



# UMBC LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION (LSAMP) YEAR IN REVIEW

2021–2022 Annual Report





# WELCOME!

Welcome to the UMBC LSAMP community's 2021-2022 Annual Report, (**August 2021 to December 2022**). As an LSAMP participant, you have access to personalized advising, campus workshops, funded research opportunities, and national and international conferences, all designed to enhance your STEM identity and facilitate your admission to top graduate programs.

Through this catalog, we aim to showcase and commend the achievements of our undergraduate participants, Research Fellows, as well as the staff and faculty who contribute to the program's success each year.

UMBC LSAMP is funded by the National Science Foundation Award #1619676

### UMBC LSAMP DIRECTOR'S MESSAGE Written by Sundiata "Sunji" Jangha - Mr. J



2022, the year everything got back to normal, or so we hoped. We found out very quickly that we are all working hard to find our new normal, whatever that looks like. We are as proud of the students excelling as we are of the students struggling and persevering. All we ask of our Scholars is maximum effort and they give it.

This Year in Review highlights some of the achievements of this outstanding group of Scholars, showcases the phenomenal work that they have been able to do despite 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 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 another challenging year, continue to move forward, your future awaits... Now Go Be Great!







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**The Louis Stokes Alliances for Minority** Participation (LSAMP) program aims to increase the representation and successful participation of underrepresented minority students in Science, Technology, Engineering, and Mathematics (STEM) fields. The LSAMP program strives to achieve this mission by providing opportunities for academic and professional development, mentorship, research experiences, and community building. The LSAMP program seeks to create a supportive and inclusive environment that empowers students to pursue their academic and career goals in STEM, and to become leaders in their communities and fields. The ultimate goal of the LSAMP Program is to contribute to a more diverse and talented STEM workforce that can address the grand challenges facing society.











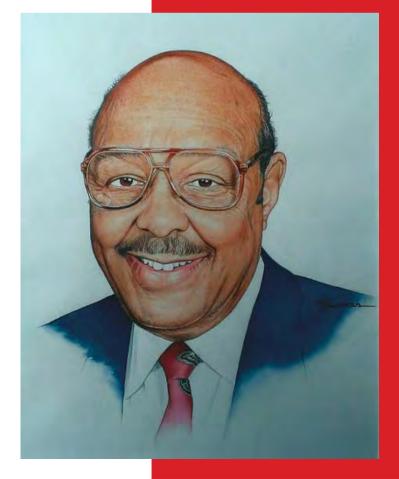


# THE LEGACY OF LOUIS STOKES





Congressman Louis Stokes (1925-2015) was a pioneering American politician and lawyer who dedicated his career to advancing civil rights and social justice. As the first African-American member of Congress elected in Ohio and a key figure in the passage of several important pieces of civil rights legislation, Stokes left a lasting legacy as a champion for equality. He also felt a special obligation to utilize programs to help underrepresented minorities by arming talented young people with the opportunity of education to be the scientists, engineers and doctors of the future.



# WHO WE ARE AND WHAT WE REPRESENT 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.)

Further, we collaborate with Towson 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.

# Where Have Our Students Taken Their Talents Globally?

FELLOWS ACROSS BORDERS



# Graduate Programs Postbaccalaureate Programs



# Research Experiences for Undergraduates

# USM LSAMP Summer Bridging Conference August 13 - 14, 2021

The virtual Summer Bridging Conference is offered to students across the Alliance. It provides new students (incoming first-year and transfer students) with 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 Sciences, University of Maryland, Eastern Shore (UMES)



Time Management for the 4.0 Dr. Marquita Qualls Leadership Coach/Founder, Entropia Consulting, Inc.



Welcome to USM LSAMP Rosemary Parker Director, Center for Minorities in Science and Engineering University of Maryland, College Park (UMD)



Things That You Need to Know During Your First Year Jamillah Johnson

Senior First Year Experience Coordinator University of Maryland, Eastern Shore (UMES)

#### Dr. Kenneth Baron

Assistant Vice Provost for Academic Advising and Student Success University of Maryland, Baltimore County (UMBC)



The Importance of Community: You Are Not Alone Letter to Myself: What I Wish I Knew Coming In Juvet Ebai (UMBC), Muritz Kobe (UMCP), Bethany Ngere (UMES), Tionna Harris (Towson)





Becoming Socially Responsible in Your Own Way Delmar L. Cillus, Jr. Chief Operating Officer at Elevate Energy, University of Maryland, College Park (UMD)



Mentoring Session: I Am... I Will... Dr. Daniel Jean

Executive Director of EOF and Academic ∋velopment, EOF and Academic Success, Montclair State University

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# 2021 USM LSAMP Summer Bridging Conference

Each year, a select number of current Fellows in the alliance are called upon to share with the new class of incoming students, a reflective letter addressed to themselves summarizing some of the many lessons they have learned during their academic journey. Two LSAMP Research Fellows are featured below, **Juvet Ebai, UMBC' 21,** and **Tionna Harris, Towson' 22.** 







For everything you have accomplished so far in just two years, all of which cannot be contained in this short letter, are only stepping stones for what is to come. My hope is that you now understand the importance of community, as you have witnessed the contribution it can make towards realizing your dreams....be thankful to all who have contributed to your development thus far; it would not have been possible without them.

#### JUVET EBAI '21

Students were presented with information about their campus, specific ways to seek out and get support, 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).

# USM LSAMP SUMMER BRIDGING CONFERENCE **DEANS' TOWN HALL MEETING**

The USM LSAMP community is grateful to each of the Deans and their commitment to transforming undergraduate STEM education.





Dr. Keith Bowman College of Engineering and Information Technology (COEIT) UMBC

Dr. Bowman was appointed Dean in 2017. Under his leadership, COEIT introduced faculty and staff awards programs, a laboratory renewal program, a grant-writing support program, undergraduate and graduate councils, and a staff advisory group.

Moderator: Dr. Janet Rutledge

Vice Provost and Dean of the Graduate School UMBC

Dr. Rutledge has served as the Vice Provost and Dean of the Graduate School at UMBC since 2009. She is also a faculty member in the Computer Science and Electrical Engineering Department. Under Dr. Rutledge's leadership, the Graduate School at UMBC manages the full "lifecycle" of a graduate student from recruitment and admissions to progressions and graduation. During her tenure she created the graduate student development unit that manages their diversity, retention, and completion activities.



