



University at Buffalo *The State University of New York*

REACHING OTHERS

2016

Collegiate Science & Technology Entry Program (CSTEP)



2016 CSTEP Research Interns in front of UB Center for the Arts

SUMMER RESEARCH PROGRAM RESEARCH SYMPOSIUM & LUNCHEON



Wednesday, July 27, 2016

11:00 a.m. – 1:30 p.m.

University at Buffalo

Newman Center ~ North Campus

PROGRAM ORDER

WELCOME

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

OPENING REMARKS

DR. ANDREW M. STOTT
Vice Provost, Dean of Undergraduate Education

LUNCHEON & SLIDESHOW NARRATIVE

NELSON M. RIVERA
Graduate Assistant

STUDENT PERSPECTIVES

Kaytlan LoCicero, Cohort Leader
Ali Al Qaraghuli, Cohort Leader
Tanahiry Escamilla, Summer Intern
Jarrett Franklin, Summer Intern

POSTER COMPETITION & JUDGES PRESENTATION

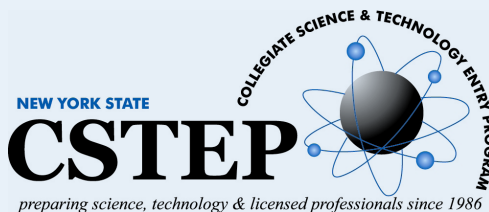
LAVONE RODOLPH
Research Methods Instructor
Doctoral Student, Computer Science & Engineering

FACULTY MENTOR & STUDENT AWARD PRESENTATION

SHANNA CRUMP-OWENS
CSTEP Director

CLOSING REMARKS

SHANNA CRUMP-OWENS
CSTEP Director



"TO WHOM MUCH IS GIVEN, MUCH IS EXPECTED"

CSTEP DIRECTOR'S MESSAGE



Welcome to the 10th 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, tour guides and research methods seminar instructor which number more than 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 with 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 an undergraduate career. 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 was 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.

SERVICE LEARNING PROJECT

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 minorities participating with the organ donor registry. This goal is achieved by engaging students pursuing 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 Upstate NYS Transplant Services (UNYTS).

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.

THE CSTEP ANNUAL 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

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, the 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

Students who attend our monthly meetings gain invaluable advice as they have the opportunity to learn from each other students’ 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
End of Semester Reception
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.
- Last year, UB CSTEP exceeded our program enrollment goal of **305** by **25%**! Our current enrollment is **386** students.
- Since the program's inception, UB CSTEP has awarded over **150** CSTEP/Kaplan scholarships to students in preparation for standardized graduate school exams (PCAT, MCAT, GMAT, LSAT, and GRE).
- This year, CSTEP and CURCA sponsored **16** students, staff, and alumni, including **8** students who presented their research at the 24th Annual CSTEP Statewide Conference: Journey's Beyond Excellence in Lake George, NY.
- This year, **30** CSTEP students were placed in funded research internships and completed over **7,000** hours.
- This year, there are **125** students in CSTEP's graduating class. *Congratulations, Class of 2016!*

WHY DO RESEARCH? STUDENT PERSPECTIVES

Written by the 2016 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, we worked 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. **Lucas Rugar**, a senior majoring in Civil Engineering, believes that “research greatly improves your critical thinking.” He sees research as an avenue for students to learn valuable skills from professionals in academia. As a senior Computer Engineering major and native of Harlem, NY, **Dominique Hickson** shares a similar view. Dominique says, “It is interesting that you can be a part of a discovery one day. Research not only broadens your knowledge but you’re networking with other professionals you can bounce ideas off of.” Many students see research as a method of interacting with knowledgeable professionals in her future career.

Through their experiences, students catch a glimpse of the day-to-day workings of experts in their fields. **Diamile Tavarez**, a junior in Biological Sciences, is making the most of her experience by using it as “an opportunity to go beyond the classroom.” Diamile also sees the importance of networking through this summer and hopes to learn the intricacies of professionalism and effective communication. **Tanahiry Escamilla** believes research “allows you to work on projects that you will be learning about in future classes. You have a critical advantage in your learning.” Tanahiry is in her junior year studying Chemical Engineering, and her research focuses on the “Surface Modification on Membrane for Wastewater Treatment.”

Jarrett Franklin, a Biological Sciences student hailing from Missouri, views this opportunity as a bridge between university and industry, stating: “[Undergraduate research] helps you make key relationships with companies your lab may be partnered with.”

In addition to networking, many students see research as the precursor of innovation. “Research allows me to be an expert in a field not many know about,” says **Alejandro**

Falca, a senior majoring in Medicinal Chemistry. Falca’s research concerns the synthesis and characterization of nanostructured inorganic materials designed to undergo light-induced electron transfer. **Mohammed Karim**, a senior Biological Sciences, sees his research as a way to learn new ideas, hoping to “generate innovative solutions to real world problems.” To **Malik Davies**, research helped him “learn how to design an experiment from scratch.” Malik is working on the “Synthesis of Yolk-Shell Structured Silicon-Germanium Anodes for Lithium-ion Batteries.” **Anna Huang**, a senior majoring in Social Sciences, says of her research experience: “This program has shown me that research is a process and you have to be patient with that process.”

Kaytlan LoCicero also hopes to leave her mark on history. Kaytlan is a junior intended on nursing school, investigating “Physicians’ Influence on Prostate Cancer Patients’ Treatment Decision.” She said, “your work has the chance to be published; you can be a part of something *bigger*.” According to **Andrew Alegria**, “research opens a lot of doors. It can be used as a very big stepping stone to go on to more internships with other mentors and experts within your field.” Andrew is in his third year as a student in the Department of Mechanical Engineering.

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, gaining skills to use in education, the workforce, and beyond.

~2016 CSTEP Summer Research Cohort



Naza Abdelrahman

HOMETOWN: Brooklyn, NY

MAJOR: Biomedical Sciences

INTERNSHIP PLACEMENT: Buffalo Clinical and Translational Research Center

SUMMER MENTOR: Dr. Alice Ceacareanu

SUMMER MENTOR TITLE: Assistant Professor

DEPARTMENT: Pharmacy and Pharmaceutical Sciences

SUMMER PROJECT: *Metformin Attenuates the Detrimental Effects of Insulin in Head and Neck Cancer*

ABSTRACT: Long-term survival among patients with diabetes mellitus (DM) and head and neck cancers

(HNC) remains low despite advances in surgery, radiation, and chemotherapy. The present research evaluates DM pharmacotherapy influence on HNC outcomes. Kaplan-Meier analysis with log-rank statistics assessed overall (OS) and disease-free survival (DFS), in months, among DM patients diagnosed with HNC at Roswell Park Cancer Institute (1/1/2003-12/31/2010). Metformin use improved mean OS (93.05 vs. 62.95, $P=0.008$) and DFS (87.08 vs. 54.55, $P=0.020$). Insulin use decreased mean OS (47.98 vs. 88.38, $P<0.001$) and DFS (33.53 vs. 83.99, $P<0.001$). Metformin's addition to insulin increased mean OS and DFS by 15.17 (Raw $P=0.034$) and 22.43 (Raw $P=0.021$) months, respectively.

ACADEMIC AND CAREER GOALS: To obtain my MD degree and become a pediatrician.

