Aaleyah Lewis

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EDUCATION

Doctor of Philosophy, Computer Science and Engineering — Expected Graduation Date: June 2027
University of Washington
Coursework: Human-Computer Interaction, Artificial Intelligence

Bachelor of Science, Computer Science; Minor: Psychology — Graduated: May 2021
University of Maryland, Baltimore County (UMBC)
Graduated with Honors
Merit Scholar, McNair Scholar, LSAMP Scholar, CWIT Affiliate

RESEARCH EXPERIENCES

Research Interest: Human-Computer Interaction, Accessibility, Fabrication, Inclusive Design

Oak Ridge National Laboratory, *GEM Fellow* — June 2021 – August 2021
Skills/Tools: JavaScript/React, Elasticsearch

- Developed web application using JavaScript/React to assist cyber analysts in detecting anomalous behaviors on machines
- Implemented interactive data visualizations (i.e., treemap, collapsible tree) with filtering systems using JavaScript

Stanford University, *Summer Undergraduate Research Fellow* — June 2020 – August 2020
Stanford Ocean Acidification Experience
Skills/Tools: Python (Pandas, NumPy)

- Created python program to calculate and collectively summarize tracking data (i.e. head translation, hand translation) of participants during VR experience
- Generated python script to organize summarized tracking data in order to enable easy access

University of Maryland, Baltimore County, *Research Assistant* — Sept 2019 – Dec 2019
Sleep Analytics by Analyzing Leg Movements During Sleep
Skills/Tools: Python (Pandas, NumPy), Jupyter Notebook

- Used Python to collect and analyze physiological data (i.e. Blood Volume Pulse, Heart Rate, Accelerometer)
- Used Python to generate graphs that plotted distribution of physiological data
- Designed and implemented algorithm that calculated root mean square (RMS) of physiological data

Cornell University, *LSAMP Research Scholar* — June 2019 – August 2019
Leveraging Big Data to Mediate Online Conflicts
Skills/Tools: Python (Pandas, NumPy), Jupyter Notebook

- Developed a chrome extension to mediate conflicts on Reddit using JavaScript and Python
- Detected nuances in language indicative of conflict on Reddit using Natural Language Processing
- Generated and analyzed toxicity scores for comments on Reddit to identify monotonic trends of toxicity within conversations

WORK EXPERIENCES

UMBC, *Resident Assistant* August 2019 – May 2021

- Supervised a university apartment complex of 30+ undergraduate students
- Organized monthly events to enhance the social, educational, community and personal development of residents
- Enforced University and Residential Life rules and regulations resulting in a safe and orderly living environment

SYMPOSIA & WORKSHOPS

2022 Using Fiber Arts and Sonification to Improve Data Accessibility of Maker Spaces
Aashaka Desai, Venkatesh Potluri, ***Aaleyah Lewis****, Jayne Everson, Jennifer Mankoff, Richard E. Ladner. Reimagining Systems for Learning Hands-On Creative and Maker Skills (CHI 2022)*

2021 Developing Interactive Tool to Assist Cyber Analysts in Detecting Anomalous Behavior on Machines *Aaleyah Lewis*
ORNL Research Symposium

2020 Virtual Reality in Environmental Education: Investigating the Efficacy of VR as an Educational Tool for Ocean Acidification *Aaleyah Lewis* *Stanford University*
SURF Research Symposium

2020 Conflict Mediation at Scale: Leveraging Big Data to Mediate Online Conflicts *Aaleyah Lewis* *Undergraduate Research and Creative Achievement Day (URCAD)*

INVITED TALKS

BlackcomputeHER Conference 2019

- The BlackcomputeHER Conference is dedicated to supporting Black women in pursuing careers in technology. As a featured panelist, I spoke about my experience being a Black woman in STEM as well as an undergraduate researcher to encourage young girls to get involved in computing.

Louis Stokes Alliances for Minority Participation Summer Bridging Conference 2018, 2020

- As a featured panelist for the LSAMP Summer Bridging Conference, I spoke with incoming freshmen on how to successfully navigate their upcoming academic journeys.