Dr. Jurgen Schwarz Department of Agriculture, Food and Resource Sciences LIMES

Dr. Schwarz has served as Ghair since 2013. Dr. Schwarz has over 25 years of teaching, research, and outreach experience in the areas of agricultural economics. environmental economics, and

international trade. He has published numerous articles in peer-reviewed journals and has received various grants and awards for his research throughout his career.

**Dr. Gerald Wilkinson** College of Computer, Mathematical, and Natural Sciences (CMNS) UMD

Dr. Wilkinson was appointed Associate Dean of the College of Mathematics at Towson. She has Computer, Mathematical, and Natural Sciences at UMD in 2018. As Associate Dean, Dr. Wilkinson is responsible for overseeing the academic programs and policies of the college, including undergraduate and graduate education, faculty hiring and evaluation, and student advising.



**Dr. Vonnie Shields** Fisher College of Science & Mathematics Towson

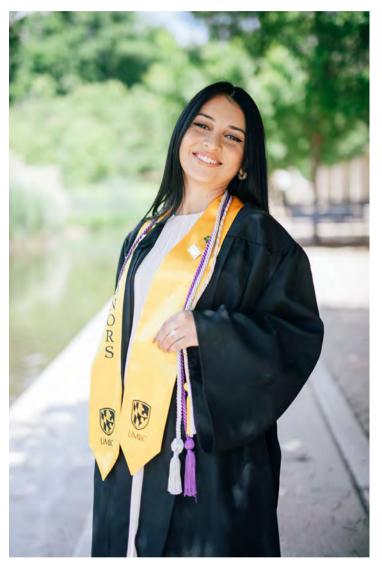
Dr. Shields is the Associate Dean Fisher College of Science & over 15 years of experience in teaching and research in the areas of ecology, conservation biology, and environmental science. Dr. Shields has published several articles in peer-reviewed journals and has received numerous grants and awards for her research.

LSAMP provided several things for me that helped me develop as an individual and advance my professional career. The LSAMP community helped expand my network by meeting more people across different labs and different universities. I was able to go to a national conference to present my research, as well as attend many workshops that helped to improve my presentation skills and work on my portfolio. As an individual I felt more confident in my abilities as a researcher and student.

- Malika Hiyam '22 -

## **STUDENT SHOWCASE**

# Malika Hiyam '22 - Biological Sciences



#### **Other UMBC Affiliations:**

PhiDE, Russian Club Executive Board Member

Malika is currently preparing to apply to Medical School to pursue a career in Neurology and Psychiatry.

#### Summer Research Experience

Malika's first research experience with LSAMP involved investigating the impact of metal toxicity on the flight performance of WT Drosophila Melanogaster during the summer of 2019. She tested the effects of aluminum, copper, zinc, and iron at different concentrations by exposing the flies to these metals through their food. She indirectly measured the metallic effects on the neuronal function of the WT flies by evaluating their ability to fly back up in a cylinder.

This study was significant because humans are exposed to various metals in their daily lives, and the long-term effects of these metals on brain function should be explored. In her second research experience, Malika conducted a literature review on the discovery of Mirror Neurons at UMD College Park's child development lab. She found that increased activation of brain regions involved in mirror neuron activation correlated with greater development of fine motor skills, as measured by reach-grasp competency, and explored various imaging techniques used to study mirror neuron activation.

#### **Research at UMBC**

Malika researched the impact of bilingualism on the onset of Alzheimer's disease as part of the MLLI Honors Program. Her literature review found that bilingualism had a protective effect on the age of onset of Alzheimer's by building cognitive reserve through enhanced neural connections across the cortex.

# 5TH 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 19 oral presenters and 38 poster presenters. There were 119 attendees. Students used this opportunity to bolster their presentation skills and refine their content. All attendees were able to meet with representatives from LSAMP institutions in the region and other local graduate programs to participate as exhibitors. This list included both the Meyerhoff Graduate Fellowship Program, STAR-PREP post-baccalaureate program, and the University of Baltimore, Neuroscience program.



# 5TH ANNUAL USM LSAMP UNDERGRADUATE RESEARCH SYMPOSIUM

## **Distinguished Keynote Address**



#### Dr. Samuel Graham, Jr.

Dean of A. James Clark School of Engineering University of Maryland, College Park

Dean Samuel Graham Jr. is a Professor and Director of the Advanced Heat Exchanger and Energy Systems Research Laboratory at the University of Maryland. His research focuses on developing advanced heat exchangers and energy systems for various applications. Dr. Graham's laboratory has made significant advancements in heat transfer research and he is dedicated to mentoring the next generation of engineers.

# 5TH ANNUAL USM LSAMP UNDERGRADUATE RESEARCH SYMPOSIUM

#### Dr. Freeman A. Hrabowski, III

President Emeritus of UMBC



Prior to President Freeman Hrabowski III's retirement in 2022, he offered special remarks to the attendees of the research symposium. We are forever grateful to President Hrabowski emphasized STEM education, and co-founded the Meyerhoff Scholars Program, aimed at promoting minority achievement in STEM fields. Under his leadership, "more black students earn bachelor's degrees in science and technology from UMBC than from any other non-historically black university in Maryland..." Hrabowski was an advisor to President Barack Obama on higher education policy, and was appointed by Obama to serve as chair of an advisory council on excellence in African-American education. Born in Birmingham, Alabama, Hrabowski graduated from Hampton Institute with highest honors in mathematics. He received his M.A. (mathematics) and Ph.D. (higher education administration/statistics) from the University of Illinois at Urbana-Champaign.





AGRICULTURE & NATURAL RESOURCES





# UMD 16TH ANNUAL WINTER STUDENT LEADERSHIP RETREAT



Highlight: Dr. Kellie McCants-Price "What to Expect from Faculty"

Dr. Kellie McCants-Price emphasized the importance of an open learning environment wherein questions, comments, and interactions from students are encouraged. Both students and faculty members have a duty to be courteous, civil, and respectful in the interactions with one another. Dr. Tony Awojoodu stressed the importance of pursuing purpose in life and how his journey through his PhD program helped him unlock the keys to living the life of his dreams. He highlighted the significance of staying focused on one's goals, being persistent, and maintaining a positive attitude in the face of challenges. Dr. Awojoodu also encouraged his audience to seek out mentors and be open to learning from others, emphasizing that one's success is not achieved in isolation but through the support of others.

