pharmacology & Toxicology

SUMMER PROJECT: *Dietary Influences of Neuroleptic Binding on GABA-A Receptors*
ABSTRACT: Clinical studies have shown dysfunctions in neurotransmission of Dopamine receptors and ?-Aminobutyric acid alpha receptors (GABAAR) in schizophrenia, especially within the cerebellum. Neuroleptics target DA neurons for schizophrenic relief, but significant weight gain is common. Clinically, a high fat diet is used as an adjunct treatment for schizophrenia; however, little is known about diet and GABAAR interactions. Our translational rodent study combined chronic treatments of neuroleptics and a high fat diet preceding receptor autoradiography. We observed significant upregulation of GABAAR expression within the cerebellum, providing evidence that nutritional support of schizophrenia should be more heavily considered for multi-approach symptom relief.

ACADEMIC AND CAREER GOALS: To obtain my Master's degree in Psychology, and pursue either a Doctorate in Clinical Psychology or Behavioral Neuroscience to continue research for neurological diseases and disorders.
WORDS TO LIVE BY: "Never do tomorrow what you can do today. Procrastination is the thief of time." - David Copperfield

Nigel Smith Ordain

HOMETOWN: Brooklyn, NY
MAJOR: Public Health
INTERNSHIP PLACEMENT: Jacobs School of Medicine and Biomedical Sciences
SUMMER MENTOR: Dr. Jessica Reynolds
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Medicine

SUMMER PROJECT: *The Innovation of Nanomedicine in Treating Tuberculosis*
ABSTRACT: Tuberculosis (TB) is a bacterial infectious disease that is caused by Mycobacterium tuberculosis (M.tb). Every year tuberculosis causes millions of deaths worldwide. Although TB cases are seen in industrial countries, this disease is most prevalent in low income countries in regions like Africa, South Asia, and Latin America. This trend is primarily due to the lack of educational resources healthcare workers in these regions have regarding the prevention and treatment of tuberculosis. Moreover, the healthcare systems of these regions lack the funds that are needed to equip healthcare workers with the appropriate technologies to treat tuberculosis. The traditional treatment for tuberculosis consists of taking an antimicrobial medication for a time span of six to nine months. Given the length of this treatment, many individuals develop low adherence to their medication which leads to M.tb developing drug resistance, making the infection harder to treat. Moreover, some of the medication used to treat this infectious disease such as Isoniazid and Rifampin, have been correlated to the presence of liver damage in patients. Nanoparticles have revolutionized the field of medicine, especially the field of immunology. Recent research shows that nanoparticles can be used to efficiently treat infectious diseases on a cellular level. In this research, we will discuss the role of nanoparticles in infectious disease therapy. More specifically, we will explore how nanoparticles can be used to elicit macrophage cytokine production to fight against the mycobacteria within an individual infected with TB more efficiently.

ACADEMIC AND CAREER GOALS: To obtain a MPH in epidemiology and continue my educational journey to obtain a MD with the goal to become physician.
WORDS TO LIVE BY: "Never stop fighting until you arrive at your destined place - that is, the unique you. Have an aim in life, continuously acquire knowledge, work hard, and have perseverance to realize the great life." - A. P. J. Abdul Kalam

Dorien Thompson

HOMETOWN: Brooklyn, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Jacobs School of Medicine & Biomedical Sciences
SUMMER MENTOR: Dr. Arin Bhattacharjee; Rasheen Powell
SUMMER MENTOR TITLE: Associate Professor; PhD Candidate
DEPARTMENT: Pharmacology and Toxicology

SUMMER PROJECT: *Research on SK Channels and Dorsal Root Ganglion Neurons*
ABSTRACT: SK (Small-conductance calcium-activated potassium) channels are mainly known for their role in contributing to the after-hyperpolarization of an action potential in central nervous system neurons. However, its role in other neuron-types are unknown. We are interested in the role that SK channels have in dorsal root ganglion (DRG) neurons (neurons – nerve cells). The DRG is a collection of sensory neurons within the spinal cord. The cell bodies situated in the dorsal root ganglia help to process and relay information from peripheral tissues to the brain protecting against potential harm. Utilizing a combination of existing literature on SK channels, bioinformatic tools like BioGPS and the Allen Brain Atlas will be effective methods in this research. Using Bio GPS, SK1 and SK2 (SK channel 1 and 2), both displayed a significant amount of gene expression in the DRG. Further experimentation and results from this research hold the potential to produce novel treatment options for pain.