WORDS TO LIVE BY: "Failure will never overtake me if my determination to succeed is strong enough" -Unknown



Ali Al Qaraghuli

HOMETOWN: Syracuse, NY

MAJOR: Electrical Engineering

INTERNSHIP PLACEMENT: UB Nanosatellite Laboratory

SUMMER MENTOR: Dr. John Crassidis

SUMMER MENTOR TITLE: CUBRC Professor

DEPARTMENT: Mechanical and Aerospace Engineering

SUMMER PROJECT: *Integration of Triple Junction Solar Panels in Nanosatellite Power Systems*

ABSTRACT: Throughout the electronic age, space vehicles have shaped our modern civilization and

created a more connected world. Satellites are now designed to perform serious duties while hosting smaller structures. However, with smaller satellites, smaller solar cells need to be implemented, which can cause a dilemma in the case of recharging the vehicle's battery. In order for a cell to maintain high efficiency at a small size, it must have multiple junctions. For the purposes of the UBNL Space Debris sister satellites, triple junction solar cells can provide reliable and renewable power to small satellites in order to guarantee data and command handling, in addition to recovering power lost to tumbling.

ACADEMIC AND CAREER GOALS: To obtain a Doctorate of Medicine Degree and specialize in Ophthalmology subspecializing in Oculofacial Plastic Surgery.

WORDS TO LIVE BY: "Scientists in the Renaissance and Islamic Golden age studied various fields and pioneered in all of them, made discoveries in all of them, and left their legacies through their inventions. Now, you have one college major and one field to master, if you ever doubt that you can do it, think of how someone with the same biology as you has accomplished much more."



Andrew Alegria

HOMETOWN: Lynbrook, NY

MAJOR: Mechanical and Aerospace Engineering

INTERNSHIP PLACEMENT: Automation, Robotics and Mechatronics Lab

SUMMER MENTOR: Dr. Venkat Krovi

SUMMER MENTOR TITLE: Professor

DEPARTMENT: Mechanical and Aerospace Engineering

SUMMER PROJECT: *An Analysis of Robotic Manipulators Using Visualization and Simulation Software, as well as Analytical Examination*

ABSTRACT: Robotic Manipulators consist of rigid links coupled together by articulations. Examples of such manipulators include open-chain mechanisms such as the one link, two link, three link or, closed-chain mechanisms such as the four-bar. We analyzed, simulated, and visualized how the links and end-effector moved under joint-mounted motors. Computer Aided Engineering software was used to create models for visualization and simulation of robotic systems. For our analytical analysis, we used mathematical and physics based methods initially, developing comparative models with CAE tools. However, the complexity of analytical methods increased very rapidly with an increasing numbers of links. Hence, the bulk of my work focused on the kinematics of more complex examples.

ACADEMIC AND CAREER GOALS: My most immediate goal is to obtain my Bachelor of Science in Mechanical and Aerospace Engineering in 2 years and, in the future, start my own company.

WORDS TO LIVE BY: "Impossible is just a big word thrown around by small men who find it easier to live in the world they've been given than to explore the power they have to change it. Impossible is not a fact. It's an opinion. Impossible is not a declaration. It's a dare. Impossible is potential. Impossible is temporary. Impossible is nothing." - Muhammad Ali



Barituziga Banuna

HOMETOWN: Buffalo, NY

MAJOR: Chemical Engineering

INTERNSHIP PLACEMENT: Dept. of Chemical and Biological Engineering

SUMMER MENTOR: Dr. Marina Tsianou

SUMMER MENTOR TITLE: Associate Professor

DEPARTMENT: Chemical and Biological Engineering

SUMMER PROJECT: *Investigation of Calcium Oxalate crystal morphology using additives in silica hydrogel*

ABSTRACT: Calcium oxalate is the major substituent of debilitating renal stones. Calcium oxalate crystals exist in three different forms: monohydrate (COM), dihydrate (COD), and tri-hydrate (COT). COM crystals are most closely associated with the kidney stones. Additives with anionic functional groups have shown inhibitory effects on COM crystal formation. However, more research must be done to understand the underlying mechanism behind these interactions. Hydrogels serve as an analog to the biological environment in which renal stones form. Using silica hydrogel matrixes, we investigated the efficacy and effects of additives; Trisodium Citrate and PSS (Polystyrene Sulfonate) in the inhibition of COM formation and crystal morphology.

ACADEMIC AND CAREER GOALS: To obtain a Master's degree in the field of chemical engineering and materials science. I would also like to establish a firm to promote the implementation of new technologies.

WORDS TO LIVE BY: "If I have seen further it is by standing on the shoulders of giants." - Sir Isaac Newton



Emmanuel Cott

HOMETOWN: Buffalo, NY

MAJOR: Computer Science

INTERNSHIP PLACEMENT: Security Lab Davis Hall

SUMMER MENTOR: Dr. Shambhu J. Upadhyaya

SUMMER MENTOR TITLE: Professor, Associate Department Chair

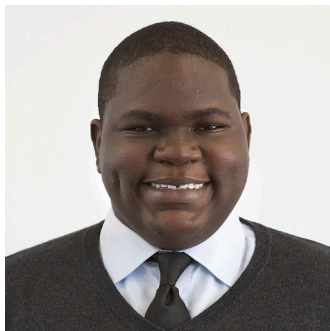
DEPARTMENT: Department of Computer Science and Engineering

SUMMER PROJECT: *Cyber Security of Social Networks(Twitter Analysis)*

ABSTRACT: The spreading of information through social networks is both influential and sometimes unpredictable. Understanding how information spreads is essential for user security. In our research we will investigate and simulate how information spreads through the Twitter Network. This will allow us to detect and analyze malicious content embedded in tweets, retweets and hashtags. Afterwards, we will develop and employ cyber security algorithms and measurements to prevent or mitigate the spread of malicious content.

ACADEMIC AND CAREER GOALS: To further study the field of Computer Science and to start my own software development company.

WORDS TO LIVE BY: "This world is but a canvas to our imagination." - Henry David Thoreau



Abdul-Malik Davies

HOMETOWN: Queens, NY

MAJOR: Chemical Engineering

INTERNSHIP PLACEMENT: Colloidal and Aerosol Nanomaterials Laboratory (CANlab)

SUMMER MENTOR: Dr. Margarita Dubocovich

SUMMER MENTOR TITLE: UB Distinguished Professor

DEPARTMENT: Chemical and Biological Engineering

SUMMER PROJECT: *Synthesis of Yolk-Shell Structured Silicon-Germanium Anodes for Lithium-ion Batteries*

ABSTRACT: The move towards a more sustainable world requires more efficient energy storage systems. New materials are needed to improve the storage capacity of batteries. Silicon-germanium (SiGe) alloy nanoparticles can potentially be used to create anodes with much higher specific capacity than graphite, the most commonly used material in Lithium-ion (Li-ion) batteries. However, these materials suffer from degradation due to volume expansion and contraction during use. To address this challenge, we are preparing carbon-coated SiGe-based anodes with a nanostructure that can accommodate volume changes. Starting with SiGe nanoparticles obtained using a laser reactor, we expect to achieve a SiGe@void@C yolk-shell structure utilizing mostly solution-phase techniques.

ACADEMIC AND CAREER GOALS: To work in the energy industry with a focus on sustainability-related projects.