#### **Highlight: Dr. Tony Awojoodu** "Pursuing Purpose: How my path through the PhD helped unlock the

keys to living the life of my dreams"





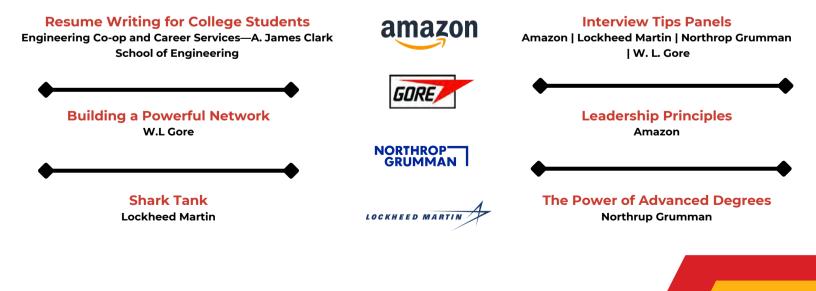
**Highlight**: **Dr. Jennifer Roberts** "Diversity Matters: A Conversation With Dr. Jennifer Roberts"

Dr. Jennifer Roberts spoke about the importance of diversity and inclusion in academic and professional settings. She encouraged active listening, empathy, and taking action to address issues of inequality and discrimination, urging her audience to engage in difficult conversations and learn from different perspectives.

# UMD 16TH 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. 26 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.





LSAMP allowed me to be surrounded by like minded people and people who wanted to achieve as much as I wanted to achieve, which really helped me build myself and learn how to connect with others and help them as well. LSAMP also gave me the confidence to go after opportunities that I didn't think that I may be well qualified for. I learned not to sell myself short and always put myself out there for opportunities and to connect and build relationships with others.

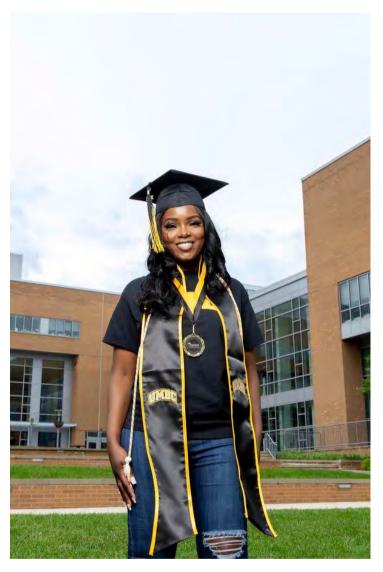
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- Anuoluwapo "Anu" Osunnuyi '22 -

## **STUDENT SHOWCASE**

# Anu Osunnuyi '22 - Information Systems



#### **Other UMBC Affiliations:**

African Students Association, McNair Scholars, Center for Women in Technology

**Grad School Support:** Graduate Research Assistantship

Anu is currently pursuing her Masters of Science in Public Policy with a focus in Technology and Economic Development at Georgia Institute of Technology

#### Summer Research Experience

Anu conducted research on using natural language processing and AI to assist students in overcoming language barriers and improving their academic performance. The study aimed to develop technology that would aid students in areas where language barriers are prevalent, specifically focusing on the impact of declining student performance in Nigeria due to limited understanding of the English language.

Anu's literature review found a lack of solutions available to address this issue and identified a connection between language barriers and underdevelopment. Anu utilized her knowledge of machine learning tools to propose building an inventory of loan words and encouraging instructors to use them in assignment creation as potential solutions.

#### Research at UMBC

Anu conducted research during her sophomore year on Streaming Analytics for Credit Card Fraud detection. She also served as a research scholar for the UMBC McNair Scholars Program and her topic was Smart Cities For Economic Development And Sustainability. During her time as a research intern at the Chicago Booth Center for Applied Artificial Intelligence at the University of Chicago, she worked on developing a knowledge-based model to answer questions related to sustainable urbanization.

# USM LSAMP Springboard to stem success September 30 - October 1, 2022

The hybrid Springboard to STEM Success Conference was offered to students across the Alliance in the fall of 2022. It provides new students (incoming first-year and transfer students) with 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 Sciences, University of Maryland, Eastern Shore (UMES)



Welcome Sunji Jangha

USM LSAMP Alliance Director, University of Maryland, Baltimore County (UMBC)



Welcome to USM LSAMP Rosemary Parker Director, Center for Minorities in Science and Engineering University of Maryland, College Park (UMD)



#### Things That You Need to Know During Your First Year Dr. Jarred Young

Keystone Lecturer - Aerospace Engineering University of Maryland, College Park (UMD)



The Importance of Community: You Are Not Alone Letter to Myself: What I Wish I Knew Coming In Tamia Bowers (UMBC), Dahlia Andres (UMCP), Jay Easter (UMES), Desmond Smith (Towson)



Dr. Delana Gregg

Director, Academic Learning Resources, Assessment and Analysis University of Maryland, Baltimore County (UMBC)



Time Management for the 4.0 Dr. Marquita Qualls Leadership Coach/Founder, Entropia Consulting, Inc.



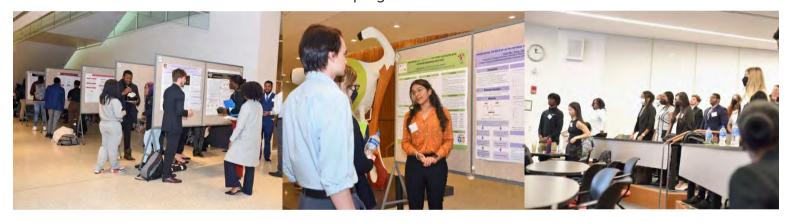
Prioritizing our Well-Being in STEM Dr. Tiara Cornelius

Chair & Associate Professor, Mathematics University of Maryland Eastern Shore (UMES)

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# 6TH 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 19 oral presenters and 38 poster presenters. There were 119 attendees. Students used this opportunity to bolster their presentation skills and refine their content. All attendees were able to meet with representatives from LSAMP institutions in the region and other local graduate programs to participate as exhibitors. This list included both the Meyerhoff Graduate Fellowship Program, STAR-PREP post-baccalaureate program, and the University of Baltimore, Neuroscience program.