SCHOLARSHIPS & AWARDS

College of Engineering Dean's Fellowship 2021
GEM Fellowship 2021
ARCS Foundation Fellowship 2021
Paul G. Allen Departmental Fellowship 2021
Lockheed Martin Scholarship 2021
UMBC Undergraduate Researcher of the Week 2020

Cisco Security Business Group Scholarship 2020
Stanford University Scholar Spotlight 2020
Summer Research Institute Fellow 2020
ACM Richard Tapia Scholarship 2020
Georgia Tech Focus Scholar 2019
Lockheed Martin Scholarship 2019
UMBC Undergraduate Research Award Recipient 2019
Grace Hopper Celebration Scholarship 2019
CWIT Affiliate Recognition Award 2018

CLASS PROJECTS

The Intersection Deck, *Computer Ethics* September 2021 – December 2021
The Intersection Deck is a card-based design tool for integrating intersectional perspectives into technology design. This system has two main components: a design methodology to generate intersectional, value-based design cards with non-designer participants whose intersectional identity facets are underrepresented in technology design, and a card-based design tool to be used by technologists within the design process.

GritView, *Software Engineering* September 2020 – December 2020
This API provides students with access to data relating to course details, professors, course grades and course evaluations from the University of Maryland, Baltimore County (UMBC). We used python and Flask for the web framework and developed the database using PostgreSQL. Agile Scrum methodology was used throughout this process with 2-week sprints. As a developer for this project, I designed the course endpoint, which had two query parameters (i.e., course name and semester), and returned the course details, professors who taught the course and the grades received in the course.

Wine Quality Assurance, *Artificial Intelligence* November 2019 – December 2019
The goal of this project was to predict wine types qualitatively (i.e., red, white) using binary classification. In addition, I predicted wine quality using regression with a quantitative value ranging from 1-10, inclusively. In order to complete this task, I used Random Forest, Logistic Regression, and Neural Networks for classification methods. For regression methods, I used SGD Regressor, Decision Tree, Linear Regression.

SKILLS

Programming: Python, C++, C, JavaScript, React, HTML/ CSS, SQL, R, RobotC
Software: Terminal, Jupyter Notebook, Autodesk Inventor, Microsoft Office (Word, PowerPoint, Excel)
Operating Systems: Mac OS

LEADERSHIP

A Vision for Electronic Literacy & Access (AVELA) present

- This organization serves to bridge the opportunity gaps presented in STEM education for underrepresented minorities. I assisted in the development of curriculum that will be distributed to Mathematics, Engineering, Science, Achievement (MESA) instructors to teach K-12 students

computer science. I also helped to develop a 2.5 hour lesson plan and design activity for teaching 3D modeling to students in the Black Student Union at Kentridge High School.

Ronald E. McNair Postbaccalaureate Achievement Scholars Program 2018 – present

- This program is designed to prepare students for graduate studies across all disciplines. As a McNair Scholar, I am involved in a community of diverse scholars who are pursuing a Ph.D. I served as the McNair Ambassador for Recruitment and Special Event where I designed and implemented recruitment efforts to increase student interests and enrollment into the program. In addition, I served as a conference ambassador where I helped plan and host our annual research conference.

Louis Stokes Alliances for Minority Participation (LSAMP) Program 2017 - present

- This program aims to substantially increase the amount of minority students attaining graduate degrees in STEM fields. As a LSAMP Scholar, I have conducted research at my home institution through their fall and spring semester research fellowship programs. I have also participated as a panelist for the 2018 and 2020 LSAMP Summer Bridging Conference which provides incoming freshmen with insight on how to successfully navigate their upcoming academic journeys.

National Society of Black Engineers (NSBE) 2017 – present

- This collegiate organization's goal is to increase the number of culturally responsible Black Engineers who excel academically, succeed professionally and positively impact the community. As an active member of NSBE who desires to give back to my community, I became a mentor to help lowerclassmen navigate their undergraduate careers and prepare for their journeys beyond.

Center for Women in Technology (CWIT) Scholars Program 2017 - 2021

- This program aims to enable success for women and other minorities in STEM fields. As an active affiliate, I was on the CWIT Bites and Bytes committee where I helped to plan an overnight program for high school girls who are interested in pursuing STEM related careers.