ACADEMIC AND CAREER GOALS: To graduate from a medical school and become a neurosurgeon.
WORDS TO LIVE BY: "You want something you never had, you gotta do something you ain't never did." - Lil Bibby

Samantha Watts

HOMETOWN: Rochester, NY
MAJOR: Biomedical Sciences
INTERNSHIP PLACEMENT: Clinical and Research Institute on Addictions
SUMMER MENTOR: Dr. Peter Thanos
SUMMER MENTOR TITLE: Senior Research Scientist
DEPARTMENT: Pharmacology and Toxicology

SUMMER PROJECT: *The Effects of Co-dosing Methylphenidate and Fluoxetine on Adolescent Behavior*
ABSTRACT: It is common for ADHD to be comorbid with depression, often leading to Adderall (methylphenidate) and Prozac (fluoxetine) to be prescribed in combination. However, while the purpose of prescribing fluoxetine is to decrease depressive and anxious behavior, it has often been found that when co-dosed with methylphenidate there is a high probability of depressive behavior worsening in adolescents, rather than improving as typically expected. This study examined the chronic co-administration of methylphenidate and fluoxetine on depressive and anxiety-like behaviors, in which adolescent rats were exposed daily to either water (control), methylphenidate alone, fluoxetine alone, or both methylphenidate and fluoxetine over the course of 4 weeks and subject to various behavioral tests.

ACADEMIC AND CAREER GOALS: To obtain an MD in a surgical field and use this degree to further serve disadvantaged communities.
WORDS TO LIVE BY: "Difficult roads often lead to beautiful destinations. The best is yet to come." - Zig Ziglar

Ean Weise

HOMETOWN: Queens, NY
MAJOR: Mechanical Engineering
INTERNSHIP PLACEMENT: Sound and Vibrations Lab
SUMMER MENTOR: Dr. Mostafa Nouh
SUMMER MENTOR TITLE: Associate Professor
DEPARTMENT: Mechanical and Aerospace Engineering

SUMMER PROJECT: *Physics-based data driven surrogate model of UAV noise*
ABSTRACT: Commercial UAV's are growing in popularity, and their noise is growing with them. This research focuses on modeling the sound waves emitted from UAV's to ultimately lessen the sound they produce. COMSOL Multiphysics will be used to emulate multiple monopoles sources to match the sounds of a UAV via finite element analysis. The idea follows the Fourier Series, however instead of combining sine functions the physics informed model will be created by combining acoustic monopoles. Once the sound is properly emulated we can use COMSOL to inform modifications for the UAV's features, thus lowering their noise level.

ACADEMIC AND CAREER GOALS: I want to work as a product design engineer.
WORDS TO LIVE BY: "If there is room in your lungs for air there is room in your life for change."

NEW YORK STATE CSTEP COLLEGIATE SCIENCE & TECHNOLOGY ENTRY PROGRAM
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The 2020 CSTEP Summer Research Program expresses thanks & appreciation to the following workshop & tour facilitators for their contributions & support:

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INVESTMENT 101, INVESTMENT TUTOR

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MONEY MANAGEMENT,
WEST ADVISORY GROUP