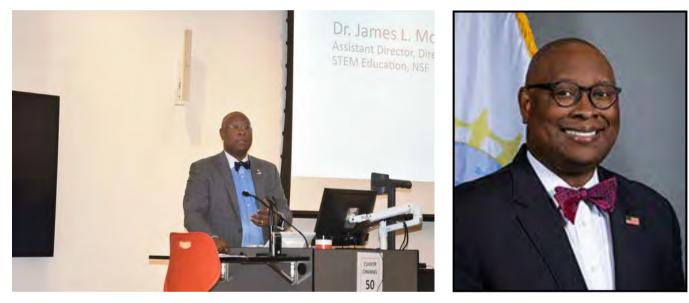






# 6TH ANNUAL USM LSAMP UNDERGRADUATE RESEARCH SYMPOSIUM

## **Distinguished Keynote Address**



### Dr. James Moore, III

Assistant Director for the STEM Education Directorate (EDU) National Science Foundation

With an annual budget of over \$1 Billion and personnel oversight for nearly 200 employees, Dr. Moore serves as the senior leader for EDU, which supports science, technology, engineering, and mathematics (STEM) projects focusing on K-12 education, undergraduate and graduate education, workforce and human resource development, and learning in formal and informal settings. Prior to his NSF appointment, Dr. Moore served, for over five years, as the university's vice provost for diversity and inclusion, chief diversity officer, and leader of the Office of Diversity and Inclusion (one of the nation's oldest, largest, and most comprehensive office of its kind) at The Ohio State University.

# 6TH ANNUAL USM LSAMP UNDERGRADUATE RESEARCH SYMPOSIUM

### **USM Alliance Presidential Addresses**



For the 6th Annual Research Symposium, the Chancellor of the University System of Maryland and the Presidents of each of the four member institutions offered greetings to welcome the students, emphasize the importance of research for undergraduates, and to express their pride in the Fellow's hard work on display throughout the Symposium.

> (center) Dr. Jay Perman - Chancellor, Univeristy System of Maryland (clockwise from top left)

Dr. Valerie Sheares Ashby - President, University of Maryland, Baltimore County Dr. Daryl Pines - President, University of Maryland, College Park Dr. Heidi Anderson - President, University of Maryland Eastern Shore Dr. Kim Schatzel - President, Towson University



My experience being a part of the LSAMP community, honestly overall was great. It was really nice. It was very helpful in a-lot of ways, because it's always good to have a community & just me, being in computer engineering, at times you do feel kind of isolated, so having that was really helpful. Having someone you can always talk to or reach out to whenever you have questions ... I always just call the LSAMP staff for everything. Everything!

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- Olorunjuwon "Juwon" Ajayi '22 -

## **STUDENT SHOWCASE**

# Juwon Ajayi '22 - Computer Engineering



#### **Other UMBC Affiliations:**

McNair Scholars, Meyerhoff Scholars, Institute of Electrical and Electronics Engineers

Grad School Support:

GEM Fellowship

Juwon is currently pursuing his PhD in Electrical Engineering at North Carolina State University

#### Summer Research Experience

Juwon gained valuable research experience in the field of renewable energy and optimization by working on a project that involved implementing NASA's OpenMDAO with NREL's Hybrid Optimization & Performance Platform (HOPP). The project aimed to analyze the feasibility of running a hybrid solar and wind plant simulation in three potential locations by

calculating the levelized cost of energy (LCOE), net present value (NPV), and levelized cost. Juwon conducted multiple simulations and attended seminars and presentations to share knowledge and stay up-to-date on advancements in the field. Through this research, Juwon developed skills in simulation and optimization techniques for renewable energy systems.

#### Research at UMBC

Juwon has been involved in research focused on modeling the reduction of amplitude-to-phase conversion in charge-compensated modified uni-traveling carrier photodiodes. To begin, Juwon conducted a thorough literature review to gain an understanding of the photodiode structure and identify the parameters that needed to be investigated. From this review, Juwon extracted data to recreate the photodiode's structure and perimeter of the experiments. Through this research experience, Juwon has gained valuable skills in experimental design and data analysis in the field of photonic devices.

# OUR VILLAGE

Because it takes a village..

# **CAREER AND WELLNESS DEVELOPMENT PARTNERS**

#### **Susan Hindle**

Associate Director, Career Success, University of Maryland School of Nursing

Susan Hindle joined UMSON in December 2022 as part of the Office pf Academic and Career Success. She brings more than 20 years of experience in career development in higher education. She has expertise in assisting individuals in all phases of the career development process. Susan has worked with the LSAMP program for over 2 years and was the primary instructor of the University's internship, cooperative education, and research practicum course (PRAC 98) for our LSAMP students. She provides support for workshops, presentations, and professional skill development. We are very happy to have Susan in our corner!

#### Dr. Karolyn Babalola

Senior Lead Engineer, Booz Allen Hamilton Wellness Coach, UMBC

Dr. Karolyn Babalola is an innovator, teacher, yogini, and learner. She is currently a Senior Lead Engineer at Booz Allen Hamilton leading Al-based Natural Language Processing (NLP) technology development. She completed her M.S. and Ph.D. in Electrical and Computer Engineering at the Georgia Institute of Technology. She received her B.S. in Computer Engineering at the University of Maryland Baltimore County, where she was a Meyerhoff Scholar. Dr. Babalola lays the foundational knowledge on mindfulness and takes students through a series of engaging activities.

# **UMBC FRIENDS OF LSAMP**

#### **Meyerhoff Scholars Program Staff**

**Keith Harmon** 

Director, Recruitment and Retention Graduate and Professional School Placement







#### Ivanna Abreu

Program Coordinator, 3rd and 4th Year Academic Advising Professional Development

Mitsue Wiggs Assistant Director, 1st and 2nd Year Academic Advising | Liaison to Academic Departments

#### **McNair Program Staff**

Michael Hunt Program Director



Dr. Antoinette Newsome Program Coordinator

#### Fulbright Fellowship Program Staff



Dr. Brian V. Souders Advisor

Meika Samuel

**Program Specialist** 

**Justine Johnson** Director, STEM BUILD and Associate Director, Meyerhoff Graduate Fellows Program

> Jacqueline King Associate Program Director Associate Director, MARC Program

#### STEM BUILD Program Staff



**U-RISE Program Staff** 



Mary Carole Jorgensen Program Management Specialist

## Fall 2021 Research Fellowship Program



The Research Fellows program offers STEM students at UMBC, UMES, Towson, and 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.