WORDS TO LIVE BY: "Be at war with your vices, at peace with your neighbors, and let every new year find you a better man." - Benjamin Franklin



Tanahiry Escamilla

HOMETOWN: Queens, NY

MAJOR: Chemical Engineering

INTERNSHIP PLACEMENT: School of Engineering and Applied Sciences

SUMMER MENTOR: Dr. Haiqing Lin

SUMMER MENTOR TITLE: Assistant Professor

DEPARTMENT: Department of Chemical and Biological Engineering

SUMMER PROJECT: *Surface Modification on Membrane for Wastewater Treatment*

ABSTRACT: Water scarcity is a severe problem driving a demand for simple, energy-efficient water purification technologies. Polymeric membranes are increasingly being used to purify water, however membrane fouling results in reduction of separation efficiency and increase in maintenance and operation costs. In our research, polydopamine and 2-methacryloyloxyethyl phosphorycholine are used for the surface modification of polyethylene membranes to study its decomposition effects on the physical properties of membranes. This research will help further our understanding of membrane modifications to offer a simple and effective platform to improve fouling resistance of membranes operating at large-scale water purification facilities.

ACADEMIC AND CAREER GOALS: To obtain a Master of Science degree in Chemical Engineering and empower the Hispanic community to realize its fullest potential through STEM awareness, access, support and development.

WORDS TO LIVE BY: "Start by outdoing yourself, and then keep on keeping on." - Alford Antoine John



Alejandro Falca

HOMETOWN: Buffalo, NY

MAJOR: Medicinal Chemistry

INTERNSHIP PLACEMENT: Watson Research Group

SUMMER MENTOR: Dr. David Watson

SUMMER MENTOR TITLE: Professor

DEPARTMENT: Chemistry

SUMMER PROJECT: *Excited-State Charge Transfer between Covalently Tethered CdSe/CdTe Quantum Dots and Mesoporous TiO₂*

ABSTRACT: Quantum dots are valuable light harvesters for solar energy conversion and photocatalysis. Semiconductor quantum dots have been studied extensively for their size-dependent optical properties as well as for their role as excitonic and trap states, which may alter charge-transfer processes. One major challenge is to maintain the separation of photogenerated charges. We synthesized a CdSe/CdTe heterostructure on TiO₂ films through ligand exchange in order to spatially separate electrons and holes upon excitation of light. We expect this configuration of quantum dots to minimize electron-hole recombination thus improving the odds that photogenerated electrons and holes can be used to do work.

ACADEMIC AND CAREER GOALS: My current goal is to make it into the Jacobs School of Medicine and Biomedical Sciences while long term I want to become an anesthesiologist.

WORDS TO LIVE BY: "There is a certain terror that goes along with saying, "My life is up to me." It is scary to realize there's no magic, you can't just wait around, no one can really rescue you, and you have to do something." - Meg Jay



Jarrett Franklin

HOMETOWN: Weldon Springs, Missouri

MAJOR: Electrical Engineering

INTERNSHIP PLACEMENT: Energy Systems Integration

SUMMER MENTOR: Dr. Jennifer Zirnheld; Dr. Kevin Burke

SUMMER MENTOR TITLE: Director and Associate Professor; Research Assistant Professor

DEPARTMENT: Electrical Engineering

SUMMER PROJECT: *Using Software to Determine the Total Harmonic Distortion of Waveforms*

ABSTRACT: Relays are electrical switches used to block current to a power system when a fault is detected. In electronics, faults are irregular changes in current that can lead to system damage. However, harmonics are waveform distortions that can mimic faults. This can lead to nuisance tripping which is the process of a relay sealing current from the system when transient signals are detected. By using software simulations these compositions can be studied to ensure proper relay performance. The ability to determine the magnitude of harmonic composition, will aid manufacturers in defining relay settings that can differentiate faults from harmonics.

ACADEMIC AND CAREER GOALS: I seek to work with a space program.

WORDS TO LIVE BY: "The difference between a successful person and others is not a lack of strength, not a lack of knowledge, but rather a lack in will." - Vince Lombardi Jr.



Chris Gnam

HOMETOWN: Rochester, NY

MAJOR: Mechanical and Aerospace Engineering

INTERNSHIP PLACEMENT: Sound and Vibrations Laboratory

SUMMER MENTOR: Dr. Mostafa Nouh

SUMMER MENTOR TITLE: Assistant Professor

DEPARTMENT: Mechanical and Aerospace Engineering

SUMMER PROJECT (TITLE): *Vibration Control with Periodic Structures*

ABSTRACT: Spacecraft optical equipment often times needs to be held extremely still while taking long exposures, and so they must somehow be kept isolated from undesirable sources of vibration (such as from reaction wheels). Materials with good damping properties, such as rubber-like and viscoelastic polymers, are typically soft with a low mechanical stiffness and are thus not always suitable. Another approach is to use periodic structures (utilizing both periodic geometries and materials) which are known to exhibit a unique structural response stemming from their ability to generate stop bands. Within these stop bands, vibration excitations of certain frequencies are incapable of producing elastic waves that propagate through the structure and are, therefore, effectively damped. We are studying various theoretical periodic structures using the finite element method using ANSYS workbench to model their filtering characteristics. We have also created mathematical models using MATLAB to predict the wave dispersion patterns of these structures which have allowed us to identify geometries with potentially powerful vibrational suppression properties, which may allow for more precise data collection on spacecraft optical systems.

ACADEMIC AND CAREER GOALS: To one day work at SpaceX or NASA to assist in the development of a permanent martian infrastructure.

WORDS TO LIVE BY: "When something is important enough, you do it even if the odds are not in your favor." - Elon Musk



Dominique N. Hickson

HOMETOWN: Harlem, NY
MAJOR: Computer Engineering
INTERNSHIP PLACEMENT: VPML/Robotics Lab
SUMMER MENTOR: Dr. Karthik Dantu
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Computer Science and Engineering

SUMMER PROJECT: *Autonomous Mobile Robot Range and Bearing Utilizing Channel State Information*

ABSTRACT: Autonomous mobile robots are equipped with external status sensors to accumulate information about the environment in which it is activated. This helps the mobile robot establish its

location; thus assisting the mobile robot with avoiding obstacles and providing it with a stable course navigation. With a combination of external status sensors, including ultrasonic rangefinders, lasers, cameras, and a global positioning system (GPS), the process of localization highly depends on each sensor's own unique capabilities and designations. GPS receivers are able to effectively locate mobile robots in an outdoor environment using signals to communicate with satellite devices. However, GPS signals do not work indoors due to complications with penetrating through physical barriers, and cameras/lasers cannot be used to identify landmarks in new environments without prior learning. Since Wi-Fi relies on radio frequency signals from Access Points (AP), we used Wi-Fi software to calculate a mobile robot's range and bearing which is a cost-effective strategy that requires no further hardware components. Furthermore we will design a system that measures relative range and bearing using Channel State Information (CSI), that is available with newer wireless cards and APs, to aid in localization. This can be used independently or together with other sensors to improve the accuracy and efficiency of localization of robots in indoor environments.

ACADEMIC AND CAREER GOALS: To build an organization for at risk populations in crime ridden neighborhoods that will teach them how to code in a wide variety of computer languages and control hardware.

