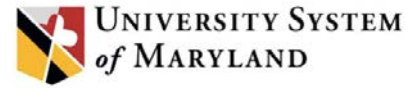


# UMBC LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION (LSAMP)

## OUR YEAR IN REVIEW

2019-2020 Annual Report



# WELCOME!

The UMBC LSAMP community welcomes you to our 2019-2020 Annual Report **(August 2019 - July 2020)**. LSAMP participants have access to individualized advising, campus workshops, funded research experiences, and national and international conferences to strengthen their STEM identity and promote entry into top graduate programs.

This catalog serves to highlight and celebrate the accomplishments of our undergraduate participants, Research Fellows, and the staff and faculty who make the program successful each year.

*UMBC LSAMP is funded by the National Science Foundation Award #1002566*

## UMBC LSAMP DIRECTOR'S MESSAGE WRITTEN BY SUNDIATA "SUNJI" JANGHA - MR. J



2020 has been a year unlike any other. What began like any other year, morphed into something unprecedented. That word gets thrown around a lot, but it is uniquely accurate at capturing our shared experience of the COVID-19 pandemic, social justice protests, and a presidential election without precedent. Through it all, our LSAMP Scholars have worked extremely hard to succeed in online courses and virtual research; and they have.

Our Year in Review highlights some of the achievements of this outstanding group of Scholars and Research Fellows, showcases the phenomenal work that they have been able to do in spite of everything else, and identifies the faculty and staff in the LSAMP community who make it happen. The Scholars have demonstrated a level of Grit that will serve them long after they have graduated from UMBC and gone on to find paths, blaze trails, and change the world. Thank you to all of the individuals, labs, programs, departments, colleges, and units that have continued to demonstrate the commitment and dedication necessary to make the UMBC LSAMP Program successful and continue to pour into our Scholars. To our Scholars, you pushed through a challenging year, continue to move forward, your greatness awaits.

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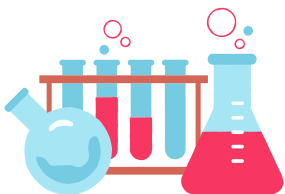
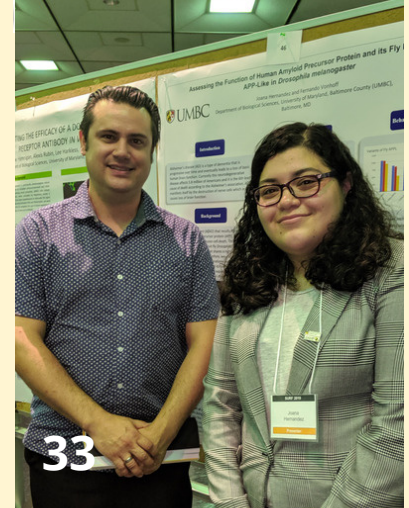
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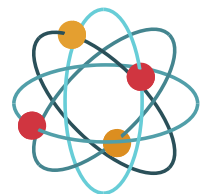
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## UMBC LSAMP

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[lsamp.umbc.edu](http://lsamp.umbc.edu)



# THE UNIVERSITY OF MARYLAND'S LSAMP ALLIANCE

The Louis Stokes Alliances for Minority Participation (LSAMP) program assists universities and colleges in their efforts to significantly increase the numbers of students matriculating into and successfully completing high-quality degree programs in science, technology, engineering, and mathematics (STEM) disciplines in order to diversify the STEM workforce. Particular emphasis is placed on transforming undergraduate STEM education through innovative, evidence-based recruitment and retention strategies, and relevant educational experiences in support of racial and ethnic groups historically underrepresented in STEM disciplines: African Americans, Hispanic/Latino/a/x Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders.



# OUR STORY

The University of Maryland, Baltimore County (UMBC) has a strong tradition of developing STEM talent through the University System of Maryland Louis Stokes Alliance for Minority Participation (USM LSAMP) that began in 1995. Funded through an award from the National Science Foundation, the USM LSAMP is a senior alliance of three institutions. UMBC is the lead institution in partnership with long-time partners at the **University of Maryland, College Park (UMD), and the University of Maryland Eastern Shore (UMES.)** Furthermore, we collaborate with Towson University, Frostburg State University, Prince George's Community College (PGCC), Montgomery College (MC), Anne Arundel Community College (AACC), and the Community College of Baltimore County (CCBC) to offer programming to promote persistence and a strong sense of STEM identity. We build foundations for mentoring for the next generation of leaders through the following pillars of STEM Identity: Sense of Community, Strength-based approaches, and Institutional Culture Shift.







# THE LEGACY OF LOUIS STOKES

**Congressman Louis Stokes (1925-2015) was the first Black member of the appropriations committee in the history of the House of Representatives. He felt a special obligation to utilize programs to help underrepresented minorities by arming talented young people who have the skills with the opportunity of education to be the scientists and doctors of the future.**