*ASTERISK DENOTES CSTEP ALUM

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
Dr. Frank	Acheampong	2007	Pharmacy	UMass Memorial Medical Center	Clinical Pharmacist - Informatics
Dr. Geraldene	Agbasionwe	2007	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	Electrical Engineering	PPL Corporation	Engineer
Mark	Glasgow	2007	Biotechnology	Univera Healthcare	Business Process Intelligence Analyst
Dr. Richard	Linares	2007	Mechanical and Aerospace Engineering	Completed doctoral studies at SUNY at Buffalo in Mechanical and Aerospace Engineering	Aerospace Engineering Faculty
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
Dr. Toni-Shay	Chandon	2008	Pharmacy		PharmD
Daivon	Garrick	2008	Mathematics	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	
Dr. Anthony	Jones	2008	Biomedical Sciences	UB Jacobs School of Medicine and Biomedical Science	
Dr. Micah	McCurty	2008	Exercise Science		DPT
Dr. Hieu	Nguyen	2008	Biochemistry	UB Dental School	
Dr. 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	Completed graduate studies in bio
Derek	Brim	2010	Engineering		Engineer
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	Resident
Thao	Nguyen	2010	Engineering	University of Rochester	Completed graduate studies at UR
Dr. Adonis	Pimienta-Penalver	2010	Aerospace Engineering	Completed doctoral studies at UB	
Antonio	Upia	2010	Completed MS Engineering	Mass Electric Construction Co.	Eletrical Field Engineer
Keelan	Chu For	2011	Mechanical and Aero-space Engineering	University at Buffalo	Completed graduate studies
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	Completed Master's program in CS
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 at Columbia	Columbia Presbyterian	Psychological Counseling
Dr. Keith	Dolcy	2012	Pharmacy	University at Buffalo School of Pharmacy	PharmD
Brandon	Durant	2012	Engineering	University at Buffalo	Completed Master's program at UB
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	Ross University School of Medicine	Medical Student
Dr. Nicholas	Costable	2013	Biological Sciences	UB Medical School	Doctor

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, Fl)	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
Dr. Alexandria	Trujillo	2013	Biological Sciences	University at Buffalo	NYS Empire Fellow (Albany, NY)
Dr. Uzoamaka	Aniagba	2014	Biological Sciences	Indiana University School of Medicine	Medical Resident
Warren	Barrett	2014	Chemistry/MBA	D'Youville College School of Pharmacy	PharmD student
Leatrice	Bennett	2014	Biological Sciences	UB School of Public Health	Completed Master's program at UB
Dr. David	Bratton	2014	Biological Sciences	Jacobs School of Medicine & Biomedical School	MD
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
Dr. Robert	Ferguson	2014	Biology	University at Buffalo Dental School	Dental Student
Akunne	Kanu	2014	Public Health	University at Albany	Graduate Student - Public Health, Epidemiology
Dr. 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	Psychology/MSW	University at Buffalo	Social Worker at ECMC
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	Completed Master's degree
Zakiya	Rhodie	2015	Pharmacology & Toxicology	UB School of Pharmacy	PharmD/MPH Student
I'Yanna	Scott	2015	Biological Sciences	UB Jacobs School of Medicine and Biomedical Sciences	Medical 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	Applying to grad school	
Tanahiry	Escamilla	2016	Chemical Engineering	University at Buffalo Chemical Engineering	Graduate Student
Alejandro	Falca	2016	Medicinal Chemistry	UB Jacobs School of Medicine and Biomedical Sciences	
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	PhD 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 Students
Anthony	Lopez	2016	Biological Sciences		Medical 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	UB Jacobs School of Medicine and Biomedical Sciences	Medical student
Marcus	Ashford	2017	Electrical Engineering	University at Buffalo	Engineer at Calspan
Leon	Butcher IV	2017	Psychology	University of Marland School of Dentistry	Dental Student
Kennedy	Colon	2017	Civil, Structural & Environmental Engineering	University at Buffalo	Engineer (Los Angeles, CA)
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

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	UB School of Law	Law school
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 Post-Bacc Program	Post-Bacc Student
Tanzania	Bussey	2018	Pharmacology & Toxicology	University at Buffalo School of Pharmacy	PharmD Student
Edgar	Claudio	2018	Pharmacology & Toxicology	University at Buffalo School of Pharmacy	PharmD 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	Graduate Student
Charitie	Hill	2018	Chemistry		Works at University of Rochester
Nasiah	Johnson	2018	Electrical Engineering	UB School of Engineering & Applied Sciences, Master's in Electrical Engineering	Engineer, Lockheed Martin
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 School of Law	Law Student
Keiona	Nance	2018	Exercise Science	UB School of Public Health/ MS Athletic Training Program	Graduate 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	Medical Student
Aliaya	Williams	2018	Biological Sciences	University at Buffalo, Biological Sciences MS	Graduate Student

2020 CSTEP SUMMER RESEARCH INTERN PROGRAM