WORDS TO LIVE BY: "We gotta make a change; it's time for us as a people to start making some changes. Let's change the way we eat, let's change the way we live and let's change the way we treat each other." - Tupac Shakur



Anna Huang

HOMETOWN: Oakland Gardens, NY
MAJOR: Social Science Interdisciplinary - Community Mental Health
INTERNSHIP PLACEMENT: University At Buffalo School of Public Health and Health Professions
SUMMER MENTOR: Dr. Lynn Kozlowski; Dr. Gary Giovino
SUMMER MENTOR TITLE: Former Dean of the Department and Professor; Current Dean of the Department and Professor
DEPARTMENT: Department of Community Health and Health Behavior

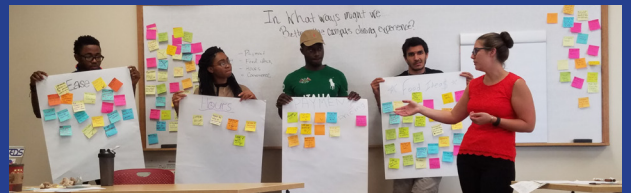
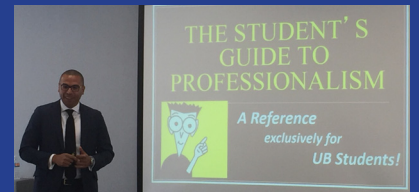
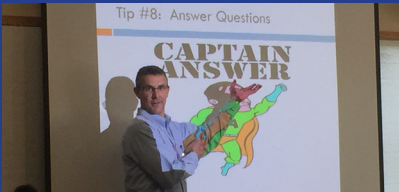
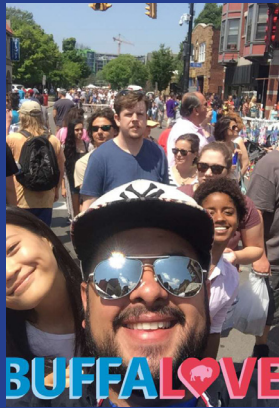
SUMMER PROJECT: *Assessing the Pharmacotherapies of Treatments for Smoking Cessation in Adults with Serious Mental Illness*

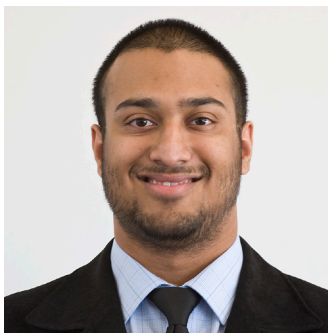
ABSTRACT: Tobacco smoking remains the leading preventable cause of death in the United States with 480,000 annual deaths. Smoking causes three out of five smokers to die prematurely. Most individuals with serious mental illness such as Schizophrenia and Bipolar Disease are much more likely to be cigarette smokers than individuals without mental illness. Collected copies of published literature will be reviewed in detail to try to assess the magnitude of the treatments effects, using established measures of effect-size (e.g. NNT). Our research will help further understand the extent to which pharmacotherapy treatments will help the abstinence of smoking cessation in adults with mental illness.

ACADEMIC AND CAREER GOALS: To obtain a Master's in Epidemiology, and to become an Epidemiologist. I also plan to work around the world, studying and preventing the diseases that are spread world wide, with regards to public health and public safety.

WORDS TO LIVE BY: "Fall down seven times, Stand up eight."







Mohammed Karim

HOMETOWN: Queens, New York

MAJOR: Pre-Med/Biomedical Sciences

INTERNSHIP PLACEMENT: Biomedical Research Building

SUMMER MENTOR: Dr. Stewart Clark

SUMMER MENTOR TITLE: Assistant Professor

DEPARTMENT: Pharmacology and Toxicology

SUMMER PROJECT: *Characterization of a Preclinical Model of Progressive Supranuclear Palsy*

ABSTRACT: Progressive Supranuclear Palsy is a neurodegenerative disease with characteristic tau protein aggregates. Currently, no animal model exists for treatment of this disease. However, we have created a rat model by infecting the cholinergic neurons of the pedunculo pontine tegmentum with a virus containing a human tau gene. In this model, we believe overexpression of tau will produce deficits in motor performance. We assessed rats for their motor performance using walkways and horizontal ladders. We discovered that tau infused rats produce impairments in walking behavior. Therefore, we expect this model to be useful in finding a treatment for Progressive Supranuclear Palsy.

ACADEMIC AND CAREER GOALS: I strive to attend Medical School and obtain a Medical Doctor degree. After Medical School I intend to pursue a career in neurosurgery and potentially find a cure for Parkinson's Disease.

WORDS TO LIVE BY: "When life knocks you down with an obstacle, you get back up. Failure is not an option."



Jalisa Kelly

HOMETOWN: Niagara Falls, NY

MAJOR: Biomedical Sciences

INTERNSHIP PLACEMENT: Jacobs School of Medicine and Biomedicine

SUMMER MENTOR: Dr. Xiaozhong Wen, Ph.D.

SUMMER MENTOR TITLE: Assistant Professor

DEPARTMENT: Pediatrics

SUMMER PROJECT: Changes in Knowledge and the Intent of Breastfeeding among Pregnant Smokers after Smoking Cessation

ABSTRACT: Breastfeeding rates among pregnant women who smoked are significantly low compared to pregnant women who did not smoke. Our study employs data from the UB Pregnancy and Smoking Cessation study, which uses multiple component interventions to guide pregnant smokers on the journey to quit. Survey use before and after smoking cessation; showcases the change in knowledge and intent to breastfeed in a sample size of 32 women. It is expected that the intent to breastfeed will increase amongst our sample size once educated about breastfeeding, and smoking has ceased.

ACADEMIC AND CAREER GOALS: To attend medical school and obtain an M.D, graduate and go on to be a doctor in underserved areas. Later on I also plan on becoming a clinical instructor.

WORDS TO LIVE BY: "All things are possible! The key is to identify what you want, claim it for yourself, and believe that you are worthy to have it." - Iyanla Vanzant



Kaytlan LoCicero

HOMETOWN: Binghamton, New York
MAJOR: Social Science Interdisciplinary
INTERNSHIP PLACEMENT: School of Public Health
SUMMER MENTOR: Dr. Heather Orom, Ph.D.
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Community Health and Behavior

SUMMER PROJECT: *Identifying Physicians' Influence on Prostate Cancer Patients' Treatment Decision*

ABSTRACT: Physician recommendations may be the most important influence on men's prostate cancer treatment decision, however there is limited data that explains under what circumstances physician's

recommendations influence treatment decisions. We conducted a qualitative data analysis of transcribed interviews with 25 prostate cancer patients who discussed their decision-making experience to examine any major themes that may reflect a strong influence in men's treatment decision. This research will provide a better understanding of physicians' influence on men's' treatment decision and how patient-physician relationships can reduce under and over treatment.

ACADEMIC AND CAREER GOALS: To obtain a Bachelor of Sciences in Community Mental Health and attend the University at Buffalo's ABS Summer Nursing Program to obtain a Bachelor degree in nursing and become a registered nurse in my local community.

WORDS TO LIVE BY: "I consider that our present sufferings are not worth comparing with the glory that will be revealed in us." - Romans 8:18



Anthony Lopez

HOMETOWN: Maybrook, NY
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Institute of Photonics and Biophotonics
SUMMER MENTOR: Dr. Hilliard Kutscher
SUMMER MENTOR TITLE: Research Assistant Professor
DEPARTMENT: Chemistry

SUMMER PROJECT: *Formulation of Biodegradable Nanoparticles for the Treatment of Tuberculosis*

ABSTRACT: Tuberculosis is considered is a menacing epidemic that continues to plague 9.6 million lives globally. Treatment requires constant uptake of antibiotics over long periods of time. Nanoparticles

remedy this offering systemic drug distribution and improve intracellular drug concentration. Rifampin loaded poly (lactic-co-glycolic acid) [PLGA] nanoparticles were synthesized via a water-oil-water emulsion technique. Lamentably nanoparticle TB treatment suffers from low encapsulation efficiency and burst release. Therefore this study will manipulate polymer composition to evaluate the consequential effects observed on nanoparticle size, zeta potential, release rate and encapsulation efficiency. We hope to find composition which maximizes rifampin loading and steady drug release.