# **Where Have Our Students Taken Their Talents in 2020?**

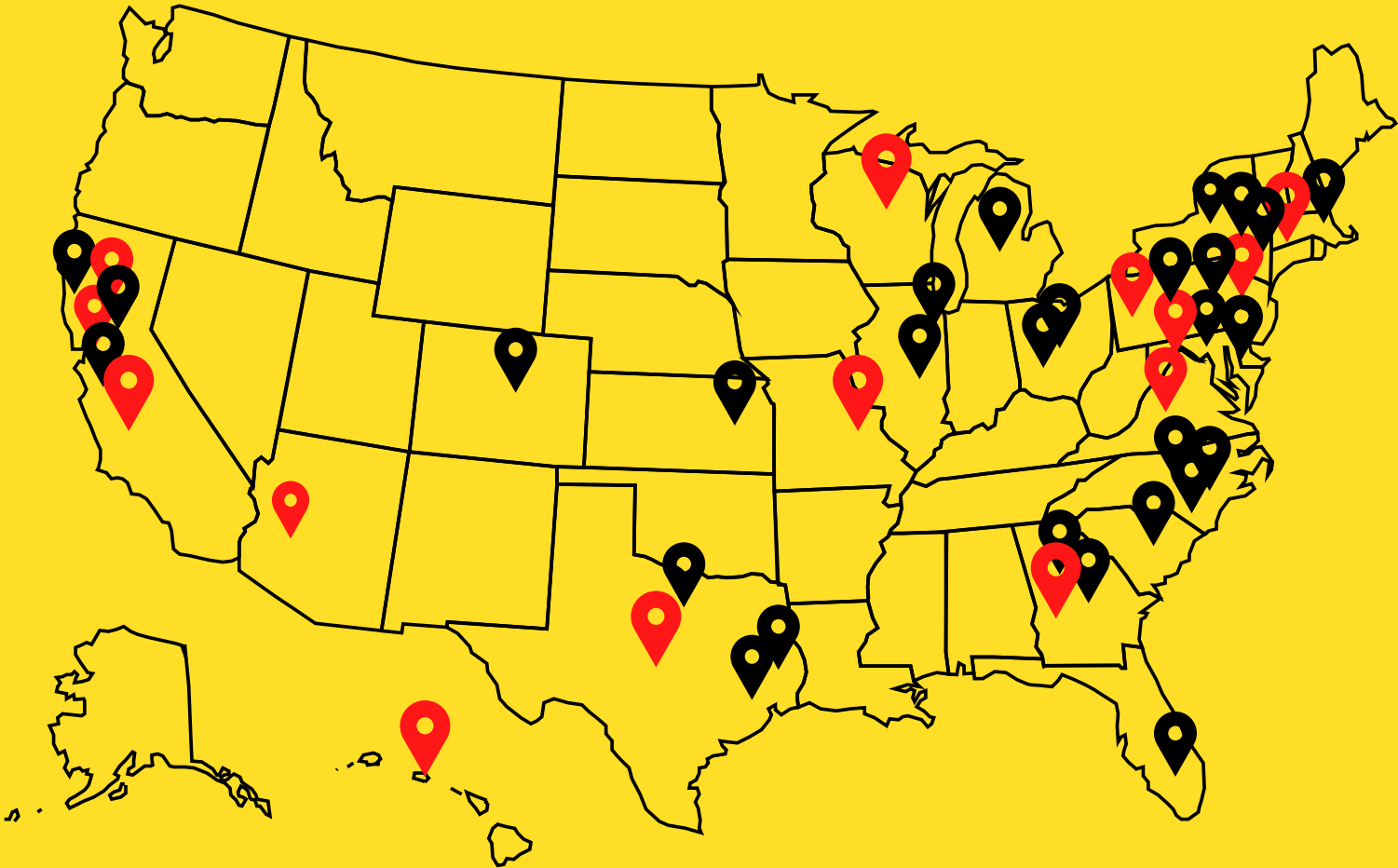


**FELLOWS  
ACROSS  
BORDERS**





# Graduate Programs



# Research Experience for Undergraduates

Fayo Ojo '20 is a Visiting Researcher in the Haptics Department at the Max Planck Institute for Intelligent Systems in Munich, Germany. In this role, she works with socially assistive robotics.



# USM ALLIANCE-WIDE EVENTS

## USM LSAMP SUMMER BRIDGING CONFERENCE

The Summer Bridging Conference is offered to students across the Alliance. It provides new students (freshmen and transfer students) key information and resources to prepare them for success as they transition to their new institutions. Sessions offer a mix of voices offering insight to the students for their future success. Topics discussed included: exploring students' STEM identity, the importance of community, things to know during the first year, time management, and academic success in the first semester.



**MC- Dr. Tracy Bell**  
Associate Professor, Natural Science,  
University of Maryland, Eastern  
Shore (UMES)



**9:45 AM-Things that you need to know during your 1st year**  
**Dr. Jarred Young (UMD)** and  
**Dr. Tim Cox (Lafayette College)**



**Welcome to USM LSAMP**  
**Rosemary Parker (UMD)**  
Director, Center for Minorities in  
Science and Engineering A,  
James Clark School of  
Engineering



**11:00 AM: Time Management for the 4.0**  
**Dr. Marquita Qualls:**  
Leadership Coach/Founder, Entropia  
Consulting, Inc.



**9:15 AM- Your STEM identity**  
**Dr. Wendy Carter-Veale**  
Program Coordinator, UMBC Graduate School



**12:30 PM: Mentoring Lunch**  
**Dr. Daniel Jean**  
Executive Director of EOF and  
Academic Development, EOF and  
Academic Success, Montclair State  
University, @WorldsTravel-The Pact



**9:30 AM-The importance of community:  
You are not alone**  
LSAMP Students UMBC's **Cean'e Batten** and  
**Danillo Symonette**, and UMD's **Jada-Mercy  
Ayebae**  
- My Letter to Myself: What I wish I knew  
coming in



**3:45 PM: Student Success  
Workshop**  
**Sunji Jangha**  
Director of Pipeline Programs at  
UMBC

# USM ALLIANCE-WIDE EVENTS

## USM LSAMP SUMMER BRIDGING CONFERENCE

“The conference encouraged me in many ways to be focused and to advocate for myself and my dreams. Without attending the conference, I would not have met the LSAMP staff, which means I would have never been introduced to Dr. Hawn—one of the best professors at UMBC, and able to work in their lab conducting research.”



CEAN'E BATTEN  
'21



“Attending the conference made a significant impact in my life for an incoming transfer student. Attending this conference not only introduced me to faculty and staff that could help me once I get to UMBC but also tips I was able to use to be a successful student. I met a lot of great people at this event, and if I had not attended this event, my experience would have been very different to the experience I had my first year at UMBC.”

OLORUNJUWON  
AJAYI '21



Students were presented with information about their campus, specific ways to seek out and get help, academic or otherwise, extracurricular opportunities (via current student organization leaders), and tips and tricks to navigate the first few weeks of class (via testimonies from current students that participated in the bridging conference the year before).

“ LSAMP helped me find a new field of study that utilized the skills I earned throughout my undergraduate career to pursue new interests. During my time in LSAMP, I engaged in multiple seminars, networking events, and conferences. I also had countless unscheduled office drop-ins whenever I needed advice or a quick pep talk. Their unconditional mentorship and sponsorship has given me the confidence to believe that I belong in my field and that the research I'm conducting is significant. They have inspired me to pay forward the support I received—and to this day still receive—to anyone who may need some guidance.

- Uchenna Osia' 19 -

# STUDENT SHOWCASE

## UCHENNA OSIA '19

### COMPUTER SCIENCE

*Fulbright Scholar, GEM Fellow, Google CS Research Mentorship Program Awardee, Robotics: Science & Systems Inclusion Scholar, and Meyerhoff Scholar (M27).*

Uchenna is currently pursuing a Ph.D. at North Carolina State University in Geographic Information Systems.

#### **Summer Research Experience**

Uchenna worked under Dr. Julienne Greer at the University of Texas at Arlington to develop and program a Softbank Robotics robot to provide therapy and companionship for people who suffer from anxiety.

She was also a research intern and teaching assistant with the CIRCUIT Institute researching precision education under Dr. William Gray-Robcal at The Johns Hopkins University Applied Physics Laboratory (APL).

#### **Research at UMBC**

Uchenna worked under the direction of Dr. Dillon Mahmoudi. She utilized software engineering patterns with Python and PostgreSQL to excavate patterns of socio-economic injustice at the city, regional, and national scales. Also, she acted as a teaching assistant to 15 incoming freshman Meyerhoff Scholars computing workshop to learn Python.

# USM ALLIANCE-WIDE EVENTS

## 3RD ANNUAL USM LSAMP UNDERGRADUATE RESEARCH SYMPOSIUM

The USM LSAMP Fall Research Symposium features ample opportunity to view and present research through a poster, traditional oral, and TED-style presentations. As part of the Symposium, over 100 students participated in the Graduate School Resource Fair, networked with graduate schools, learned about summer research opportunities, and graduate school funding. There were 24 oral presenters and 68 poster presenters. There was approximately a 30% increase in this year's attendance with 124 attendees. Students used this opportunity to bolster their presentation skills and refine their content. This year we added an element by inviting representatives from LSAMP institutions in the region and other local graduate programs to participate as exhibitors. This expanded to include both the Meyerhoff Graduate Fellowship Program, STAR-PREP post-baccalaureate program, and the NSF-funded international research initiative through the Organization of Tropical Studies.