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

Sergio Diaz '23 | Mathematics and Physics | Quantum Computing, Condensed Matter, and Nanoscale Physics | Dr. Jason Kestner | UMBC Juvet Ebai '21 | Biological Sciences | Cancer | Dr. Achuth Padmanabhan | UMBC Aaliyah Khan '21 | Chemistry | Chemically Guided Approach to the Discovery and Design of New Functional Materials | Dr. Joseph Bennett | UMBC Maheder Kore '24 | Biological Sciences | Cell Biology | Dr. Nykia Walker | UMBC Terence Lesigues '23 | Biological Sciences | Chemical Sensory Systems | Dr. Weihong Lin | UMBC Kaiya Meggett '25 | Pre-Chemical Engineering | Genetics | Dr. Jeff Leips | UMBC Tsion Mekonnen '22 | Chemistry | Ligand Binding | Dr. Ana-Maria Soto | Towson Dominique Mary Henriques Melo '22 | Biological Sciences | Behavioral Medicine/Community Psychology | Dr. Beatty Moody | UMBC Kevon-ariel Sonkeng '23 | Computer Engineering | Frequency Measurement | Dr. Curtis Menyuk | UMBC Alexandria Udenkwo '22 | Physics | Quantum Thermodynamics | Dr. Sebastian Deffner | UMBC

<sup>66</sup> The relationship with my the Principal Investigator was the most important relationship to foster for many reasons. For example the health of this relationship defined my day-to-day experience in the lab. If the relationship was not positive, constructive, and educational, time in the lab may just be time wasted. In my experience, I was able to feel that one of my PI's priorities was my development as a researcher and for that I am appreciative.

- Excerpt From A Biological Sciences Major '21 Research Reflection -

## Spring '22 Research Fellowship Program



Research fellows participated in activities aimed 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. Activities included literature reviews, annotated bibliographies, and learned ways to develop a strong foundation of knowledge for when they can return to labs safely. 17 students participated in the program. Students were still able to prepare and submit advisor-approved scientific reports.

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

Iman Adetunji '24 | Computer Science | Cybersecurity | Dr. Charles Nicholas | UMBC Tyler Autrey '24 | Mechanical Engineering | Computational Mechanics | Dr. Meilin Yu | UMBC Daniel Bajulaiye '25 | Information Systems | Human-Centered Computing | Dr. Yaxing Yao | UMBC Noah Diaz Cruz '24 | Biological Sciences and Psychology | Biochemistry | Dr. Aaron Smith | UMBC Zara Freeland '24 | Forensic Chemistry | Nanoscale Functional Materials | Dr. Mary Sajini Devadas | Towson Bethel Ghezai '23 | Biological Sciences and Psychology | Molecular Biology & Genetics | Dr. Jeff Leips | UMBC Rachel Toribio Gonzalez '22 | Biological Sciences | Molecular Biology & Genetics | Dr. Kathleen Cusick | UMBC Makayla Headley '22 | Chemical Engineering | Engineering Education | Dr. Jamie Gurganus | UMBC Terence Lesiques '23 | Biological Sciences | Chemical Sensory Systems | Dr. Weihong Lin | UMBC Ouriel Ndalamba '23 | Chemical Engineering | Toxicological Chemistry | Dr. Lee Blaney | UMBC Marvin Onwukwe '23 | Biological Sciences | Molecular Biology & Genetics | Dr. Jeff Leips | UMBC Emmanuela Otunuga '24 | Biological Sciences and Psychology | Developmental & Immunology | Dr. Charles Bieberich |UMBC Sydney Richter '24 | Biological Sciences | Cell Biology | Dr. Michelle Starz-Gaiano | UMBC Kaylyn Stewart '24 | Chemistry | Toxicological Chemistry | Dr. Lee Blaney | UMBC Chizaram Ugboh '23 | Mechanical Engineering | Thermoelectric Materials| Dr. Deepa Madan | UMBC Diego Iglesias Vega '23 | Chemical Engineering | Toxicological Chemistry | Dr. Lee Blaney | UMBC Zainab Yekini '23 | Information Systems and Economics | Big Data | Dr. Jianwu Wang | UMBC

As I increase my involvement in my research project, I begin to appreciate the knowledge I have acquired over my academic career. Knowledge that I previously thought would be unnecessary began to gain purpose in my head as I used it everyday in the lab. Even topics that I knew would be important in my future career were very abstract. But to my surprise and relief, I was able to apply the concepts earlier than expected as an undergraduate researcher. This turned these abstract ideas and theoretical concepts into a useful tool that made my job possible and easier.

> - Excerpt From A Chemical Engineering Major '23 Research Reflection -

## Summer '22 Research Fellowship Program

49 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 an oral presentation or poster presentation at the 6th Annual USM LSAMP Research Symposium in December 2022. 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.

