

EDUCATION

Ph.D., Systems Engineering

University of Virginia, Charlottesville, VA
Anticipated May 2024

B.S., Civil Engineering

University of Maryland, College Park, MD
Received Dec. 2017

RESEARCH EXPERIENCE

Doctoral Researcher | *Hydroinformatics Research Group* | University of Virginia **Aug. 2018 – Present**

Dissertation: “Quantifying Inequitable Impacts of Dam Failures on Socially Marginalized Communities”

- Spearheaded 5 research projects over the past 5 years focusing on inequality in civil infrastructure systems
- Produced static and interactive data visualizations showcasing housing, flood risk, and social disparities
- Presented research at 10+ national conferences, government organizations, & academic institutions
- Managed and analyzed datasets up to 5 GB, leveraging skills in R, ArcGIS Pro, Excel, and Tableau
- Advised 2 research groups in collecting and analyzing spatial data to identify social injustices
- Participated in 10 advanced workshops, honing skills in grant writing, public speaking, and data analysis

HONORS & AWARDS

Open Access Award | Health Policy Research Scholars | Robert Wood Johnson Foundation **Oct. 2023**

Granted \$2,500 to publish open access manuscript in the J. of Water Resources Planning & Management

Travel Scholarship | Deep South Center for Environmental Justice **Sept. 2023**

Received \$2,000 for registration, travel, and lodging to present as a panelist at the 9th Annual HBCU Climate Change Conference

Dissertation Award | Health Policy Research Scholars | Robert Wood Johnson Foundation **Sept. 2023**

Granted \$6,500 to purchase equipment and consulting services for dissertation research

Conference Travel Award | Health Policy Research Scholars | Robert Wood Johnson Fdn. **June. 2023**

Received \$1,500 for registration, travel, and lodging to present at the American Public Health Association’s Annual Meeting and Expo

Elinor Ostrom Fellowship | The Mercatus Center | George Mason University **Jun. 2023**

Awarded \$3,500 based on outstanding academic experiences and ability to significantly contribute to the political economy field

DEI Professional Development Scholarship | American Water Resources Association **May 2023**

Selected to receive waived publication fees and conference travel funding for ability to bring underrepresented perspectives to the water resources field

NSF GRFP Awardee Recognition | University of Virginia | School of Engr. & Applied Sci. **May 2023**

Received \$5,000 for being awarded the prestigious and highly competitive Graduate Research Fellowship from the National Science Foundation

John Fitzpatrick Scholarship | Technology Concepts Group International **May 2023**
Awarded \$10,000 in recognition of academic accomplishments in the computing field

Ansys/SWE Scholarship | Society of Women Engineers **Apr. 2023**
Awarded \$6,000 for demonstrating outstanding academic achievement and strong engineering potential

Black Engineers Scholarship | The Minority White Coat Foundation **Mar. 2023**
Awarded \$500 in recognition of educational efforts in the engineering field as a Black doctoral student

AIM-AHEAD Fellow | National Institutes of Health **Nov. 2022**
Received \$5,000 for professional development on equitable applications of AI in healthcare systems

High Performance Computing Certificate | Oak Ridge National Laboratory **Nov. 2022**
Completed self-guided coding challenges that covered parallel programming and GPU programming topics

Dissertation Institute Fellow | Univ. of Texas, Dallas | School of Engr. & CompSci **Jun. 2022**
Awarded \$500 travel stipend to attend week-long training on dissertation proposal and defense writing

NCWIT Collegiate Award Finalist | Aspirations in Computing **Dec. 2021**
One of 80 students nationwide recognized for technical contributions to a research project that demonstrates a high level of innovation and potential impact

National Science Foundation Travel Grant | National GEM Consortium **Jul. 2021**
Received \$800 for registration, travel, lodging, and meal expenses in order to attend and present at the 2021 GEM Annual Board Meeting & Conference

William Averette (Bill) Anderson Fund Fellow **Sept. 2021**
One of 20 students selected to receive professional development support as an underrepresented minority in the hazard and disaster mitigation field

Intel Computational & Data Science Fellowship | Association for Computing Machinery's Special Interest Group on High Performance Computing (ACM SIGHPC) **Jul. 2020**
Received international fellowship that provides a renewable \$15,000 cash stipend and full travel support to attend 2020 Supercomputing Conference for having innovative research contributions to data science and leadership capabilities that encourage diversity in computing