68 Poster Presentations



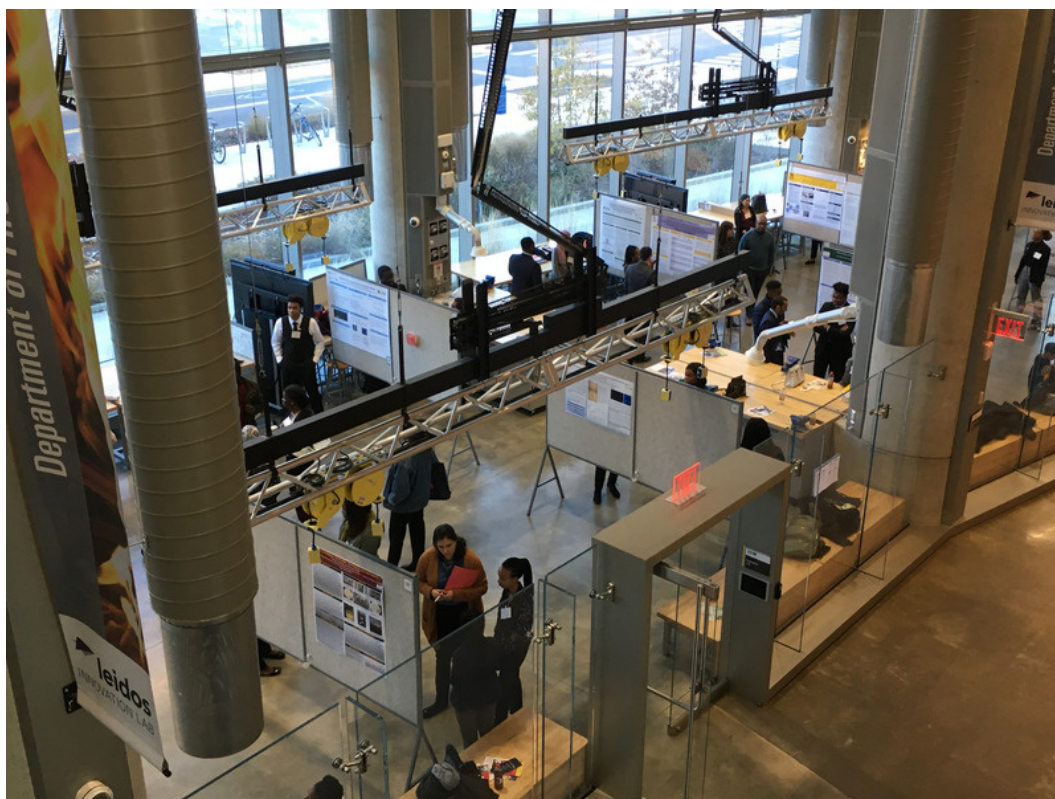
24 Oral Presentations

Networking



# USM ALLIANCE-WIDE EVENTS

## 3RD ANNUAL USM LSAMP UNDERGRADUATE RESEARCH SYMPOSIUM



Use the following QR code for background information on the USM LSAMP undergraduate presenters:



Or the following link:  
[shorturl.at/puBFR](https://shorturl.at/puBFR)

## 3RD ANNUAL USM LSAMP UNDERGRADUATE RESEARCH SYMPOSIUM

### Distinguished Speaker Presentations

#### **Oswaldo Gutierrez, Ph.D**

*Assistant Professor, UMCP*

*"A Dreamer's Pathway to Become a Professor: Tips and Tricks"*

Dr. Gutierrez shared his journey from Mexico to the USA to become a professor at UMCP. He spoke about the importance of having goals yet being okay with changes that may come along the path. He stressed that grades do not tell the whole story and that perseverance, asking for help when needed, chasing your dreams, and treating people fairly and with respect along the journey is of most importance.



#### **Kendall Williams, Ph.D**

*Senior Lecturer, UMCP*

*"Importance of Obtaining Advanced Degrees in STEM"*

Dr. Williams spoke about his journey to receiving his bachelor's, master's, and Ph.D., all in mathematics, from Howard University. As an undergraduate, he was a member of the LSAMP community. Dr. Williams has been teaching mathematics at the collegiate level for over ten years. He has taught over 20 different mathematics courses and received multiple awards and nominations for excellence in teaching throughout his career.





# USM ALLIANCE-WIDE EVENTS

## 3RD ANNUAL USM LSAMP UNDERGRADUATE RESEARCH SYMPOSIUM

### Poster Presentation Award Recipients



**Joana Hernandez**

Chemical Engineering, '22

Research Mentor: Dr. Fernando Vonhoff  
*"Assessing the function of Human Amyloid Precursor Protein and its Fly Homolog APP-Like in Drosophila melanogaster"*



**Kendall McWillimas**

Chemical Engineering, '21

Research Mentor: Dr. Peng Xu  
*"Genetically Engineering Yarrowia Lipolytica to Develop as a Microbially Based Cadmium Sulfide Production Platform"*



**Brian Woronowicz**

Mechanical Engineering, '20

Research Mentor: Dr. Soobum Lee  
*"Development of Conceptual Design for Displacement Amplification Mechanism (DAM) Using Design Optimization Technique"*



**Karis Barnett**

Chemistry, '21

Research Mentor: Dr. Grant E. Johnson  
*"Understanding the Chemical Transformation of Redox Active Molecules using Electrochemical Microscopy"*

# USM ALLIANCE-WIDE EVENTS

# THANK YOU TO OUR SYMPOSIUM EXHIBITORS!



UMBC



A. JAMES CLARK  
SCHOOL OF ENGINEERING



JOHNS HOPKINS  
UNIVERSITY



RUTGERS

Graduate School | Newark



UNIVERSITY of MARYLAND  
EASTERN SHORE



College of Science



THE  
GRADUATE SCHOOL



Organization for  
Tropical Studies



VCU College of Engineering



UNIVERSITY of MARYLAND  
BALTIMORE



# USM ALLIANCE-WIDE EVENTS

## UMD 14TH ANNUAL WINTER STUDENT LEADERSHIP RETREAT

The Center for Minorities in Science and Engineering (CMSE) at UMD has been hosting the Winter Student Leadership Retreat (WSLR) for the last 14 years. The retreat provides an opportunity for underrepresented minority (URM) students majoring in engineering and computer science to build their career, professional, and leadership skills, including networking with corporations and local student leaders. Workshops include: career development (resume writing, interview tips, mock interviews), leadership development, professional development, personal development, graduate school, and a corporate information fair.



### Resume Writing for College Students

Engineering Co-op and Career Services—A. James Clark  
School of Engineering



### Interview Tips Panels

Amazon | Lockheed Martin | Northrop Grumman  
| W. L. Gore

### Building a Powerful Network

W.L Gore



### Leadership Principles

Amazon

### Shark Tank

Lockheed Martin



### The Power of Advanced Degrees

Northrup Grumman



# USM ALLIANCE-WIDE EVENTS

## UMD 14TH ANNUAL WINTER STUDENT LEADERSHIP RETREAT

The Community College Track provided students with insight and support to prepare them for their transition to a four-year institution. Twenty-nine community college students from Montgomery and Prince George's Community Colleges were invited to attend the LSAMP Community College Track. The community college attendees received the benefits of interacting with other community college students, networking with students from various four-year institutions in the metropolitan DMV area, as well as received insight from upperclassmen from those four-year institutions.



## ANNUAL BIOMEDICAL RESEARCH CONFERENCE FOR MINORITY STUDENTS (ABRCMS)

The Annual Biomedical Research Conference for Minority Students (ABRCMS) is one of the largest communities of underrepresented minorities in science, technology, engineering, and mathematics. Students attend this conference to present their research, explore graduate schools, and network. This year, there were a total of 39 students who had abstracts accepted and attended the conference. Of the students who presented, 13 won awards for their presentations.