ACADEMIC AND CAREER GOALS: I hope to obtain a Medical Degree and specialize in Cardiothroacic surgery. Additionally I aspire to work on reform in medical care for Puerto Rico and the inner cities of the United States. Lastly, I wish to clinically study cardiovascular diseases in my latter age.

WORDS TO LIVE BY: "When life knocks you down, try to land on your back. Because if you can look up, you can get up."



Jillian Naylor

HOMETOWN: Mandeville, Jamaica
MAJOR: Biological Sciences
INTERNSHIP PLACEMENT: Biological Sciences
SUMMER MENTOR: Dr. Kathryn Medler
SUMMER MENTOR TITLE: Assistant Professor
DEPARTMENT: Biological Sciences

SUMMER PROJECT: *Investigating the role of BASP1 on taste cell maintenance*

ABSTRACT: Taste receptor cells are specialized neuroepithelial cells that are housed in taste buds in the lingual epithelium of the oral cavity. Due to their exposure to the external environment, taste cells are vulnerable to damage. To compensate for any damage, taste cells are constantly being replaced. However, the mechanisms that control this turnover process are not well understood. While there are many proteins found in the peripheral taste cells, it is unclear which contribute to taste cell maintenance. One potential protein that may be involved is the transcriptional regulator, Brain Acid Soluble Protein (BASP1). Experiments using Polymerase Chain Reaction (PCR) and immunohistochemical analyses are aid in better understanding the role of BASP1 in taste cell maintenance.

ACADEMIC AND CAREER GOALS: To become an endodontist and to open a clinic in my hometown in Jamaica.

WORDS TO LIVE BY: "If God leads you to it, He will guide you through it."



Aaron Nimako

HOMETOWN: Buffalo, NY
MAJOR: Biomedical Science
INTERNSHIP PLACEMENT: Roswell Park Cancer Institute
SUMMER MENTOR: Dr. Jerome Yates; Dr. Richard Cheney
SUMMER MENTOR TITLE: Research Mentor
DEPARTMENT: Pathology

SUMMER PROJECT: *Analysis of Cholangiocarcinoma in Roswell Park Autopsy Database*

ABSTRACT: From 1950-1987, over 23000 autopsies were done at RPCI. Cholangiocarcinoma is a relatively rare cancer and usually results in death for the patient. It arises in the bile ducts draining the liver or throughout the extra hepatic ducts. Using the autopsy files, demographic characteristics of patients with Cholangiocarcinoma were collected. Sex, age, survival, risk factors and other cancer diagnosis were collected. 20234 records were scanned and 11 cases of Cholangiocarcinoma were found. There were 3 males and 8 females ranging from ages 39 to 68. Their survival ranged from 3 weeks to 5 years. This remains a very difficult cancer to control and etiologic factors contributing to its genesis are largely obscure.

ACADEMIC AND CAREER GOALS: I want to obtain my MD, followed by being a physician.

WORDS TO LIVE BY: "If you believe in god, then one thing is for sure. If you don't aim too high, then you've aimed too low."



Lee-Mary Amara Njoku

HOMETOWN: West Hempstead, NY

MAJOR: Biomedical Sciences

INTERNSHIP PLACEMENT: Jacobs School of Medicine and Biomedicine

SUMMER MENTOR: Dr. Omer Gokcumen

SUMMER MENTOR TITLE: Professor

DEPARTMENT: Biological Sciences

SUMMER PROJECT: *The Evolution of the LCE3BC Deletion in Modern Humans and its Relationship with Psoriasis*

ABSTRACT: An ancient 32kb deletion of the genes LCE3B and LCE3C is heavily associated with psoriasis.

Data proves this deletion survived in extant populations for allowance of autoimmunity through increased pathogen exposure. Although the genomic variations of the individuals (obtained from the 1000 Genomes Project) are likely precise, there is a slight possibility of errors in the deletion genotypes. Digital Polymerase Chain Reaction (dPCR) followed by gel electrophoresis and computer analysis will be done to compare the haplotypes (DNA sequences) of the individual's genotypes from the 1000 Genomes Project with the ones obtained from the dPCR to validate the former dataset.

ACADEMIC AND CAREER GOALS: To attend medical school and become a plastic surgeon.

WORDS TO LIVE BY: "When everything in life turns upside down, remember that you are in the hands of the Creator. Look to God, and you'll always know which way is up." - Unknown



Ndiamaka Okoro

HOMETOWN: Queens, NY

MAJOR: Biomedical Sciences

INTERNSHIP PLACEMENT: Jacobs School of Medicine and Biological Sciences

SUMMER MENTOR: Dr. Shermali Gunawardena, Ph.D.

SUMMER MENTOR TITLE: Professor

DEPARTMENT: Biological Sciences

SUMMER PROJECT: *The Effect of Huntingtin on Rab2 Localization in the Axons*

ABSTRACT: Huntington's disease (HD) is a neurodegenerative disease which causes loss of motor coordination and leads to premature death. Huntingtin (HTT), the protein which causes HD, is enriched in neurons and likely functions in axonal transport. Recently, our lab showed that HTT regulates the transport of the protein Rab2 in *Drosophila* axons and that HTT and Rab2 move together during axonal transport. Rab2 traffics vesicles between the endoplasmic reticulum (ER) and Golgi. Using markers for ER, we examined how HTT affects the ER in *Drosophila* axons. We expect that reduction in HTT levels or expression of mutant HTT perturb ER localization in axons.

ACADEMIC AND CAREER GOALS: To obtain a dual degree in Medicine and Business Administration (MD/MBA).

WORDS TO LIVE BY: "Confidence comes from overcoming your challenges and not from avoiding them. So if you are going through hell, KEEP going." - Unknown



Iyamu Osazuwa

HOMETOWN: Newark, New Jersey

MAJOR: Electrical Engineering

INTERNSHIP PLACEMENT: Energy System Integration

SUMMER MENTOR: Dr. Jennifer Zirnheld; Dr. Kevin Burke

SUMMER MENTOR TITLE: Director and Professor; Research Assistant Professor

DEPARTMENT: Electrical Engineering

SUMMER PROJECT: Effects of Harmonics on Digital Relays

ABSTRACT: Protective relaying plays an important role in power system stability. The goal of this research will be to program a relay enabling a correct response to different inputs. Relays are electromechanical switches that provide electrical isolations of variable components in a power system. Accurate detection of unwanted anomalies in fault waveforms is critical in relay performance. Whenever a transient or over-specification waveform is detected, relays trip off. A software simulation is used to detect and extract harmonics from a signal. The extracted data was used to calculate the total harmonic distortion (THD), thus predicting the signal's behavior. With the extracted data, the relay can be programmed to accommodate for harmonics to reduce power loss that can eventually lead to system failure.

ACADEMIC AND CAREER GOALS: To obtain a Masters degree in Electrical Engineering and then work in a power industry.