Health Policy Research Scholar | Robert Wood Johnson Foundation **Jun. 2020**
Finalist
One of 60 applicants out of 345 and only graduate student from the state of Virginia to receive renewable \$30,000 stipend and annual health policy development training in recognition for conducting research that will advance health equity for marginalized communities

Semifinalist **Apr. 2020**

Selected to be interviewed by members of national advisory committee after advancing to next stage of national application process

Graduate Research Fellow | National Science Foundation **Apr. 2020**

Only student in department to receive highly competitive award that provides full funding for three years in recognition for achieving high levels of academic and professional career success in STEM research

Raven Society Fellow | University of Virginia **Mar. 2020**

Selected to be a member of the University of Virginia's oldest and most prestigious honor society in recognition for academic and scholarly excellence

Distinguished Speaker | Univ. of Virginia | Dept. of Engineering Systems & Environment **Mar. 2020**

One of 3 students selected by Graduate Student Council to present research at department seminar series

GEM Associate Fellowship | National GEM Consortium **Jun. 2018**

Received recognition for securing guaranteed full funding at the University of Virginia as an underrepresented minority Ph.D. student in engineering

Dean's Scholar Fellowship | University of Virginia | School of Engr. & Applied Science **Feb. 2018**

One of 10 students awarded two years of full funding and travel stipend for potential to bring additional dimensions of diversity to the university's research and teaching mission

ACADEMIC SERVICE & LEADERSHIP

Guest Lecturer | Engineering Equity and Justice (CESI 599) | University of Washington **Apr. 2023**

Solicited to educate civil engineering graduate students about water infrastructure inequality

Respondent | Los Angeles County Department of Public Works **Dec. 2022**

Interviewed for engineering expertise and knowledge on physical infrastructure equity

Guest Lecturer | Hydroinformatics (CE 6290) | University of Virginia **Oct. 2022**

Presented expertise on data collection and data visualization practices

Co-Chair | Programming Committee | Bill Anderson Fund **Jan. 2022 – Sept. 2022**

Lead committee in creating, organizing, and executing professional development webinars for fellows

Panelist | *Graduate Writing Lab* | University of Virginia **Jun. 2022**

Invited to present innovative reference management software that will make writing for graduate students more accessible and practical

Mentor | *Hydroinformatics Group* | University of Virginia **Jan. 2022 – May 2022**

Advised undergraduate student on using spatial data analysis to display locations of socially marginalized groups in Norfolk, VA for research on coastal adaptation

Co-Founder | *Commune* | Repair Lab | University of Virginia **Dec. 2021 – Apr. 2022**

Received money for, organized, and executed interdisciplinary dialogue series that encourages students and junior researchers at the University to share and discuss how their work addresses environmental injustices

Panelist | *Graduate Writing Lab* | University of Virginia **Mar. 2022**

Invited by director of the Graduate Writing Lab to share advice on applying for and successfully receiving fellowships to other graduate students in the School of Engineering and Applied Sciences

Reviewer | *Journal of Hydrology* **Feb. 2022**

Requested by associate editor to review and provide feedback on a manuscript submitted for publication

Panelist | *Engineering Social Justice Workshop Series* | University of Virginia **Nov. 2021**

Invited by workshop instructors to share experience as an engineering student who incorporates social justice in academic research

Co-President | *Shades of Sisterhood* | University of Virginia **Sept. 2019 – Feb. 2020**

Received funding from University's Office of Graduate and Postdoctoral Affairs to plan social development events that provide emotional support and community for Black female graduate students

Panelist | *Office of Graduate and Postdoctoral Affairs* | University of Virginia

Invited to speak on experience as a woman of color in STEM, encouraging STEM undergraduate students to pursue graduate school

5th Annual Commonwealth Graduate Education Day **Nov. 2019**

Virginia-North Carolina Alliance for Minority Participation Summer Research Program **Jul. 2019**

Diversity in Engineering Campus Visitation Program **Sept. 2018**

Mentor | *Louis Stokes Alliance for Minority Participation* | University of Virginia **Jun. 2019 – Jul. 2019**

Advised undergraduate student on obtaining opportunities that advanced their future career in virtual reality and their civil engineering research for a national conference