### **AWARD WINNERS: NAME | MAJOR | TOPIC | FACULTY ADVISOR**

*Theodore Addo | Biological Sciences | Developmental Biology | Dr. Rachel Brewster*  
*Peter Bailer | Biochemistry and Molecular Biology | Biochemistry | Dr. Rahul Kohli*  
*Samar Behdin | Biological Sciences | Structural Biology | Dr. Michael Summers*  
*Ridhi Chaudhary | Biological Sciences | Structural Biology | Dr. Michael Summers*  
*Issac Chaudry | Biochemistry and Molecular Biology | Structural Biology | Dr. Michael Summers*  
*Faith Davis | Biological Sciences | Structural Biology | Dr. Michael Summers*  
*Hana Flores | Chemical Engineering | Structural Biology | Dr. Michael Summers*  
*Josiah Hardy | Biochemistry and Molecular Biology | Genetics | Dr. Blanche Capel*  
*Andrew Hennigan | Biological Sciences | Neurobiology | Dr. Phyllis Robinson*  
*Olufolake Majekodunmi | Biological Sciences | Pharmacology | Dr. Jean Bidlack*  
*Adeola Oyeyinka | Biological Sciences | Bioengineering | Dr. Peng Xu*  
*Cheyenne Palm | Biochemistry and Molecular Biology | Structural Biology | Dr. Michael Summers*  
*Mitali Sarkar | Biological Sciences | Structural Biology | Dr. Michael Summers*



# LATIN AMERICAN AND CARIBBEAN CONSORTIUM OF ENGINEERING INSTITUTIONS (LACCEI)



The mission of LACCEI is to facilitate and promote global collaborations in the advancement and continuous improvement of engineering and technology education, research, and innovation linking Latin America and the Caribbean to the rest of the world. During the conference in Montego Bay, Jamaica, students had the opportunity to compete in a Student Paper Competition and Student Poster Competition. All students' submissions competed in the poster competition, where students presented a 3-minute elevator-speech to the judges and answered questions from judges and participants. The award medals and monetary prizes were given at the "Cena de Gala" Awards Dinner.



## After the conference, students were asked reflections questions from their experience.

How has learning about different research projects and broader global topics mentioned in the conference influenced the way you will pursue your STEM degree?

“ It has shown me that we should collaborate with other disciplines and use our skill to help others. I will also spread my knowledge to future generations. ”

Jordan Armstead, Mechanical Engineering '20

Were you able to make connections with persons outside your usual network and did you consider doing an international collaboration prior to the conference?

“ Yes! I made connections with people from Colombia, Ecuador, Jamaica, and New York. Before the conference, I have already signed up to take a global engineering course, which facilitates group reports with teams from Maryland and Colombia! ”

Catherine Chonai, Mechanical Engineering '20



“ LSAMP was the springboard for my pursuit of excellence in higher education. Their financial support, mentorship, and encouraging community engagement enabled my interest in research to grow into a passion that led me to doing research at the highest levels of both academia and industry. Whether it was funding my summer housing so I could participate in my first summer research experience, hosting conferences where I could meet other researchers and practice my presentation skills, or holding 1 on 1 meetings to help me troubleshoot problems unique to my journey, LSAMP was always there investing in my potential, and for that I am forever grateful.

- Danilo Symonette '20 -





# STUDENT SHOWCASE

## DANILO SYMONETTE '20

### COMPUTER ENGINEERING

*McNair Scholar (REM 28), Grand Challenge Scholar, NSF Graduate Research Fellow, GEM Fellow, and Undergraduate Research Awardee.*

Danilo is passionate about equity in computing academia, and education. He is currently an engineer at JHU APL. He intends on pursuing his Ph.D. at Stanford University.

#### **Research Experience for Undergrad**

During his summer '19, Danilo evaluated machine learning models on the task of detecting struggle and confusion in voice data using prosodic features, linguistic features, and a combination of the two during the 2019 Summer Research Program at the Massachusetts Institute of Technology. His work was performed under Dr. Justin Reich and Garron Hillaire.



#### **Research at UMBC**

Danilo worked with Dr. Marie desJardins, Dr. Simon Stacey, and Dr. Don Engel to develop a Machine learning approach to identifying good team members, groups, and messages based on group chat disclosure using Python, Jupiter, and GitHub. He produced the prototype that led to the now published "Teamwork Dashboard." He was also an assistant instructor for UAE Summer Stem Program, where he assisted in designing a program for 20+ high school students' and taught programming skills.



## MEET AND GREET WITH THE DEANS OF UMBC



**UMBC**  
AN HONORS UNIVERSITY

The following four UMBC deans came to meet and speak to incoming freshman and transfer STEM students about ways to succeed, especially within the first two years at UMBC. Topics included: Welcoming students to UMBC, how to engage and seek community within the STEM community, key support resources within the colleges, students' STEM identity and experience, along with things the deans wish they had known when they started their college journey.



**Dr. Keith Bowman**

*College of Engineering and Information Technology*

In 2017, Dr. Bowman became Dean of the College of Engineering and Information Technology (COEIT). Under Dr. Bowman's leadership, the college has introduced its first faculty and staff awards programs, a laboratory renewal program, grant-writing support for faculty research proposals, college-wide undergraduate and graduate councils, a staff advisory group and new college-based programs for onboarding new students and recognizing graduating students.



**Dr. William LaCourse**

*College of Natural and Mathematical Sciences*

Dr. LaCourse has served as dean of the College of Natural and Mathematical Sciences (CNMS) since 2012. He holds leadership roles in the STEM BUILD, the Collaborative Research: Institutional and Community Transformation for Teaching and Learning Quantitative Reasoning in the Biological Sciences project, and the AGEP Alliance State System Model to Transform the Hiring Practices and Career Success of Tenure Track Historically Underrepresented Minority Faculty in Biomedical Sciences.



**Dr. Katharine Cole**

*Vice Provost and Dean  
Division of Undergraduate  
Academic Affairs*

Dr. Cole was named dean of Undergraduate Academic Affairs in 2017. Under her leadership, the Academic Success Center was founded to provide that provides a one-stop opportunity through Academic Policy, Academic Resources, and Academic Advocacy for students to achieve their academic goals and claim their future with a UMBC degree.



**Dr. Scott E. Casper**

*College of Arts, Humanities, and Social Sciences*

Dr. Casper served as dean of the College of Arts, Humanities, and Social Sciences from 2013-2020. During his tenure as dean, the Center for Social Science Scholarship was founded, studios and a classroom at the Lion Brothers building in downtown Baltimore were established, and the Community Leadership MPS and Public Humanities minors were institutionalized.

**The UMBC LSAMP community is grateful to each of the Deans and their commitment towards transforming undergraduate STEM education through innovative, evidence-based recruitment and retention strategies, and relevant educational experiences.**

## APPLYING TO AND SECURING SUMMER RESEARCH EXPERIENCES

Summer research experiences are comprised of six to ten weeks of research at universities, National Labs, or field sites. These experiences provide professional and career development workshops, as well as travel assistance to attend professional conferences. In this workshop, Justine Johnson, Associate Director of the IMSD Meyerhoff Graduate Program offered her perspective on what stands out most to undergraduate research application reviewers. Participants broke into small groups in which LSAMP students who have previously participated in nationwide Research Experiences for Undergraduates (REUs) offered individualized support based on their own experience.



*Justine Johnson*  
Associate Director,  
IMSD Meyerhoff Graduate  
Program



*Aleyah Lewis,*  
Stanford University



*Olumide Faboyegun,*  
Washington University in St. Louis

**Some of the Institutions that hosted UMBC LSAMP Students in Summer 2020 include...**

**Stanford** | ENGINEERING

**ASU** Arizona State University



UMBC

“ LSAMP helped me discover the scientist within me. I found a family at LSAMP that provided an avenue to enhance my network, academic performance, and social support as a Latina in STEM. Dr. Fernando Vonhoff, my research mentor, and the LSAMP community offered me the support to successfully present my scientific research at the UMBC Undergraduate Research and Creative Achievement Day (URCAD) and I recently presented my research at the 2020 Annual Biomedical Research Conference for Minority Students. Through my engagement with LSAMP, I have grown as a research scientist.

- Carina Lopez Escobar '21 -

# STUDENT SHOWCASE

## CARINA LOPEZ ESCOBAR '21

### BIOLOGICAL SCIENCES

*Carina is the first in her family to attend college. She transferred from Anne Arundel Community College (AACC) and was inspired to continue her studies at a four-year university by her mentor at AACC, Dr. Rodriguez.*

Carina is a U-Rise Scholar at UMBC who is passionate about understanding chemical imbalances that affect brain development and lead to mental illnesses such as depression. She intends on pursuing a post-baccalaureate program before obtaining a Ph.D. in neuroscience at the University of North Carolina Chapel Hill.