WORDS TO LIVE BY: "Try not to become a person of success, but rather try to become a person of value." - Albert Einstein



Lucas Rugar

HOMETOWN: Centereach, NY

MAJOR: Civil Engineering

INTERNSHIP PLACEMENT: Department of Civil, Structural and Environmental Engineering

SUMMER MENTOR: Dr. Pinar Okumus

SUMMER MENTOR TITLE: Assistant Professor

DEPARTMENT: Civil, Structural and Environmental Engineering

SUMMER PROJECT: *Determining Bridge Characteristics Causing Adverse Effects on Bridges with High Skew*

ABSTRACT: This research investigates a relationship between skew angle and bridge condition, considering the effects of other bridge characteristics. A bridge database was compiled from the inventory of the Wisconsin Department of Transportation (WisDOT). Statistical analysis methods are being employed to find possible correlations between skew angle and bridge performance, paying extra attention to bridge characteristics such as deck aspect ratio and bearing type. Bridge performance is evaluated based on ratings and observations from inspections. Immediate results show that interaction of bridge characteristics with skew should be considered to find strong correlations. This research will help understand if, and when, skew should be considered in analysis and design.

ACADEMIC AND CAREER GOALS: To obtain an M.S. in construction management and open my own engineering firm.

WORDS TO LIVE BY: "Always work hard on something uncomfortably exciting." - Larry Page



Diamile Tavarez

HOMETOWN: Ridgewood, NY

MAJOR: Biological Sciences

INTERNSHIP PLACEMENT: Biomedical Research Building

SUMMER MENTOR: Dr. Zhen Yan

SUMMER MENTOR TITLE: Professor

DEPARTMENT: Physiology & Biophysics

SUMMER PROJECT: *Investigation of Potential Therapeutic Treatment for Autism Spectrum Disorders Using Histone Deacetylase Inhibitors*

ABSTRACT: Autism spectrum disorders (ASDs) are a group of developmental disabilities that cause difficulties in social interactions and other behaviors. Previously, Shank3 haploinsufficiency was identified as an autism risk factor that disturbs neuronal communication. Epigenetic studies have found the genes disrupted in autism to be histone modifying enzymes. In this present investigation, we intend to use Histone Deacetylases (HDACs) inhibitors to determine if it can serve as a potential form of treatment. We will apply HDACs inhibitors to Shank3-deficient mice and conduct various behavioral assays to determine if mice still exhibit autism-like behaviors. This research will not only further our understanding of autism- but also provide a possible treatment for autism.

ACADEMIC AND CAREER GOALS: To obtain a Ph.D. in Biological Sciences with a focus on genetics, genomics, and bioinformatics. Once I complete my Ph.D., I plan to continue conducting research and become a mentor to undergraduate and graduate students.

WORDS TO LIVE BY: "If you don't like something, change it. If you can't change it, change your attitude. Don't complain." -Maya Angelou



Douglas Tsahey

HOMETOWN: Albany, NY

MAJOR: Biomedical Science

INTERNSHIP PLACEMENT: Translational Research

SUMMER MENTOR: Dr Richard Rabin

SUMMER MENTOR TITLE: Professor

DEPARTMENT: Pharmacology and Toxicology

SUMMER PROJECT: *Effect of Alcohol on Microglial Cell*

ABSTRACT: Microglial cells are immune cells of the brain, which are involved in protecting nervous system from foreign treats, damages and infections. Microglial cells do this via phagocytosis. Phagocytosis involves ingesting cellular debris, and other foreign substance which are considered harmful and neutralizing them. Studying the effects of alcohol on the phagocytic process is important because of the wide spread use across the population. Fluorescent beads will be used to measure the level of uptake in cells after exposure to alcohol. This will help better understand what effect increased alcohol consumption will have on the cells. Results obtained from this experiment can be applied to understanding how alcohol use affects early stages of neurodegenerative disorders such as Multiple Sclerosis.

ACADEMIC AND CAREER GOALS: To go to medical school and to become a doctor.

WORDS TO LIVE BY: "Aspire to be great."

The 2016 CSTEP Summer Research Program expresses thanks and appreciation to the following workshop & tour facilitators for their contributions & support:

STEPHANIE ADAMS, ESQ.

GENERAL COUNSEL, NIAGARA UNIVERSITY

DR. JASON ADSIT

DEAN, SCHOOL OF ARTS, SCIENCES, AND EDUCATION, D'YOUVILLE COLLEGE

DAVID BERTUCA

MAP LIBRARIAN, SCIENCE AND ENGINEERING INFORMATION CENTER

HADAR BORDEN

DIRECTOR, BLACKSTONE LAUNCHPAD

ED BRODKA

CAREER COUNSELOR, UB CAREER SERVICES

TERRI BUDEK

ASSISTANT DIRECTOR, INTERCULTURAL & DIVERSITY CENTER

DR. KEVIN BURKE

DEPUTY DIRECTOR, ENERGY SYSTEMS INTEGRATION

JUDE BUTCH

LEADERSHIP PROGRAM COORDINATOR, STUDENT LIFE

ELIZABETH COLUCCI

ASSISTANT ADMINISTRATIVE DIRECTOR, THE HONORS COLLEGE

RACHEL DI DOMIZIO

COORDINATOR, FELLOWSHIPS & SCHOLARSHIPS

DR. FOLARIN EROGBOGBO

ASSISTANT PROFESSOR, BIOMEDICAL ENGINEERING, SAN JOSE STATE UNIVERSITY

ERIK EUSTICE

MARKETING CAPTAIN, OF THE SEA, LLC

DR. JANE GRIFFIN

PRINCIPAL RESEARCH SCIENTIST, ASSOCIATE PROFESSOR, HAUPTMAN-WOODWARD INSTITUTE, STRUCTURAL BIOLOGY DEPT.

DR. WILLIAM GRUNERT

ATA PRACTITIONER, SCHOOL OF ENGINEERING AND APPLIED SCIENCE

SHELBY HELSEL

ADMINISTRATIVE ASSISTANT, BEHLING SIMULATION CENTER

DR. JAMES JENSEN

PROFESSOR AND FACULTY DIRECTOR, RESEARCH EXPLORATION UNDERGRADUATE ACADEMY

DR. ADAM KISAILUS

ASSISTANT DEAN, DIVISION OF EDUCATIONAL AFFAIRS, ROSWELL PARK CANCER INSTITUTE

DR. AMY MARSCHLOK

RESEARCH ASSOCIATE PROFESSOR, STONY BROOK UNIVERSITY

TOM MURDOCK

MANAGER, UB INCUBATOR NETWORK

DR. CELESTE OWENS

CLINICAL PSYCHOLOGIST, AUTHOR

RHONDA REID

ASSOCIATE DIRECTOR, CENTER FOR EXCELLENCE IN WRITING

GREG ROSENBERG

CAREER SERVICES ASSOCIATE, CAREER SERVICES

CAROL SCHMEIDLER

MANAGER, UNIVERSITY FACILITIES-ENVIRONMENT, HEALTH & SAFETY SERVICES

ZACH SLAYBAUGH

CAREER CONNECTOR, UB CAREER SERVICES

SUSAN SMITH

DIRECTOR, UB SOCIAL SCIENCES INTERDISCIPLINARY PROGRAM

EZRA STALEY

ASSISTANT VICE PRESIDENT, M&T BANK GOVERNMENTAL AFFAIRS

DR. CLAYTON STEEN

ASSISTANT VICE PRESIDENT FOR ENROLLMENT, BOWIE STATE UNIVERSITY

DR. KENNETH TAKEUCHI

DISTINGUISHED TEACHING PROFESSOR, STONY BROOK UNIVERSITY

DR. CHRISTINE TINNESZ

INSTRUCTOR, BUFFALO STATE COLLEGE

TIMOTHY TRYJANKOWSKI

DIRECTOR OF CENTER FOR UNDERGRADUATE RESEARCH & CREATIVE ACTIVITIES

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MONEY MANAGEMENT, WEST ADVISORY GROUP

LINDA ZILGME

DIRECTOR, ACADEMIC RESOURCE CENTER

THANK YOU to our 2016 CSTEP Summer Symposium Judges!