Office of Facilities Liaison | *Graduate Student Council* | University of Virginia **Apr. 2019 – Aug. 2019**

Coordinated with facilities management to strategically redesign and execute layout of renovated office space for incoming civil and systems engineering graduate students

Student Recruiter | University of Virginia | School of Engr. & Applied Science Graduate Admissions

Solicited and funded to recruit engineering and computer science students at national conferences:

National GEM Consortium – Chicago, Illinois **Sept. 2019**

National Society of Black Engineers Annual Convention – Detroit, Michigan **Mar. 2019**

National GEM Consortium – Los Angeles, California **Sept. 2018**

Judge | University of Virginia | Systems & Information Design Symposium **Apr. 2019**

One of 4 students solicited to evaluate and award research projects of undergraduate and graduate students in systems engineering

Engineering Researcher | *Science Policy Initiative* | University of Virginia **Mar. 2019 – Dec. 2019**

Reviewed national and global evidence-based energy regulations to help write report that will inform policy for improving low-income housing conditions in Charlottesville, VA

PRESENTATIONS

Conferences:

“Flood Exposure & Housing Segregation: A Case Study in Birmingham, AL,” panel presentation Deep South Center for Environmental Justice’s HBCU Climate Change Conference, New Orleans (Oct. 2023)

“Was FEMA Assistance Equitable After the 2015 South Carolina Dam Failures?,” poster presentation at Dam Safety Conference, Palm Springs, CA (Sept. 2023)

“Was FEMA Assistance Equitable After the 2015 South Carolina Dam Failures?,” poster and panel presentations at the Natural Hazards Center Workshop, Broomfield, Colorado (Jul. 2023)

“Identifying Marginalized Populations Near Deficient High-Hazard Dams,” oral presentation at Graduate Water Symposium, Global Water Initiative, University of Virginia, Charlottesville, VA (Nov. 2021)

“Identifying Marginalized Populations Near Deficient High-Hazard Dams,” oral presentation at the GEM Annual Board Meeting and Conference, Houston, Texas (Sept. 2021)

“Detecting Residential Urban Decay for Equity Evaluation,” oral presentation for Diversifying Scholarship Conference, University of Virginia, Charlottesville, VA (Feb. 2020)

“Classifying Urban Decay in Housing,” poster presentation at the GEM Annual Board Meeting and Conference, Chicago, Illinois (Sept. 2019)

Invited Talks:

“[DAMaged](#),” virtual plenary video speech for 47th Annual Natural Hazard Workshop, (Jul. 2022)

“Identifying Marginalized Populations Near Deficient High-Hazard Dams,” oral presentation for the Democracy Initiative’s Repair Lab, University of Virginia, Charlottesville, VA (Feb. 2022)

“Identifying Marginalized Populations Near Deficient High-Hazard Dams,” virtual oral presentation for Cloud to Street Research and Development Team (Nov. 2021)

“Detecting Residential Urban Decay for Equity Evaluation,” oral presentation for Department of Engineering Systems and Environment, University of Virginia, Charlottesville, VA (Mar. 2020)

“Detecting Residential Urban Decay for Equity Evaluation,” oral presentation for Charlottesville Public Works and Charlottesville Office of Economic Development, Charlottesville, VA (Nov. 2019)

“Housing Inequality,” oral presentation for Convergent Behavioral Science Initiative, University of Virginia, Charlottesville, VA (Mar. 2019)

PUBLICATIONS

Under Review:

Horne, Ciara, “Dam Disaster Disparity: A Case Study Analysis of FEMA NFIP Assistance,” submitted to *Journal of Water Resources Planning & Management*

INTERNSHIPS

Geographical Information Systems (GIS) Intern **Jun. 2019 – Aug. 2019**
Inequality in Urban Regions | University of Virginia

Used ArcGIS to digitize late-19th century maps and obtain geographical data that revealed unjust housing regulations imposed on Black neighborhoods in Charlottesville, VA

Virtual Reality Intern **Jun. 2019 – Aug. 2019**
Scholars' Lab | University of Virginia

Created comprehensible guide on 3D data scanning and processing for novice digital humanities researchers

Cultural Heritage Informatics Intern **Jan. 2019 – May 2019**
Department of Architectural History | University of Virginia