#### **Research at UMBC**

Carina's project is on Synaptic Refinement in the central nervous system of the model system, *Drosophila Melanogaster* (fruit flies), under Dr. Fernando Vonnhoff. She tests different genes that are known to be involved in refinement and regulation at the neuromuscular junction.

Carina also has a passion for psychology. She wishes to combine what she has learned about brain development from her classes at UMBC and from her research experience in Dr. Vonnhoff's lab with research on mental illnesses such as personality disorder, depression, and attention deficit hyperactivity disorder.



# FALL 2019 RESEARCH FELLOWSHIP PROGRAM



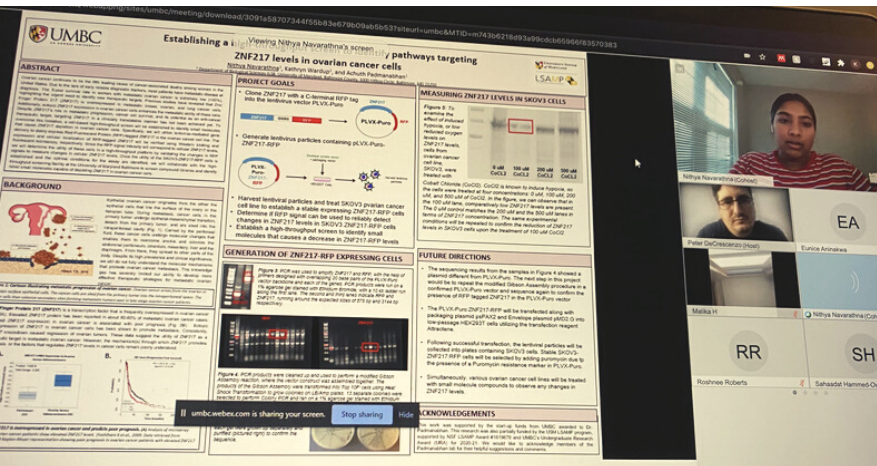
The Research Fellows program offers STEM students at UMBC, UMES, Towson, Frostburg State University, and local feeder community colleges the opportunity to participate in a funded research experience within the University System of Maryland. Students conducted scientific research under the supervision of a faculty mentor for 8-10 hours per week. All aspects of the program (research, professional development workshops, conferences, reflections) were designed to lead to an increase in the numbers and academic competitiveness of underrepresented minority undergraduates who are graduate school-ready as they transition to graduate programs. The activities were also structured to strengthen their STEM identity and bolster the required knowledge, skills, competencies, and dispositions they will need for educational and professional success in STEM fields.



## **Name and Class | Major | Topic | Faculty Mentor | University**

- Adam Afilaka '20 | Information Systems | Data Science | Dr. Karuna Pande Joshi | UMBC  
 Cean'e Batten '21 | Geography & Environmental Studies | Conservation Ecology | Dr. Chris Hawn | UMBC  
 Jonathan Bolaños '21 | Mechanical Engineering | Atmospheric Physics and Chemistry | Dr. Belay Demoz | UMBC  
 Gabriel Duran '20 | Biological Sciences + Geography & Environmental Studies | Microbial Ecology | Dr. Kathleen Cusick | UMBC  
 Deanna Gaskin '21 | Biological Sciences | Drug Delivery to the Eye | Dr. Erin Lavik | UMBC  
 Hanna Greffie '20 | Biological Sciences | Molecular, Genetic, and Biochemical Mechanisms | Dr. Achuth Padmanabhan | UMBC  
 Makayla Headley '21 | Chemical Engineering | Analytical Chemistry | Dr. Chengpeng Chen | UMBC  
 Katrina Kelly '19 | Geography & Environmental Studies | Human Geography | Dr. Ashanté Reese | UMBC  
 Aaleyah Lewis '21 | Computer Science | Mobile and Sensor Systems | Dr. Nilanjan Banerjee | UMBC  
 Howard Nicholson '21 | Chemical Engineering | Biomaterials and Tissue Engineering | Dr. Jennie Leach | UMBC  
 Victor Omoniyi '20 | Biological Sciences | Neuroscience | Dr. Fernando Vonhoff | UMBC  
 Uchenna Osia '20 | Computer Science | Human Geography | Dr. Dillon Mahmoudi | UMBC  
 Eyerusalem Workneh '20 | Biochemistry and Molecular Biology | Molecular, Genetic, and Biochemical Mechanisms | Dr. Achuth Padmanabhan | UMBC

# SPRING 2020 RESEARCH FELLOWSHIP PROGRAM



Due to the global pandemic, research opportunities beginning in Spring 2020 had to shift to a primarily virtual format. Research fellows worked on literature reviews, annotated bibliographies, and learned ways to develop a strong foundation of knowledge for when they can return to labs safely. Ten students participated in the program. Students were still able to prepare and submit advisor-approved scientific reports. Additionally, students submitted their research for the virtual UMCP's Undergraduate Research Day on April 22, 2020. This new context continued through the summer and into the fall semester.

## **Name and Class | Major | Topic | Faculty Mentor | University**

- Nicole Attram '23 | Mechanical Engineering | Thermoelectric materials | Dr. Deepa Madan | UMBC
- Tamia Bowers '23 | Mechanical Engineering | Thermoelectric materials | Dr. Deepa Madan | UMBC
- Katy-Ann Carr '23 | Mechanical Engineering | Thermoelectric materials | Dr. Deepa Madan | UMBC
- Arushi Dalal '21 | Biological Sciences | Bioacoustics | Dr. Bernard Lohr | UMBC
- Nathanael Dereb '21 | Computer Science | Brainwave measurement | Dr. Fow-Sen Choa | UMBC
- Jeannine Dizon '23 | Biological Sciences | Nanotechnology | Dr. Dipanjan Pan | UMBC
- Star Fernandez '23 | Biochemistry and Molecular Biology | Cancer biology | Dr. Charles Bieberich | UMBC
- Kidest Hailie '21 | Computer Science | Performance Engineering | Dr. Dmitri Perkins | UMBC
- Carina Lopez Escobar '21 | Biological Sciences | Neuroscience | Dr. Fernando Vonhoff | UMBC
- Dana Muhmed '22 | Biochemistry and Molecular Biology | Nanotechnology | Dr. Dipanjan Pan | UMBC
- Chimalay Okeke '22 | Biological Sciences | Drug Delivery to the Eye | Dr. Erin Lavik | UMBC
- Britney Sarpong '21 | Computer Science | Machine Learning | Dr. Tim Oates | UMBC
- Jalaysia Weems '22 | Biochemistry and Molecular Biology | Sensory detection | Dr. Weihong Lin | UMBC

“Through engaging in research experiences, I learned that I was resilient and that I could be optimistic most of the time. I have developed ways that I can keep myself motivated when doing challenging work. Additionally, I have learned to ask for help when I needed it and not to feel embarrassed to do so. In the future, I will continue to motivate myself in school and work in order to continue to perform well.”

# SUMMER 2020 RESEARCH FELLOWSHIP PROGRAM

44 Research fellows conducted scientific research under the supervision of a faculty mentor for at least 20 hours per week. The fellows prepared and submitted advisor-approved scientific reports, and will present their research via a virtual oral presentation or virtual poster presentation at the 4th Annual USM LSAMP Research Symposium in February 2021. During the summer, fellows attended a virtual two-hour orientation, submitted bi-weekly reflection prompts, participated in professional development workshops, and attended graduate school information sessions.