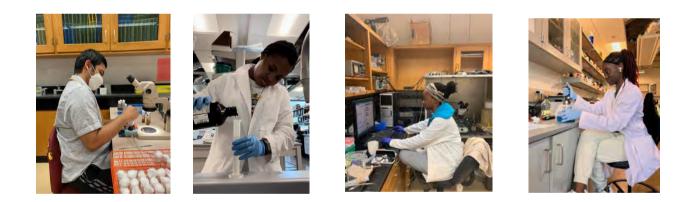


Name and Class | Major |Topic| Faculty Mentor | University Adedolapo Adegbuyi '22 | Computer Science and Mathematics | Nanoscale Functional Materials | Dr. Mary Sajini Devadas | Towson Fairine Ahmed '22 | Biological Sciences | Retroviruses | Dr. Michael Summers | UMBC Victoria Akingbehin '22 | Biological Sciences | Immune Cell Function | Dr. Michelle Snyder | Towson Ashley Amponsem '22 | Biological Sciences | Cellular Processes | Dr. Elana Ehrlich | Towson Shashane Anderson '25 | Pre-Chemical Engineering | Atmospheric Chemistry | Dr. Christopher Hennigan | UMBC Ike Ashiogwu '25 | Computer Science | Cybersecurity | Dr. Blair Taylor | Towson Nwamaka Azinge '24 | Psychology | Autism | Dr. Mirela Cengher | UMBC Daniel Bajulaiye '25 | Information Systems | Data Science | Dr. Yaxing Yao | UMBC Francesca Burton '24 | Biochemistry & Molecular Biology | Brain Development and Function | Dr. Fernando Vonhoff | UMBC Anne-Cecile Evelyne Choutedjem Kamgue Nkamougna '23 | Biological Sciences | Brain Development and Function | Dr. Fernando Vonhoff | UMBC Ahamed Chowdhury '24 | Biological Sciences | Genetics | Dr. Jeff Leips | UMBC Gabriela Cruz '24 | Biological Sciences | Cell Signaling | Dr. Michelle Starz-Gaiano | UMBC Joshua Davis Carpenter '24 | Mathematics | Nonlinear Elasticity | Dr. Justin Webster | UMBC Nadia Eqbunine '22 | Biochemistry & Molecular Biology | Cancer | Dr. Achuth Padmanabhan | UMBC Britney Erickson '23 | Cell/Cellular & Molecular Biology | Immune Cell Function | Dr. Michelle Snyder | Towson Peace Ezeka '22 | Biological Sciences | Proteins | Dr. Erin Green | UMBC Kelvin Fadojutimi '23 | Biochemistry & Molecular Biology | Retroviruses | Dr. Michael Summers | UMBC Zara Freeland '24 | Chemistry | Nanoscale Functional Materials | Dr. Mary Sajini Devadas | Towson Tiffany Frimpong '22 | Biological Sciences | Chemical Sensory Systems | Dr. Weihong Lin | UMBC Rachel Toribio Gonzalez '22 | Biological Sciences | Algal Blooms | Dr. Kathleen Cusick | UMBC Makayla Headley '22 | Chemical Engineering | Analytical Chemistry | Dr. Jamie Gurganus | UMBC Terence Lesigues '23 | Biological Sciences | Chemical Sensory Systems | Dr. Weihong Lin | UMBC Areli Morales Hernandez '23 | Computer Science | Software Safety/Reliability | Dr. Joshua Dehlinger | Towson Junela Cecille Hunat '24 | Psychology | Behavioral Medicine/Community Psychology | Dr. Erin Harberts | Towson Kamden Iverson '25 | Biological Sciences | Cancer | Dr. Achuth Padmanabhan | UMBC Michel Kane-Jackson '24 | Biological Sciences | Proteins | Dr. Erin Harberts | Towson Madji Lodoumgoto '24 | Translational Life Science Technology | Translational Life Science | Dr. Manik Ghosh | UMBC Kate Magante '25 | Biological Sciences | Cancer Biology | Dr. Aaron Smith | UMBC Bianca Lamptey-Mills '24 | Biological Sciences | Chemical Sensory Systems | Dr. Weihong Lin | UMBC

## Summer '22 Research Fellowship Program

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

Madison McLaren '23 | Chemical Engineering | Environmental Engineering | Dr. Christopher Hennigan | UMBC Bukola Molake '22 | Biological Sciences | Evolutionary Biology | Dr. Kevin Omland | UMBC Arian Nyandjo '24 | Biological Sciences | Molecular Biology | Dr. Rachel Brewster | UMBC Anulichi Okorie '23 | Translational Life Science Technology | Translational Life Science | Dr. Manik Ghosh | UMBC Esosa Omorogbe '22 | Environmental Sciences | Climate Change | Dr. Elana Ehrlich | Towson Ose Oniha '25 | Pre-Computer Science | Machine Learning | Dr. Yaxing Yao | UMBC Daisy Parry '22 | Biological Sciences | Cell Biology | Dr. Michelle Starz-Gaiano | UMBC Taylor Pettaway '22 | Information Technology | Cybersecurity | Dr. Rajeswari Kolagani | Towson Natalie Piltoyan '22 | Physics | Condensed Matter Physics | Dr. Mark Henriksen | UMBC Zaid Qureshi '24 | Biological Sciences | Materials Science | Dr. Mary Sajini Devadas | UMBC Ergine Remy '23 | Biological Sciences | Developmental Psychology | Dr. Charissa Cheah | UMBC Sydney Richter '24 | Biological Sciences | Cell Signaling | Dr. Michelle Starz-Gaiano | UMBC Taylor Scott '24 | Biological Sciences | Protein Biochemistry | Dr. Erin Green | UMBC Desmond Smith ' | Chemistry | Nanomaterials | Dr. Mary Sajini Devadas | Towson Sean Starkloff '24 | Biological Sciences | Chemical Sensory Systems | Dr. Weihong Lin | UMBC Niki Stonestreet '24 | Biochemistry & Molecular Biology | Virology | Dr. Michael Summers | UMBC Ayeoritse Tuedon '24 | Biological Sciences | Tissue Engineering | Dr. Erin Lavik | UMBC Bianca Turcios Reyes '23 | Translational Life Science Technology | Cancer Biology | Dr. Manik Ghosh | UMBC Yasmine Ward '25 | Biochemistry & Molecular Biology | Cancer Biology | Dr. Achuth Padmanabhan | UMBC Gerald Watson II '24 | Computer Science | Artificial Intelligence | Dr. Tim Oates | UMBC



66 My research has helped me develop my critical, inventive, and problem-solving thinking skills. Without research, I would not have learned how to think in the way that I do. Throughout my research experience I was able to learn more about myself everyday. For example, while I consider myself an independent learner, I occasionally become too stubborn to accept when I need assistance. Asking an expert like my mentor to explain something can sometimes be more effective. Since I am aware of this, I have attempted to learn how to spot when I am having trouble figuring out a new assignment and when I should ask for help in order to get the rest of my work done.

> - Excerpt From A Biological Sciences Major '23 Research Reflection -

## Fall 2022 Research Fellowship Program



Name and Class | Major |Topic| Faculty Mentor | University Daniel Bajulaiye '25 | Information Systems | Human-Centered Computing | Dr. Yaxing Yao | UMBC Safiatou Coulibaly '24 | Information Systems | Informatics for Human Flourishing| Dr. Karen Chen | UMBC Matthew Makila '24 | Computer Science | Brain-Machine Interface | Dr. Ramana Vinjamuri | UMBC Diego Iglesias Vega '23 | Chemical Engineering | Toxicological Chemistry | Dr. Lee Blaney | UMBC

I am currently enrolled in a machine learning course where we are developing basic training models to teach computers to classify and predict dependent variables given sets of data. In my research lab, we are planning to employ machine learning algorithms via the NVIDIA Jetson Nano device to interface with our robot and teach it how to identify emotions from EEG/EMG data. The application of what we are learning in class has sparked my interest in the capabilities of machine learning even more.