3D-scanned artifacts, buildings, and bridges to make historic data tangible for virtual reality uses within the University of Virginia and the Virginia Department of Transportation

UNDERGRADUATE RESEARCH EXPERIENCE

Undergraduate Researcher | University of Maryland **Sept. 2017 – Dec. 2017**
Smart Urban Infrastructure Group

Advisor: Brian Phillips, Ph.D., Department of Civil Engineering

Investigated simulations of fatigue-control devices to study different methods of preserving the structural health of multistory buildings

Undergraduate Researcher | University of Maryland **Jan. 2017 – May 2017**
The Bridge Engineering Software & Technology Center

Advisor: Chung Fu, Ph.D., Department of Civil Engineering

Revised 60-page report for Maryland Department of Transportation to improve clarity of data findings on fatigue design analysis of traffic light poles

UNDERGRADUATE HONORS & AWARDS

Dean's List | University of Maryland | A. James Clark School of Engineering **Dec. 2014 – Dec. 2017**

Awarded 4 semester academic honors for earning GPA of 3.5 or higher while taking 12 or more credits

Academic Honors | Univ. of Maryland | Center for Minorities in Sci. & Engr. **Apr. 2017 & Apr. 2016**

Recognized for high academic achievement in engineering as an underrepresented minority student

University Honors Program Citation | University of Maryland | Honors College **Nov. 2016**

Awarded academic distinction for completing more than 16 Honors College credits while also maintaining a cumulative GPA over 3.2

Distinguished Service Award | Univ. of Maryland | Center for Minorities in Sci. & Engr. **Apr. 2015**

Recognized for exemplary dedication to conducting STEM outreach and retention efforts for underrepresented minority students

UNDERGRADUATE SERVICE & LEADERSHIP

Instructor | *Center for Minorities in Science & Engineering* | University of Maryland

Led interactive workshops to encourage underrepresented minority precollege students to simulate engineering design and applications using household items

Extracting Strawberry DNA – Center for Minorities in Science & Engineering STEM Expo **Apr. 2017**

Building a Balloon Rocket Car – Kenmoor Middle School **Apr. 2015**

Constructing a Robotic Arm – Center for Minorities in Science & Engineering STEM Expo **Apr. 2015**

Chair | *Louis Stokes Alliance for Minority Participation* | University of Maryland **Jan. 2017 – Dec. 2017**

Facilitated biweekly committee meetings to propose, plan, and promote social and academic development events that would host more than 30 underrepresented undergraduate students in STEM

Panelist | Office of Letters and Sciences | University of Maryland **Mar. 2016 & Apr. 2015**

Invited by program coordinator to share with recently admitted undergraduate students on how to successfully transition into a STEM major

Instructor | *Berwyn Heights Elementary* | Berwyn Heights, MD **Sept. 2015 – Nov. 2015**

Created biweekly lesson plans for underrepresented minority girls to introduce them to coding and help them build and program a robot that could complete an obstacle course

UNDERGRADUATE PRESENTATIONS

“Nuclear, Security, & Environmental Intern Report Out,” oral presentation for hiring and project managers of Bechtel Corporation, Richland, WA (Aug. 2017)

“I-695 Bridge Construction Experience Pt. 2,” oral presentation for district project engineers of Maryland State Highway Administration, Hunt Valley, MD (Aug. 2016)

“I-695 Bridge Construction Experience,” oral presentation for district project engineers of Maryland State Highway Administration, Hunt Valley, MD (Aug. 2015)

UNDERGRADUATE INTERNSHIPS

Civil Engineering Intern

Jan. 2018 – Aug. 2018

RMF Engineering | Baltimore, MD

Developed utility and site design plans to guide construction processes of university and research facilities that were to be built or expanded

Structural Engineering Intern

Jun. 2017 – Aug. 2017

Bechtel Corporation | Richland, WA

Investigated and resolved design errors to ensure the structural integrity of three newly-built treatment facilities that would remove nuclear waste left in Hanford, Washington after World War II

Transportation Engineering Intern

Jun. 2016 – Aug. 2016

Maryland State Highway Administration | Baltimore, MD

Jun. 2015 – Aug. 2015

Performed specialized soil analyses to prevent environmental and structural hazards on construction site, and implemented examinations on two Maryland bridges to locate indicators of structural failure