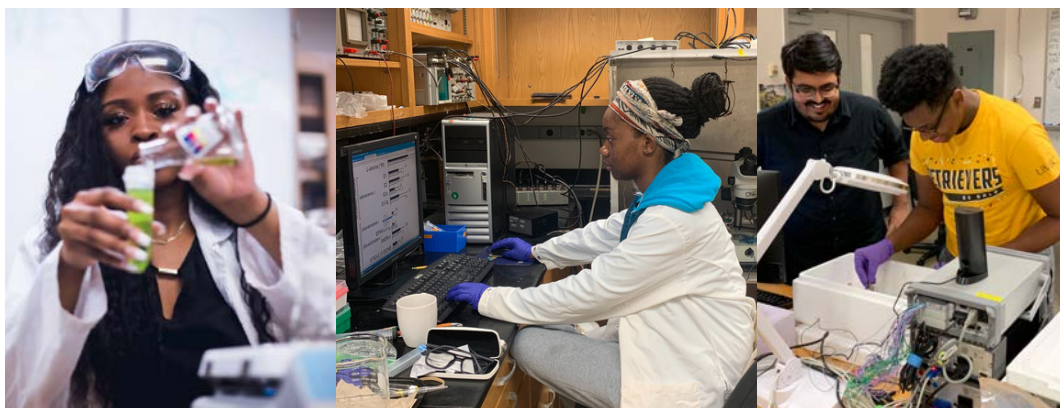
## **Name and Class | Major | Topic | Faculty Mentor | University**

Aliyah Adegun '23 | Epidemiology and Biostatistics | Health Administration & Policy | Dr. Sacoby Wilson | UMBC  
 Susan Afolabi '21 | Biological Sciences | Developmental genetics | Dr. Michelle Starz-Gaiano | UMBC  
 Miral Ahmad '20 | Information Systems | Health informatics | Dr. Helena Mentis | UMBC  
 Olorunjuwon Ajayi '21 | Computer Engineering | Scientific Computing | Dr. Curtis R. Menyuk | UMBC  
 Cean'e Batten '22 | Environmental Science & Geography | Conservation Ecology | Dr. Chris Hawn | UMBC  
 Bethel Beyene '22 | Biological Sciences | Structural Biology | Dr. Michael Summers | UMBC  
 Maria Bieberich '22 | Biological Sciences | Cancer Biology | Dr. Charles Bieberich | UMBC  
 Tamia Bowers '23 | Mechanical Engineering | Thermoelectric materials | Dr. Deepa Madan | UMBC  
 Tiria Carr '21 | Bioengineering | Neuroscience | Dr. Fernando Vonhoff | Montgomery College  
 Tyler Colebrooke '23 | Mathematics | Material Interactions | Dr. Carlos Romero-Talamas | UMBC  
 Menelik Demissie '21 | Biological Sciences | Sensory detection | Dr. Weihong Lin | UMBC  
 Jeannine Dizon '23 | Biological Sciences | Materials in Medicine | Dr. Dipanjan Pan | UMBC  
 Adanna Ekeke '21 | Biological Sciences | Neurobiology | Dr. Phyllis Robinson | UMBC  
 Ogechi Elemuo '21 | Biological Sciences & Health Administration Policy | Sensory Detection | Dr. Weihong Lin | UMBC  
 Star Fernandez '23 | Biochemistry and Molecular Biology | Cancer Biology | Dr. Charles Bieberich | UMBC  
 Kayla Fomengia '23 | Biological Sciences | Conservation Ecology | Dr. Chris Hawn | UMBC  
 Corleigh Forrester '23 | Chemical Engineering | Solid state materials | Dr. Efrain Rodriguez | UMBC  
 Karen Griffin '23 | Biological Sciences | Genetics | Dr. Jeff Leips | UMBC  
 Sydney Haywood '22 | Chemical Engineering | Drug Delivery to the Eye | Dr. Erin Lavik | UMBC  
 Nicole Hondrogiannis '22 | Biological Sciences | Nanostructure Development | Dr. Mary Devadas | Towson  
 Lynn Krushinski '22 | Forensic Chemistry | Nanostructure Development | Dr. Mary Devadas | Towson  
 Carina Lopez Escobar '21 | Biological Sciences | Neurobiology | Dr. Fernando Vonhoff | UMBC  
 Kayla Lyons '23 | Biological Sciences | Genetics | Dr. Jeff Leips | UMBC  
 Savannah McShane '21 | Biological Sciences | Structural Biology | Dr. Michael Summers | UMBC



# SUMMER 2020 RESEARCH FELLOWSHIP PROGRAM

Samara Muse '23 | Biological Sciences | Bioengineering | Dr. Birthe Veno Kjellerup | UMBC  
Crystal Najib '21 | Biological Sciences | Clinical & Community Psychology | Dr. Anne Brodsky | UMBC  
Nithya Navarathna '23 | Biological Sciences and Computer Science | Cancer Biology | Dr. Achuth Padmanabhan | UMBC  
Ouriel Ndalamba '23 | Chemical Engineering | Sustainability Engineering | Dr. Lee Blaney | UMBC  
Chimalay Okeke '22 | Biological Sciences | Drug Delivery to the Eye | Dr. Eric Lavik | UMBC  
Mawuyon Okesola '22 | Biochemistry and Molecular Biology | Drug Delivery to the Eye | Dr. Erin Lavik | UMBC  
Anu Osunnuyi '22 | Information Systems | Big Data Analytics | Dr. Jianwu Wang | UMBC  
Kelsey Person '22 | Biological Sciences | Molecular genetics | Dr. Philip Farabaugh | UMBC  
Kennedy Person '22 | Biological Sciences | Molecular genetics | Dr. Philip Farabaugh | UMBC  
Koloina Rakotomalala '22 | Engineering | Mechanical Engineering | Dr. Jamil Abdo | Frostburg  
Isai Ramirez Gonzalez '22 | Biological Sciences | Solid state materials | Dr. Efrain Rodriguez | UMBC  
Naphtali Remy '21 | Biological Sciences | Neuroscience | Dr. Fernando Vonhoff | UMBC  
Quentin Richards '23 | Computer Science | Big Data Analytics | Dr. Jianwu Wang | UMBC  
Angie Rodriguez '23 | Biological Sciences | Health Administration & Policy | Dr. Sacaby Wilson | UMBC  
Isabela Salguero Cespedes '23 | Biological Sciences and Chemistry | Neuroscience | Dr. Fernando Vonhoff | UMBC  
LeeOdella Sands '22 | Biochemistry and Molecular Biology | Molecular genetics | Dr. Philip Farabaugh | UMBC  
Britney Sarpong '21 | Computer Science | Machine Learning | Dr. Tim Oates | UMBC  
Chinyere Sloley '23 | Computer Science | Signal processing systems | Dr. Shuvra Bhattacharyya | UMBC  
Nathaniel Stevens '22 | Biological Sciences | Nanoscale Functional Materials | Dr. Mary Devadas | Towson  
Ndeh Tadzong '23 | Biological Sciences | Structural Biology | Dr. Michael Summers | UMBC  
Onyekachi Udoye '21 | Biological Sciences | Conservation Ecology | Dr. Chris Hawn | UMBC  
Jameka Wiggins '21 | Chemical Engineering | Microbiology | Dr. Sheldon Broedel | UMBC



“ The LSAMP program has been one of the best summer experiences I have ever done.. I enjoyed everything ranging from the first orientation to the weekly meetings, to dialogue sessions, and most definitely the graduate seminars. This program has been so helpful to me and I have gained a lot of information that will help me when I start applying for graduate school. I was able to learn a lot about different graduate schools, and have added new places to the list of schools that I will apply to. ”

- Excerpt From A Biological Sciences Major '22 Research Reflection -

# LET'S HEAR FROM OUR FELLOWS!

**Students reflect on their LSAMP experiences and its influence on the development of their personal, academic, and professional goals.**

## **Joana Hernandez '22 Chemical Engineering**

LSAMP has opened the door to so many opportunities that I didn't think were possible. When I was a senior in high school, I had no idea that college students could be part of a lab and do undergraduate research. Through LSAMP, I was able to join the Vonhoff lab my freshman year, and ever since, I have seen how much progress I have made. The program even helped me go to California last fall for the ABRCMS conference, which was really fun! I'm glad that I was able to be a part of the LSAMP community and find a great support system.

