

Aaleyah Lewis

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EDUCATION

Doctor of Philosophy, Computer Science and Engineering Autumn 2021 - Present
University of Washington | Recognition: GEM Fellow, ARCS Foundation Scholar, LEAP Fellow

Master of Science, Computer Science and Engineering March 2024
University of Washington

Bachelor of Science, Computer Science Graduated: May 2021
University of Maryland, Baltimore County | Graduated with Honors | Recognition: Merit Scholar, McNair Scholar, LSAMP Scholar, CWIT Affiliate

SKILLS & QUALIFICATIONS

Interests: Accessibility, HCI, Responsible AI/ML, Inclusive Design

Research: Human-Centered AI, Qualitative, Quantitative, Mixed-Methods, Interviewing, Survey Design, Focus Groups, Participatory Design, Data Visualization

Programming: Python, C++, C, JavaScript, React, HTML/ CSS, SQL, R, RobotC, PyTorch

Software: Jupyter Notebook, Qualtrics, Figma, Autodesk Inventor, Microsoft Office (Word, PowerPoint, Excel)

SELECTED RESEARCH PROJECTS

Code-Switching and Masking in AI Use for Multilingual and Multicultural People with Disabilities | Lead Researcher | UW

- Conducting **semi-structured interviews** and **diary studies** with multilingual and multicultural people with disabilities to explore how code-switching and masking manifest in **AI** use.
- Examining the advantages and challenges of **AI** in supporting, facilitating, undermining, and necessitating such practices for people with disabilities.

Generating Culturally Representative AI-Synthetic Voices for AAC Users | Researcher | UW

- Conducting **semi-structured interviews** and **large-scale survey** with multilingual and multicultural AAC users to explore how we can create more representative AI-synthetic voices.
- Building tool that interviews AAC users about their cultural identities and generates culturally representative AI-synthetic voices.

Bias and Risks in Multicultural Generative AI Use | Lead Researcher | UW

- Conducting **longitudinal survey study** with multicultural people with disabilities on **generative AI use**.
- Conducted **focus groups** with multicultural people with disabilities to examine **generative AI** use and non-use, identity-based harms and benefits, and perceptions around trust, privacy, and safety.
- Analyzed data using **descriptive statistics** and **reflexive thematic analysis**.

Modeling Accessibility: Characterizing What We Mean by “Accessible” | Researcher | UW

- Conducted **interviews** to examine how diverse people with disabilities perceive the various meanings encompassed within the term ‘accessibility’.
- Developed a **process for modeling accessibility** that highlights the situated and contextual nature of access.
- Analyzed data using combined **inductive** and **deductive thematic analysis**.

Exploring AI-Based Support in Speech-Language Pathology for Culturally and Linguistically Diverse Children Disabilities | Lead Researcher | UW

- Applied **human-centered AI** approaches to explore challenges and opportunities for AI-based tools to support SLPs deliver therapy for culturally diverse children with speech and language disabilities.
- Conducted **semi-structured interviews** with SLPs to identify challenges and opportunities for AI.
- Conducted **quantitative** and **qualitative surveys** with SLPs to evaluate generative AI's performance in creating culturally and linguistically adapted therapy materials.
- Analyzed data using combined **inductive** and **deductive thematic analysis**.

Autoethnographic Insights from Neurodivergent Generative AI "Power Users" | Researcher | UW |

- Examined usage of **generative AI** as an accessibility tool among neurodivergent 'power users.'
- Explored the experiences of **generative AI** as a tool to navigate normative expectation (e.g., code-switching, emotional regulation, information access).

Working at the Intersection of Race, Disability, and Accessibility | Researcher | UW

- Developed a **theoretical framework** for integrating racial equity perspectives into accessibility research.
- Analyzed three case studies that exemplify how to engage at this intersection.
- Generated guiding principles to help researchers establish and support this research area.

Inaccessible and Deceptive: Examining Experiences of Deceptive Design with People Who Use Visual Accessibility Technology | Lead Researcher | UW

- Conducted **semi-structured interviews** and **diary studies** to examine the experiences and impacts deceptive design patterns have on people with disabilities when using online services.
- Analyzed data using a combination of **deductive** and **inductive thematic analysis**.
- Identified six categories of deceptive design patterns that people with disabilities encounter and compile concrete examples of the direct and indirect harms.

SELECTED PUBLICATIONS

- **Aaleyah Lewis***, Aashaka Desai*, Sanika Moharana*, Anne Spencer Ross, Jennifer Mankoff, Christina N. Harrington. **Race, Disability, and Technology: A Call to Action for Accessibility Researchers**. Accepted in ACM Transactions on Accessible Computing Journal (TACCESS) 2025.
- Kelly Avery Mack, Jesse J. Martinez, **Aaleyah Lewis**, Jennifer Mankoff, James Fogarty, Leah Findlater, Heather D. Evans, Cynthia L. Bennett, Emma McDonnell. **Modeling Accessibility: Characterizing What We Mean by "Accessible"**. Accepted at ASSETS 2025.
- **Aaleyah Lewis**, Jesse J. Martinez, Maitraye Das, James Fogarty. **Inaccessible and Deceptive: Examining Experiences of Deceptive Design with People Who Use Visual Accessibility Technology**. CHI 2025 Conference on Human Factors in Computing Systems.
- **Aaleyah Lewis**, Aayushi Dangol, Hyewon Suh, Abbie Olszewski, James Fogarty, Julie A. Kientz. **Exploring AI-Based Support in Speech-Language Pathology for Culturally and Linguistically Diverse Children**. CHI 2025 Conference on Human Factors in Computing Systems.
- Kate Glazko*, JunHyeok Cha*, **Aaleyah Lewis**, Ben Kosa, Brianna Wimer, Andrew Zheng, Roy Zheng, Jennifer Mankoff. **Autoethnographic Insights from Neurodivergent GAI "Power Users"**. CHI 2025 Conference on Human Factors in Computing Systems.
- Aayushi Dangol, **Aaleyah Lewis**, Hyewon Suh, Xuesi Hong, Hedda Meadan, James Fogarty, Julie A. Kientz. **"I want to think like an SLP": A Design Exploration of AI-Supported Home Practice in Speech Therapy**. CHI 2025 Conference on Human Factors in Computing Systems.