DR. JESSY ALEXANDER	Jacobs school of Medicine and Biomedical Sciences
DR. JOSEPH ATKINSON	Department of Civil, Structural, and Environmental Engineering
DR. JAMES BERRY	Department of Biological Sciences
DR. PIERO BIANCO	Department of Microbiology and Immunology
DR. SOUMA CHOWDHURY	Department of Mechanical & Aerospace Engineering
DR. NING DAI	Department of Civil, Structural, and Environmental Engineering
DR. ROSEMARY DZIAK	Department of Oral Biology
DR. ERIK EINARSSON	Department of Electrical Engineering
DR. JOHANNES HACHMANN	Department of Chemical and Biological Engineering
DR. SHARON HEWNER	School of Nursing
DR. JOBAIDUR KHAN	Department of Mechanical & Aerospace Engineering
DR. STEVE KO	Department of Computer Science & Engineering
DR. JONATHAN LOVELL	Department of Biomedical Engineering
DR. JAMES MARSHALL	Roswell Park Institute - Cancer Prevention and Control
DR. IFEOMA NWOGU	Department of Computer Science & Engineering
DR. HEATHER OROM	Department of Community Health and Health Behavior
DR. NATESH PARASHURAMA	Department of Chemical and Biological Engineering
DR. BINA RAMAMURTHY	Department of Computer Science & Engineering
DR. RANDALL RASMUSSEN	Department of Physiology and Biophysics
DR. ATRI RUDRA	Department of Computer Science and Engineering
DR. LAURA RUSCHE	Department of Biological Sciences
DR. JONGMIN SHIM	Department of Civil, Structural, and Environmental Engineering
DR. MICHELLE VISSER	Department of Oral Biology
DR. JEROME YATES	Department of Epidemiology and Environmental Health

WHERE ARE THEY NOW?

An Update On Previous CSTEP Summer Research Interns

First Name	Last Name	Summer Year	UB Major(s)	Where are they now?	What's their title?
Frank	Acheampong	2007	Pharmacy	UMass Memorial Medical Center	Clinical Pharmacist - Informatics
Bruck	Adam	2010	Mathematics	IPRO, NYS Department of Health, Office of Quality and Patient Safety, Bureau of Health Informatics	Data Analyst
Priscilla	Adjei-Baffour	2010		Marshall University School of Pharmacy	Pharm.D candidate
Geraldene	Agbasionwe	2007	Pre-Pharmacy	Live Good Pharmacy INC	Supervising Pharmacist
Chiamaka	Agbasionwe	2010		Biological Department	Research Intern
Jonathan	Ahmedu	2013	Mechanical & Aerospace Engineering	Kohasa Engineering Company Ltd. in Port Harcourt, Nigeria; Cornell University	Pipeline Engineer; Masters student
Summar	Amin	2013	Biomedical Sciences	University at Buffalo Dental School	Dental Student
Uzoamaka	Aniagba	2014	Biological Sciences	Indiana University School of Medicine	Medical Student
Christina	Aponte	2015	Biomedical Sciences	Harvard MIRT Program	Research Intern (Chile)
Warren	Barrett	2014	Chemistry	University at Buffalo School of Pharmacy	Pharmacy Student
Leatrice	Bennett	2014	Biological Sciences	Roswell Park Cancer Institute	Research Intern
Sharece	Blake	2012		Roswell Park Cancer Institute	Research Associate
Kwame	Boakye-Yiadom	2015	Biological Sciences	University at Buffalo School of Pharmacy	Pharmacy Student
Kelly	Boamah	2015	Pharmacology & Toxicology	D'Youville School of Pharmacy	Pharmacy Student
Melina	Bowdwin	2012			
David	Bratton	2014	Biological Sciences	Jacobs School of Medicine & Biomedical School	Medical Student
John	Brito	2013	Biological Sciences		
Ernestine	Brown	2007	Nursing	University of Rochester Medical Center	Nurse Practitioner

Kevin	Bryant	2008	Electrical Engineering	Bechtel Plant Machinery, Inc	Electrical Engineering Project Manager
Kevin	Carpio	2014	Mechanical & Aerospace Engineering	Northrop Grumman (California)	Aerospace Engineer (Palmdale, California)
Keelan	Chu For	2011	MAE	University at Buffalo	Graduate Research Assistant
Nicholas	Costable	2013	Biological Sciences	UB Medical School	Medical Student
Belle	Cunningham	2011		Pepsi	Project Supervisor
Nuris	De La Cruz	2012		Columbia Presbyterian	Psychological Counseling
Joseph	Diehl	2010	Civil Engineering	Department of Civil, Structural, and Environmental Engineering, SUNY at Buffalo	Completed - Master's in Civil Engineering
Keith	Dolcy	2012	Pre-Pharmacy	University at Buffalo School of Pharmacy	Pharmacy Student
Jennifer Lynn	Donato	2015	Biotechnology	Thermo Fisher Scientific	Research & Development Intern II
Ian	Duncan	2010	Mechanical Engineering	Suspension & Steering Dynamics at Honda R&D	Vehicle Performance Engineer
Brandon	Durant	2012		University at Buffalo	Graduate Student
Dr. Corie	Ellison	2007	Pharmacology & Toxicology	Procter & Gamble	Toxicologist
Moses	Farley	2007		PPL Corporation	Engineer
Jonathan	Feliciano	2011	Psychology	NBC Universal, Inc.	Research Analyst
Robert	Ferguson	2014		University at Buffalo Dental School	Dental Student
Daivon	Garrick	2008	Pharmacology & Toxicology	M&T Bank	Credit Risk Analyst
Tavia	Garvey	2011		Wegman Food Market	Pharmacy Technician
Shawn	Gibson	2015	Biological Sciences	University at Buffalo	Schomburg Fellow; graduate student -Biological Sciences
Paul	Glenn	2011		Brookhaven National Laboratory	Research Intern
Isabel	Gonzalez	2011	Civil Engineering	NYC Department of Design and Construction	Civil Engineer Intern
Johnathan	Goodrum	2013	Electrical Engineering	Amazon	Software Engineer Internship