## **Ndeh Tadzong '23 Chemical Engineering**

I first learned about LSAMP at the USM LSAMP Summer Bridging Conference and I am grateful that I did because it set me on a great path. It has helped me stay motivated with my school work and understand what I want to do with my future. I have learned so much about what continued engagement in Chemical Engineering could look like following graduation. With all this in mind, I can confidently say I am in a better position to succeed with a purpose and passion because of my engagement with LSAMP.

## **Isabella Salguero Cespedes '23 Biological Sciences and Chemistry**

Through LSAMP, I have found a support system I never thought I could have. As a Latina in STEM, it has been really valuable to connect with a network of like-minded people who have gone through similar experiences to get to where they are. LSAMP has provided me with a strong understanding on how to strengthen my path towards graduate school. Thanks to LSAMP, even as a sophomore, I was able to engage in my first research experience in Dr. Vonhoff's lab, attend my first conference, and present research at the 2020 Annual Biomedical Research Conference for Minority Students.

## **Aaleyah Lewis '21 Computer Science**

LSAMP's cohesive atmosphere has surrounded me with a diverse community of like-minded scholars who dream big. Through the many opportunities and support that this program offers, I have been able to step out of my comfort zone and uncover my potential as both a scholar and researcher. LSAMP's commitment to my success has set me on a promising path of obtaining a PhD, and for that, I am grateful.

# LSAMP FACULTY RESEARCH MENTORS

## College of Natural and Mathematical Sciences (CNMS)



### Name | Title | Department | Research Focus | University

*Dr. Charles Bieberich | Professor | Biological Sciences | Cancer Biology | UMBC*

*Dr. Rachel Brewster | Associate Professor | Biological Sciences | Neuroscience | UMBC*

*Dr. Sheldon Broedel | Associate Director & Instructor | Biological Sciences | Biotechnology | UMBC*

*Dr. Chengpeng Chen | Assistant Professor | Chemistry & Biochemistry | 3D Bio-printing in-vivo mimic devices | UMBC*

*Dr. Kathleen Cusick | Assistant Professor | Biological Sciences | Microbial Ecology | UMBC*

*Dr. Belay Demoz | Professor | Physics | Atmospheric Physics and Chemistry | UMBC*

*Dr. Philip Farabaugh | Professor | Biological Sciences | Molecular genetics | UMBC*

*Dr. Jeff Leips | Professor | Biological Sciences | Genetics | UMBC*

*Dr. Weihong Lin | Professor | Biological Sciences | Sensory Detection | UMBC*

*Dr. Beranrd Lohr | Associate Professor | Biological Sciences | Bioacoustics| UMBC*

*Dr. Achuth Padmanabhan | Assistant Professor | Biological Sciences | Cancer Biology | UMBC*

*Dr. Phyllis Robinson | Professor | Biological Sciences | Signal transduction in photoreceptors | UMBC*

*Dr. Michelle Starz-Gaiano | Associate Professor | Biological Sciences | Developmental Genetics | UMBC*

*Dr. Michael Summers | Professor | Chemistry & Biochemistry | Retrovirus assembly and packaging | UMBC*

*Dr. Fernando Vonhoff | Assistant Professor | Biological Sciences | Neuroscience | UMBC*

“Since joining Dr. Lohr’s lab, I have also learned a lot more about the applications of animal behavior work to solving real-world problems. For instance, the research I’m working on can be used in determining variation within different populations of the same species and help characterize them as separate subspecies entirely. I am still extremely grateful for the opportunity to conduct research in this lab and collaborate with my amazing lab members. I know that my lab peers will support no matter what field I follow. I’m grateful for the opportunity to form meaningful relationships and engage in such fulfilling work.”

- Arushi Dalal '21 -



**Dr. Fernando Vonhoff (pictured above)** is an Assistant Professor in the Department of Biological Sciences, whose research focuses on brain development, brain function, and human neurological diseases. Each year, Dr. Vonhoff welcomes LSAMP Research Fellows into his lab hosting **over ten** since 2018. He inspires students to ask critical questions, encourages discovery, and facilitates problem-solving. 2020 UMBC graduate, Victor Omoniyi emphasizes that *"Dr. Vonhoff makes research fun and exciting. He is always eager to listen to our questions. It does not matter how many times we ask questions, he is always accessible. I am glad I had the opportunity to work with him, as he is one of the best research mentors I have had."*

## FACULTY SPOTLIGHT

**Dr. Erin Lavik (pictured below)** is a Professor of Chemical, Biochemical, and Environmental Engineering and Associate Dean for Research and Faculty Development. Dr. Lavik's research projects include developing intravenously administered nanoparticles to stop internal bleeding, drug delivery systems for diseases of the eye, and printing tissue models for high throughput screening applications. In 2019-2020, Dr. Lavik hosted four LSAMP Research Fellows. Mawuyon Okesola '22 states, *"Dr. Lavik has been a true example of the word teacher. She has taught me new skills and exposed me to experiences that have helped my development as a scientist and researcher. Dr. Lavik is an inspirational and kind-hearted professor and person. I am honored to share time with her as a member of the research team."*

**From the entire UMBC LSAMP Community, we thank Dr. Erin Lavik and Dr. Fernando Vonhoff for their continued support.**



# LSAMP FACULTY RESEARCH MENTORS

## College of Engineering and Information Technology (COEIT)



### Name | Title | Department | Research Focus | University

*Dr. Lee Blaney | Associate Professor | Chemical, Biochemical, and Environmental | Sustainability Engineering | UMBC*

*Dr. Nilanjan Banerjee | Professor | Computer Science and Electrical Engineering | Sensor systems | UMBC*

*Dr. Fow-Sen Choa | Professor | Computer Science and Electrical Engineering | Brain neural network architecture | UMBC*

*Dr. Karuna Pande Joshi | Associate Professor | Information Systems | Data Science | UMBC*

*Dr. Erin Lavik | Professor | Chemical and Environmental Engineering | Drug Delivery to the eye | UMBC*

*Dr. Jennie Leach | Associate Professor | Chemical, Biochemical, and Environmental Engineering | Biomaterials | UMBC*

*Dr. Deepa Madan | Assistant Professor | Mechanical Engineering | Thermoelectric materials | UMBC*

*Dr. Helena Mentis | Associate Professor | Information Systems | Health informatics | UMBC*

*Dr. Curtis Menyuk | Professor | Computer Science and Electrical Engineering | Scientific Computing | UMBC*

*Dr. Tim Oates | Professor | Computer Science and Electrical Engineering | Machine Learning | UMBC*

*Dr. Dipanjan Pan | Professor | Chemical and Environmental Engineering | Nanotechnology | UMBC*

*Dr. Dmitri Perkins | Professor | Computer Science and Electrical Engineering | Performance Engineering | UMBC*

*Dr. Carlos Romero-Talamas | Associate Professor | Mechanical Engineering | Material interactions | UMBC*

*Dr. Jianwu Wang | Assistant Professor | Information Systems | Big Data Analytics | UMBC*

*Dr. Peng Xu | Assistant Professor | Chemical, Biochemical, and Environmental Engineering | Metabolic Engineering | UMBC*

“ All in all, my time in the Leach lab has allowed me to further develop and grow my skills as a researcher and engineer. Additionally, I have been able to apply chemical engineering principles that I learned in the classroom into a lab environment which gives me a deeper understanding of the material. I will be able to use these skills in any lab that I join in the future and this opportunity has also allowed me to establish strong connections with a faculty member in the department of my major. ”