- Excerpt From A Computer Science Major '24 Research Reflection -

# **LSAMP FACULTY RESEARCH MENTORS**

**College of Natural and Mathematical Sciences (CNMS)** 



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

Dr. Joseph Bennett | Assistant Professor | Chemistry & Biochemistry | Modern Chemistry | UMBC Dr. Charles Bieberich | Professor | Biological Sciences | Human Prostate Cancer | UMBC Dr. Rachel Brewster | Professor | Biological Sciences | Molecular Biology | UMBC Dr. Chengpeng Chen | Assistant Professor | Chemistry & Biochemistry | Analytical Chemistry | UMBC Dr. Kathleen Cusick | Assistant Professor | Biological Sciences | Algal Blooms | UMBC Dr. Sebastian Deffner | Associate Professor | Physics | Quantum Thermodynamics |UMBC Dr. Manik Ghosh | Lecturer | Translational Life Science and Technology | Translational Life Science | UMBC, Universities at Shady Grove Dr. Erin Green | Associate Professor | Biological Sciences | Proteins | UMBC Dr. Mark Henriksen | Associate Professor | Physics | Condensed Matter Physics | UMBC Dr. Lisa Jones | Associate Professor | Biological Sciences | Protein Foot Printing | UMBC Dr. Jeff Leips | Professor | Biological Sciences | Genetics | UMBC Dr. Weihong Lin | Professor | Biological Sciences | Chemical Sensory Systems |UMBC Dr. Beatty Moody | Associate Professor | Psychology | Behavioral Medicine/Community Psychology | UMBC Dr. Kevin Omland | Professor | Biological Sciences | Evolutionary Biology | UMBC Dr. Achuth Padmanabhan | Assistant Professor | Biological Sciences | Cancer | UMBC Dr. Aaron Smith | Assistant Professor | Chemistry and Biochemistry | Structural Biology | UMBC Dr. Michelle Starz-Gaiano | Professor | Biological Sciences | Cell Signaling | UMBC Dr. Michael Summers | Professor | Chemistry & Biochemistry | Retroviruses | UMBC Dr. Fernando Vonhoff | Assistant Professor | Biological Sciences | Brain Development and Function | UMBC Dr. Nykia Walker | Assistant Professor | Biological Sciences | Cell Biology | UMBC Dr. Justin Webster | Assistant Professor | Mathematics and Statistics | Nonlinear Elasticity | UMBC

66

I have learned that I thrive under a collaborative environment where I can discuss questions and concerns with my peers. Whenever I am confused about the results on a gel, I turn to my lab partners for help. We sit down and I explain my confusion about the conclusions I can draw from the gel and they help me bounce ideas back and forth. Through this, I am able to view the results from multiple perspectives and come up with possible future directions.

> - Excerpt From A Biochemistry and Molecular Biology Major '24 Research Reflection -

# LSAMP FACULTY RESEARCH MENTORS

**College of Engineering and Information Technology (COEIT)** 



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

Dr. Lee Blaney | Professor | Chemical, Biochemical, and Environmental Engineering | Toxicological Chemistry | UMBC Dr. Karen Chen | Assistant Professor | Information Systems | Informatics for Human Flourishing | UMBC Dr. Jamie Gurganus | Lecturer and Director | Mechanical Engineering | Engineering and Design Education | UMBC Dr. Christopher Hennigan | Associate Professor | Chemical, Biochemical, and Environmental Engineering | Atmospheric Chemistry | UMBC

Dr. Deepa Madan | Assistant Professor | Mechanical Engineering | Thermoelectric Materials | UMBC Dr. Curtis Menyuk | Professor | Computer Science and Electrical Engineering | Frequency Measurement | UMBC Dr. Deepa Madan | Assistant Professor | Mechanical Engineering | Thermoelectric Materials | UMBC Dr. Charles Nicholas | Professor | Computer Science & Electrical Engineering | Cybersecurity | UMBC Dr. Tim Oates | Professor | Computer Science & Electrical Engineering | Artificial Intelligence | UMBC Dr. Ramana Vinjamuri | Assistant Professor | Computer Science & Electrical Engineering | Brain-Machine Interfaces | UMBC Dr. Jianwu Wang | Assistant Professor | Information Systems | Big Data Analytics | UMBC Dr. Yaxing Yao | Assistant Professor | Information Systems | Human-Computer Interaction | UMBC Dr. Meilin Yu | Associate Professor | Mechanical Engineering | Computational Mechanics | UMBC

66

One thing I've become increasingly grateful for when it come to LSAMP is their effort in connecting me with a faculty member that cares about me. I'm so appreciative to finally have a mentor figure during my college career, and I couldn't have asked for a more guiding mentor. My mentor has encouraged me as a student researcher and as a prospective graduate student. We have had several meetings to discuss graduate school, and he has offered to help guide me through the application process. This type of encouragement is something I've really needed throughout college, and I'm grateful to finally have it.

> - Excerpt From A Chemical Engineering Major '24 Research Reflection -

# LSAMP FACULTY RESEARCH MENTORS

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

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

Dr. Mirela Cengher | Assistant Professor | Psychology | Autism | UMBC Dr. Charissa Cheah | Professor | Psychology | Developmental Psychology | UMBC

#### Faculty from Towson University

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

Dr. Josh Dehlinger | Assistant Professor | Computer Science | Software Safety & Reliability | Towson Dr. Mary Sajini Devadas | Assistant Professor | Chemistry | Nanoscale Functional Materials | Towson Dr. Elana Ehrlich | Associate Professor | Biological Sciences | Cellular Processes | Towson Dr. Erin Harberts | Assistant Professor | Biological Sciences | Immunology | Towson Dr. Rajeswari Kolagani | Professor | Physics | Materials Physics | Towson Dr. Jinie Pak | Associate Professor | Computer & Information Sciences | Deception Detection Techniques | Towson Dr. John Sivey | Associate Professor | Chemistry | Environmental Organic Chemistry | Towson Dr. Michelle Snyder | Associate Professor | Biological Sciences | Immune Cell Function | Towson Dr. Blair Taylor | Associate Professor | Computer and Information Sciences | Cybersecurity | Towson Dr. Ana-Maria Soto | Associate Professor | Chemistry | Ligand Binding | Towson





With my lab experience, I came in thinking I would be following instructions verbatim along with a slower working environment; however, I am enlightened to find a more welcoming, hospitable, and family-like experience. Because of this lab experience, I've found a family that helps whenever I'm stuck or confused on a task and encourages me to do my best even when I'm feeling low.

- Excerpt From A Biochemistry and Molecular Biology Major '25 Research Reflection -



**Dr. Erin Lavik (pictured above)** is an Professor and Associate Dean for Research and Faculty Development in the College of Engineering and information Technology. Her research team combines polymer synthesis and processing, drug delivery, and stem cell biology in pursuit of new approaches to therapy. Each year, Dr. Lavik welcomes LSAMP Research Fellows into her lab hosting 8 scholars since 2018. Aye Tuedon '25 states, "Dr. Lavik is a great mentor who is genuinely interested in the advancement of each student under her guidance. She has taught me to never underestimate myself and is always supportive of my research journey."