John	Habert	2013	Biological Sciences	United States Marine Corps	
Marda	Hailu	2008	Biological Sciences	Western New England University College of Pharmacy	Pharmacy Student
Ron	Heichman	2010		University at Buffalo	Mechanical & Aerospace Engineering Doctoral Student
Richard	Hunte	2011			Doctoral Student & Research Assistant
Jessica	Isaac	2008	Biomedical Sciences	Buffalo Urban League	Health and Wellness Chair; PharmD
Aggrey	Jacobs	2008		UB school of engineering	Doctoral Student
Anthony	Jones	2008	Biomedical Sciences	Roswell Park Cancer Institute	Graduate Student
Jordan	Jorgensen	2011		Global Foundries	Advanced Manufacturing Engineer
Corinna	Joseph	2009		Bechtel Marine Propulsion Corporation (Bechtel Plant Machinery Inc.)	Engineer
Akunne	Kanu	2014		University at Albany	Graduate Student - Public Health, Epidemiology
Muhammad	Khan	2013	Mechanical & Aerospace Engineering	Northrop Grumman	Reliability Engineer (Florida)
Gael	Lamothe	2011		Hunter Roberts Construction Group	Assistant Project Manager
Dr. Richard	Linares	2007		Completed doctoral studies at SUNY at Buffalo in Mechanical and Aerospace Engineering	Aerospace Engineering
James	Lopez	2013	Psychology	VOICE Buffalo	Community Activist
David	Louis	2007	Psychology	Canarsie Recovery Coalition	Project Director
Jean	Mandat	2009		New York College of Osteopathic Medicine	Medical Student
Jasmine	May	2009			Medical Student
Micah	McCurty	2008	Exercise Science		DPT
Ayo	McKenzie	2013	Chemistry	Temple University	Pharmacy Student
Jacob	Milling	2014		University at Buffalo	Medical Student
Ashley	Narain	2012	Pre-Pharmacy	University of Bridgeport College of Chiropractic	Doctor of Chiropractic Medicine Student
Hieu	Nguyen	2008	Biochemistry	UB Dental School	Dental Student

Thao	Nguyen	2010		Catholic Family Center	English-Vietnamese Interpreter
Millicent	Nwankwo	2011		Shire Pharmaceuticals	R&D Global Health Economic, Outcomes Research, Epidemiology
Andrews	Obeng-Ayarkwah	2013	Pharmaceutical Sciences	University at Buffalo School of Pharmacy	Pharmacy Student
Damian	Ogbonna	2011		Computer Science and Engineering	Graduate Student - University of Buffalo
Peter	Okoroza	2015	Pharmaceutical Sciences	University at Buffalo School of Pharmacy	Pharmacy Student
Folake	Olaleye	2015	Biological Sciences	D'Youville School of Pharmacy	Pharmacy Student
Abas	Omar	2014		Roswell Park Cancer Institute	Clinical Observation Dental Maxillofacial Department
Oluwatosin	Oniyide	2015	Biological Sciences	Roswell Park Cancer Institute	Research Intern
Wilberforce	Osei	2008	Chemistry/ Pharmacology		Pharmacist
Francis	Perez	2008	Chemical & Biological Engineering	Completed MS in Chemical Engineering from SUNY at Buffalo	Chemical Engineer
Adonis	Pimienta-Penalver	2010		Aerospace Engineering	Doctoral Student
Rasheen	Powell	2015	Pharmacology & Toxicology	University at Buffalo	PhD Student - Pharmacology & Toxicology
Austin	Price	2014		University at Buffalo	Postbaccalaureate Student
I'Yanna	Scott	2015	Biological Sciences	Columbia University	Research Intern - Biostatistics Epidemiology Summer Training (BSET) Diversity Program, School of Public Health
Frank	Segui	2012		Western Michigan University	Graduate Student, Electrical Engineering
Timothy	Semon	2014		Aesthetic Associates	Dental Assistant
Michael	Singletary	2013	Electrical Engineering (Math minor)	University at Buffalo	Graduate Student - Electrical Engineering
Souleymane	Sow	2008	Aerospace Engineering	Completed MS in Aerospace Engineering from Purdue University	Aerospace Engineer

Hamlet	Spencer	2014		University at Buffalo	Graduate Student - Mechanical Engineering
Shiny	Thomas	2007	Pharmacy	CVS Pharmacy; Touro College	Completed PharmD
Alexandria	Trujillo	2013	Biological Sciences	University at Buffalo	PhD Student - Pharmacology & Toxicology
Antonio	Upia	2010		Mass Electric Construction Co.	Electrical Field Engineer
Bethany	Walton	2014	English	University at Buffalo	Graduate Student - School of Social Work
Christopher	Williams	2009		Lam Research Corp. / IBM Corp.	Field Service Engineer II, (FSE)
Franklin	Yeboah	2008	Medical Technology	Massachusetts College of Pharmacy and Health Sciences	Grad Intern with RiteAid Pharmacy
Theresa	Yera	2012	Anthropology, Pre-Med	Project LEARN	Researcher
Yun	Zheng	2012		Albany Molecular Research Inc. (AMRI)	Research Scientist I

CSTEP

2016 Summer Research Program Staff

Shanna Crump-Owens
CSTEP Director

Patricia “Tia” Greer
CSTEP Administrative Assistant

Lavone Rodolph
Research Methods Course Instructor
Doctoral Student, Computer Science & Engineering

Graduate Assistants

Ruth Cadet
Nelson Rivera

Student Assistants

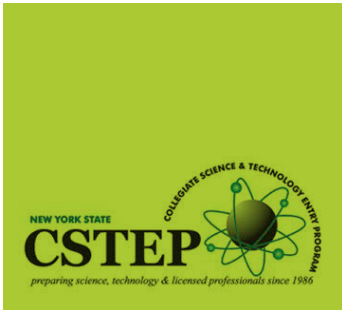
Shawn Gibson
Folake Olaleye

CSTEP acknowledges the support of Cora P. Maloney College (CPMC), IDC, SLCE, UB Career Services and all other University at Buffalo faculty, volunteers, workshop facilitators, staff, and students whose contributions made the 2016 Research Summer Program a grand success!



30

YEARS OF
EXCELLENCE



SAVE THE DATE

Join us as we celebrate and reflect on 30 years of fostering exemplary achievements among students pursuing STEM, Allied Health & the Licensed Professions

What: Fundraiser with CSTEP

Where: HARBORCENTER

100 Washington Street, Buffalo, NY 14203 - "Canalside"

When: Friday, May 19th, 2017

Time: 6:00pm

QUESTIONS? Contact the CSTEP Office:

222 Norton Hall - Buffalo, NY 14260 - (716) 645 - 2234

You can also email Shanna Crump-Owens, Director, at sicrump@buffalo.edu



CELEBRATING 30 YEARS OF SUCCESS

CSTEP IS HITTING THE ROAD!

12-day trip, 1/10-1/22

<WINTER SESSION 2017>

...join us for a Service Trip to

TANZANIA

[In conjunction with the Buffalo Tanzania Education Project (BTEP), Dr. Mara Huber, and Dr. Dan Nyaronga]

DURING EXPERIENTIAL LEARNING COURSE, YOU WILL...

- Visit community development projects, clinics, and schools
- Engage with local villagers, community leaders, and educators
- Go on a guided safari through the famed Serengeti Game Preserve

BENEFITS INCLUDE:

3cr. Study Abroad (UE 496) - Faculty-led service learning -
Navigate the Mara Region - Experience another culture

WHAT YOU WILL NEED:

Must be a currently enrolled CSTEP student - Passport

DEPOSIT DUE BY WEDNESDAY, SEPT. 28, 2016



CSTEP partnership with BTEP to see

"Students Helping Students"

Explore community development through 4 key areas:
EDUCATION, HEALTH, ECONOMICS, & INFRASTRUCTURE



For information, please visit us in:

222 Norton Hall • 716-645-2234 • cpmc.buffalo.edu/cstep

Study Abroad website: buffalo.edu/studyabroad.html

Buffalo Tanzania Education Project (BTEP) website: buffalotanzania.wordpress.com

2016 CSTEP SUMMER RESEARCH INTERNS



2016 CSTEP Research Interns Fieldtrip to Hauptman-Woodward Institute (HWI)