- Howard Nicholson '21 -

# LSAMP FACULTY RESEARCH MENTORS

## College of Arts, Humanities, and Social Sciences (CAHSS)

### Name | Title | Department | Research Focus | University

*Dr. Jean Bidlack | Professor & Chair | Pharmacology and Physiology | Drug development | Rochester Medical Center*  
*Dr. Anne Brodsky | Professor & Chair | Psychology | Clinical & Community Psychology | UMBC*  
*Dr. Blanche Capel | Professor | Cell Biology | Germ cell biology | Duke School of Medicine*  
*Dr. Chris Hawn | Assistant Professor | Geography & Environmental Systems | Conservation Ecology | UMBC*  
*Dr. Rahul Kohli | Professor | Medicine | Pharmacology | University of Pennsylvania School of Medicine*  
*Dr. Dillon Mahmoudi | Assistant Professor | Geography & Environmental Systems | Economic geography | UMBC*  
*Dr. Ashanté Reese | Assistant Professor | Geography & Environmental Systems | Human geography | UMBC*

# LSAMP FACULTY RESEARCH MENTORS

## Faculty from other Institutions

*Dr. Jamil Abdo | Associate Professor & Chair | Mechanical Engineering | Materials | Frostburg*  
*Dr. Shuvra Bhattacharyya | Professor | Electrical and Computer Engineering | Signal processing systems | UMD*  
*Dr. Birthe Venø Kjellerup | Assistant Professor | Civil & Environmental Engineering | Bioengineering | UMD*  
*Dr. Mary Sajini Devadas | Assistant Professor | Chemistry | Nanoscale functional materials | Towson*  
*Dr. Efrain Rodriguez | Associate Professor | Chemistry & Biochemistry | Solid state materials | UMD*  
*Dr. Sacoby Wilson | Associate Professor | Epidemiology and Biostatistics | Exposure science | UMD*



“ Through engaging in this research experience, I have learned about many personal strengths and weaknesses. I discovered that as much as I like to have my own opinions about research topics and which ones I like better, I also appreciate guidance and mentorship from Dr. Achuth Padmanabhan. I appreciate that he always asks me if his suggestions are alright, or whether I have anything else to input because it makes me feel heard while being taken in the right direction. These discoveries have allowed me to recognize what I want to look for in a potential mentor and future educational institutions. I appreciate guidance while still being challenged in my abilities, and I will look for programs and mentors who are able to do that in the future. ”

- Nithya Navarathna '23 -

# GRADUATING SENIORS

UMBC  
*Class of 2020*



**UMBC  
LSAMP  
FELLOWS**

# CLASS OF 2020 GRADUATING LSAMP FELLOWS

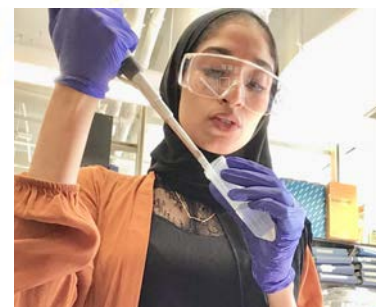
**Olusayo M. Adeleye**  
Mathematics and Statistics



**Adam Afilaka**  
Biological Information Systems



**Amna Ayub**  
Biological Sciences



**Vincent Brown**  
Biological Sciences



**Asiyah Daremipouran**  
Biological Sciences



**Gabriel Duran**  
Environmental Science, Geography,  
and Biological Sciences



**Hanna Greffie**  
Biological Sciences



**Fayokemi Ojo**  
Computer Science



**Victor Omoniyi**  
Biological Sciences





# CLASS OF 2020 GRADUATING LSAMP FELLOWS

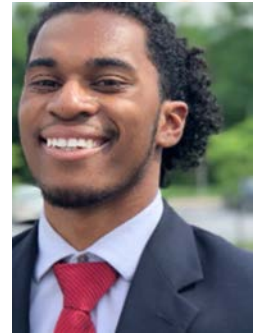
**Jimmy Orantes**  
Biochemistry and  
Molecular Biology



**Uchenna Osia**  
Computer Science



**Calixte Paul**  
Computer Science



**Renmar Sarreal**  
Mechanical Engineering



**Miles Smith**  
Mechanical Engineering



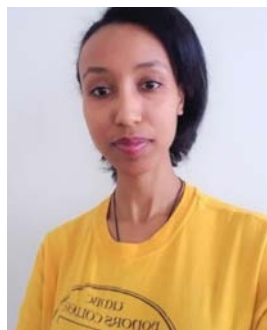
**Danillo Symonette**  
Computer Engineering



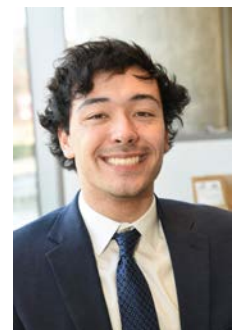
**Uchendu Uchendu**  
Information Systems



**Eyerusalem Workeneh**  
Chemistry and Biochemistry



**Brian Woronowicz**  
Mechanical Engineering



# UMBC LSAMP STAFF

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**Sunji Jangha**  
Program Director



**Peter DeCrescenzo**  
Program Coordinator



**Abby Cruz**  
Graduate Assistant



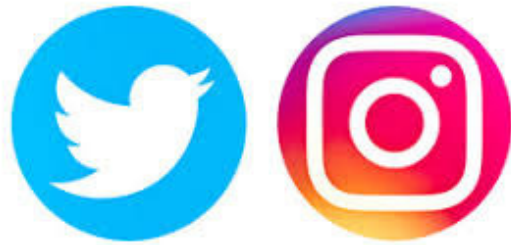
**John Nweke**  
Graduate Assistant



UMBC

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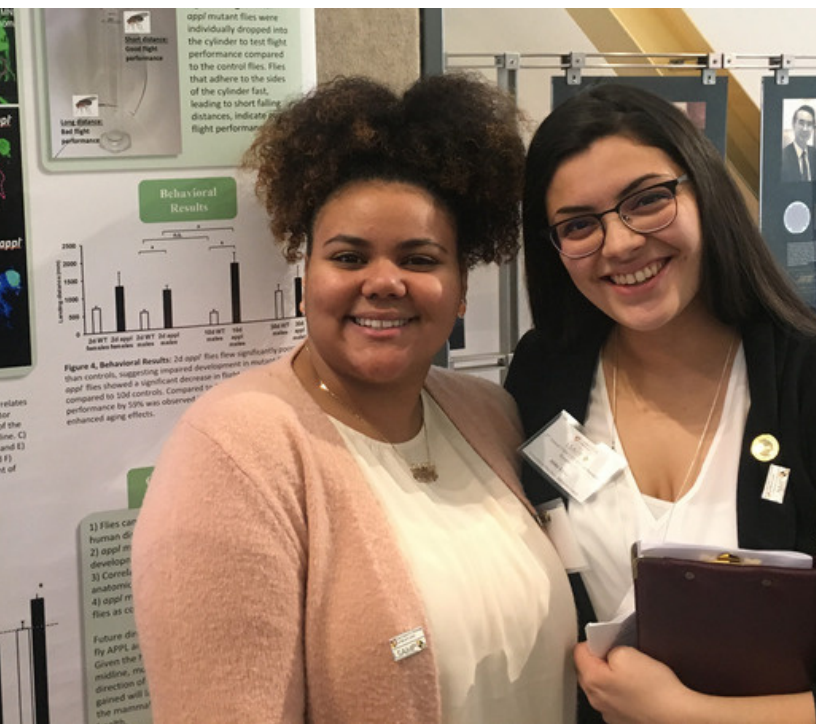


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