- Christina N. Harrington, Aashaka Desai, **Aaleyah Lewis**, Sanika Moharana, Anne Spencer Ross, Jennifer Mankoff. **Working at the Intersection of Race, Disability, and Accessibility**. ASSETS 2023
- **Aaleyah Lewis**, Orevaoghene Ahia, Jay L. Cunningham, James Fogarty. **Towards Intersectional CUI Design Approaches for African American English Speakers with Dysfluencies**. CUI @CHI: Inclusive Design of CUIs Across Modalities and Mobilities Workshop. CHI 2023.
- Aashaka Desai, Venkatesh Potluri, **Aaleyah Lewis**, Daniel Campos, Jayne Everson, Jennifer Mankoff, Richard E. Ladner. **Using Fiber Arts and Sonification to Improve Data Accessibility of Maker Spaces**. Reimagining Systems for Learning Hands-On Creative and Maker Skills Workshop. CHI 2022.

* Both authors contributed equally to this work and are considered first author

GRANTS

Code-Switching and Masking in Generative AI Use for Multilingual and Multicultural People with Disabilities UW CREATE - Race, Disability and Technology: Awarded \$15,000	Spring 2025
Examining Black Experiences in Accessibility Technologies UW CREATE - Race, Disability and Technology: Awarded \$15,000	Spring 2023

SCHOLARSHIPS & AWARDS

College of Engineering Dean's Fellowship	2021
GEM Fellowship	2021
ARCS Foundation Fellowship	2021
Lockheed Martin Scholarship	2021
Cisco Security Business Group Scholarship	2020
Stanford University Scholar Spotlight	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

INVITED TALKS AND PANELS

Invited Panelist: "Race, Disability, and Information Technology"	2025
Invited Panelist: "Privacy, Security, and Accessibility"	2024
Moderator: "Disability Justice: Centering Intersectionality and Liberation with Patty Berne" – UW Public Lecture Series	2023
Speaker: "Working at the Intersection of Race, Disability, and Accessibility" - Paul G. Allen School Accessibility Colloquium	2023
Panelist: "Inspiring and Supporting the Next Generation of Black Women in Computing + Tech" – BlackcomputeHER Conference	2019
Panelist: "Navigating Your Undergraduate Journey" - LSAMP Summer Bridging Conference	2020

SELECTED EXPERIENCES

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
Virtual Reality in Environmental Education: Investigating the Efficacy of VR as an Educational Tool for Ocean Acidification

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 program to organize and generate visualizations of summarized tracking data (i.e. head translation, hand translation).

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 visualizations for distribution of physiological data.
- Developed algorithms for calculating various measurements of physiological data (e.g., RMS).

Cornell University | LSAMP Research Scholar June 2019 – August 2019
Conflict Mediation at Scale: Leveraging Big Data to Mediate Online Conflicts

Skills/Tools: Python, Pandas, NumPy, Natural Language Toolkit, Perspective API, JavaScript

- 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 Toolkit.
- Generated and analyzed toxicity scores for comments on Reddit using Perspective API to identify monotonic trends of toxicity within conversations.

LEADERSHIP AND SERVICE

Publication Reviewer | CHI 2025

Teacher | A Vision for Electronic Literacy & Access (AVELA) | UW 2021 - present

Mentor | Ronald E. McNair Scholars Program | UMBC 2018 – present

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

Ambassador of Special Events | Ronald E. McNair Scholars Program | UMBC 2018 – 2020

Conference Ambassador | Ronald E. McNair Scholars Program | UMBC 2018, 2019

Mentor | National Society of Black Engineers (NSBE) | UMBC 2017

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

TEACHINGS

Teaching Assistant - **CSE 482: Accessibility Capstone Software Design** | UW Winter 2025

Teaching Assistant - **CSE 340: Interaction Programming** | UW Spring 2024

Teaching Assistant - **CSE 440: Human-Computer Interaction** | UW Fall 2023, Spring 2023

CLASS PROJECTS

CSE 513: Disability Inclusion & Accessibility for Technologist Spring 2024

Intersectional Storyteller | Skills/Tools: Python, React.js, Flask, Prompt Engineering

Developed an accessible web interface for guardians and educators to generate personalized stories that reflect diverse disabled and cultural backgrounds. This interface enhances intersectional representations and reduces harmful biases in AI generated stories. Conducted validation tests that demonstrated a reduction in cultural and disability bias compared to **ChatGPT 4o** generated outputs.