# FACULTY SPOTLIGHT

### From the entire UMBC LSAMP Community, we thank Dr. Erin Lavik and Dr. Weihong Lin for their continued support.

Dr. Weihong Lin (pictured below) is an Professor in the Department of Biological Sciences. Dr. Lin's research projects focus on understanding the neurobiological aspects of chemical sensory systems in the nose, specifically mechanisms of sensory detection and functional maintenance.. Over the years, Dr. Lin hosted 10 LSAMP Research Fellows. Bianca Lamptey-Mills '23 states, "Dr. Lin is very open, compassionate and knowledgeable. She gives the undergraduates a lot of flexibility and independence in her lab, and I feel like that is what has helped me most as a researcher. Dr. Lin wants us to learn how to create plans, be punctual and organize things independently. I have learned to grow my skills as a scientist tremendously. "





# GRADUATING SENIORS Class of 2022

#### Olorunjuwon Ajayi

•Computer Engineering PhD/Gem Fellow, NC State



#### Stephanie Akanoh

Biochemistry/Molecular Biology Laboratory Technician, Johns Hopkins University

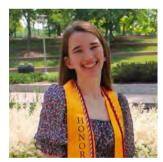


Biochemistry/Molecular Biology PhD, Drexel



**Bethel Beyene** Biological Sciences Laboratory Technician, Howard Hughes Medical Institute Maria Bieberich Biological Sciences PhD, John Hopkins University School of Medicine





**Justin Damon** Chemical Engineering *PhD, Georgia Institute of Technology* 



**Evan Carlyle** Biochemistry/Molecular Biology Research Assistant, Johns Hopkins Medicine



Ridhi Chaudhary

Biological Sciences IRTA Fellow, NIAID





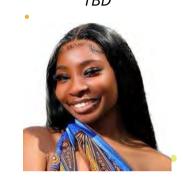
#### Juvet Ebai

Biological Sciences
Associate Scientist, Emergent BioSolutions

#### Peace Ezeka Biological Sciences TBD

Janae Gordon Psychology & Biological Sciences TBD





#### **Erin Hamner** Geography & Environmental Systems *Master's Degree, UMBC*

#### **Murari Harish** Biochemistry and Molecular Biology *TBD*





#### **Andrew Hennigan**

Biological Sciences & Psychology PhD, Indiana University School of Medicine



Malika Hiyam

Modern Languages and Linguistics *MD, TBD* 



**David Horsey** Biological Sciences PhD, John Hopkins University School of Medicine

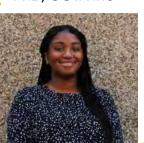


**Erick Kengni** Computer Science & Mathematics Software Engineer, Google



#### Nneamaka Iwobi

**Biological Sciences** PhD, UC Irvine



Kendall Jackson Mechanical Engineering TBD



**Aaliyah Khan** Chemistry PhD, University of Pennsylvania

Niambi Klugh Public Health TRD





**Kaitlynn Lilly** Physics & Mathematics PhD, University of Washington



**Fanny Morfin-Reyes Biochemistry & Molecular Biology** TBD



**Favour Nwagugo Biologcial Sciences** IRTA Fellow, NCI



#### Chelsea Okeh

Biological Sciences Post Bac, University of Pennsylvania School of Medicine

#### Chimalay Okeke

Biologcial Sciences

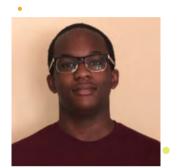
#### Mawuyon Okesola

Biological Sciences Manufacturing Associate, Catalent



### Victor Omokehinde

Biological Sciences Post Bac, NIH NCI



. Anu Osunnuyi Informations Systems Masters, Georgia Institute of Technology





Adeola Oyeyinka Biological Sciences TBD





**Crystal Parry** 

Researcher, Ocean State Research Institute

**Biological Sciences** 





**Kelsey Person** 

**Biological Sciences** 

PhD, University of Minnesota

#### **Kennedy Person**

Biology • •



**Leelee Sands Biochemistry & Molecular Biology** IRTA Fellow, NIDA



**Chinyere Sloley** Computer Science - Cybersecurity

MS/Gem Fellow, UMBC



### Isai Ramirez Gonzalez

**Biological Sciences** PhD, University of Minnesota Research Coordinator, John Hopkins



**Thomas Southerland Financial Economics** CLDP Analyst, JPMorgan Chase & Co.



**Aris Stovall Biology/Biological Sciences** Masters, Johns Hopkins Bloomberg School of Public Health



#### **Joshua Richards**

Physics PhD, Atmospheric Physics, UMBC



**Rachel Toribio Gonzalez** 

**Biological Sciences** TBD



**Arjun Trivedi** Mechanical Engineering RAPL



**Sharath Velliyamattam** 

Biology/Biological Sciences

#### Alexandria Udenkwo

Physics PhD, Washington University in St. Louis



**Jalaysia Weems** Biochemistry PhD, Emory University





**Brandon Wilson Computer Science** GA & Data Fellow, UMBC & Justice Innovation Lab



**Frances Watson** 

Computer Science Medical Scribe, ScribeAmerica • MS, University of Southern California



**Rianna Zacharias** Biology NIH IRTA Postbac, NINDS



## **UMBC LSAMP STAFF**



**Sunji Jangha** Program Director



#### Peter DeCrescenzo

Assistant Director





### **Janerra Allen** Graduate Assistant

### UMBC LSAMP

1000 Hilltop Circle, Math/Psychology 007 Baltimore MD 21250 410-455-6763 | Isamp@umbc.edu Isamp.umbc.edu





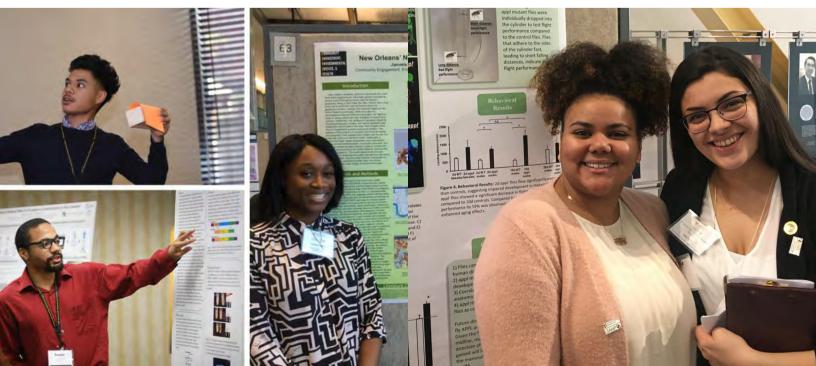
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