

Matthew O. Makila

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GOAL

Ph.D. in Computer Science with a focus on human-computer interaction (HCI), specifically for accessibility and creativity support. Using design, user studies, and data science, I look to improve social outcomes and technology for Black, Latin, and neurodiverse communities.

EDUCATION

University of Illinois, Urbana-Champaign (UIUC) Ph.D. Computer Science (Human Computer Interaction)	<i>August 2024 – May 2029</i> GPA: 4.0/4.0
University of Maryland, Baltimore County (UMBC) B.S. Computer Science (Data Science and AI/ML Tracks), Minor: Sociology	<i>August 2020 – May 2024</i> GPA: 4.0/4.0

RELEVANT COURSEWORK AND SKILLS

Relevant Coursework	Research Methods for HCI, Data Science, Machine Learning, Artificial Intelligence, Software Engineering, Data Structures, Algorithms, Linear Algebra, Digital Design, Statistics
Coding Experience	Python, JavaScript, R, SQL, HTML, C++, Java, MATLAB
Analytical Skills	Large-Scale Data Processing, Web Development, User Studies (interviews, surveys), Statistical Analysis, Exploratory Research, CAD, AI, Software Engineering
Software & Tools	Anaconda, Streamlit, React, Node.js, Git, SQLite, VSCode, Pytorch, Google Colab, Tableau, Flask, Jira, LaTeX, MS Office

RESEARCH EXPERIENCE

University of Illinois, Urbana-Champaign, Mentor: Dr. Camille Cobb <i>“Usable security and privacy for city-wide security affecting marginalized groups to inform design and policy implications”</i>	<i>August 2024 – Present</i>
University of Illinois, Urbana-Champaign, Mentor: Dr. Rachel Adler <i>“A usable and accessible learning tool for K-8 and university students to better understand accessibility,” and “Gamified Finance Simulator for Older Adults: A Financial Literacy and Vulnerability Intervention”</i>	<i>January 2025 – Present</i>
UMBC – Mobile Pervasive and Sensor Computing (MPSC) Lab, Mentor: Dr. Nirmalya Roy <i>“An Approach to Camera-based Contact-less Breathing Rate Monitoring”</i>	<i>June 2023 – June 2024</i>

University of California, San Diego – Design for Safety and Safety by Design REU, *June 2022 – August 2022*
Mentor: **Dr. Kenneth Loh**
“Data Acquisition for Kinesiology Tape”

UMBC – Sensorimotor Control Laboratory, *December 2021 – June 2023*
Mentor: **Dr. Ramana Vinjamuri**
“Development of Neural Networks to Operate Prostheses from Brain Machine Interfaces,”
“ROS for Developing Emotionally Cognizant Robots”

Carnegie Mellon University – Institute of Software Research REUSE Program, *June 2021 – August 2021*
Mentor: **Dr. Jonathan Aldrich**
“Gnomad: A Programming Language to Make Programming Timed Sensor Networks Easier”

INDUSTRY WORK EXPERIENCE

Institute for Defense Analyses (IDA), *June 2024 – Present*
Mentors: **Dr. Clifford Bridges, Laura Odell, Cameron Dilocenzo**
Software Engineering Intern in the Information Technology and Systems Division (ITSD) devising a dynamic, usable, and large-scale web application for global economic policy, enriched by user studies and stakeholder engagements

PRESENTATIONS

Zahid Hasan, Azim Khan, **Matthew Makila**, Masud Ahmed, Shadman Sakib, *April 2024*
Abu Zaher Faridee, Nirmalya Roy.
CARE: Continuous Contactless Respiratory Rate Estimation using Particle Video.
Howard Hughes Medical Institute (HHMI) Science Meeting (poster).

Zahid Hasan, Azim Khan, **Matthew Makila**, Masud Ahmed, Shadman Sakib, *April 2024*
Abu Zaher Faridee, Nirmalya Roy.
CARE: Continuous Contactless Respiratory Rate Estimation using Particle Video.
UMBC Undergraduate Research and Creative Achievement Day (URCAD) (poster).

Matthew Makila, Zahid Hasan, Nirmalya Roy. *August 2023*
An Approach to Camera-based Contact-less Breathing Rate Monitoring.
UMBC Summer Undergraduate Research Symposium (oral, poster).

Matthew Makila, Taylor Pierce, Yun-An Lin, and Kenneth Loh. *December 2022*
Acquisition and Processing of Motion Tape Field Data.
University System of Maryland’s Louis Stokes Alliance for Minority Participation (USM-LSAMP) Fall Symposium (oral).

HONORS AND AWARDS

GEM Fellow *July 2024*

UIUC Doctoral Merit Fellowship (DMF) *April 2024*

Fulbright Research Scholar Alternate (Norway, 2024)	<i>April 2024</i>
UMBC Meyerhoff Scholar (M32)	<i>September 2020 – May 2024</i>
UMBC Louis Stokes Alliance for Minority Participation (LSAMP) Fellow	<i>September 2020 – May 2024</i>
UMBC JHU VTSI Scholar	<i>September 2023 – May 2024</i>
UMBC Dean's List	<i>September 2020 – May 2024</i>
Rite Aid Scholar	<i>September 2023</i>

TEACHING

A Vision for Engineering Literacy & Access (AVELA) Instructor for Computational Sustainability	<i>July 2025</i>
Prison Math Project Assistant Instructor	<i>July 2025</i>
UMBC Computer Science I Teaching Assistant	<i>August 2021 – May 2022</i>

MISCELLANEOUS PROJECTS

Game Development Web-based game utilizing JavaScript, Flask, HTML, CSS, API calls, and SQLite3	<i>February 2024 – Present</i>
Personal Webpage Created with HTML, CSS (Bootstrap)	<i>February 2024 – Present</i>
Application to Predict Tennis Scores Using online tennis data to train a predictive scoring system	<i>December 2024 – Present</i>
Interactive 3D Scene Reconstruction Tool finding 3D object position from 2D images with Pytorch ResNet, MiDaS vision model, and Panda3D	<i>August 2023 – December 2023</i>

LEADERSHIP AND EXTRACURRICULARS

National Society of Black Engineers (NSBE)	<i>September 2020 – Present</i>
Tennis Team <u>Treasurer</u>	<i>September 2021 – Present</i>

SERVICE

Panelist for UMBC-LSAMP (3), Graduate School, Wellness Strategies, Academic Success	<i>February 2023- June 2025</i>
Mathematics Tutor	<i>January 2021 – June 2021</i>
Morrell Park Elementary School Tutor	<i>October 2020 –January 2021</i>
GoBabyGo Volunteer Retrofitted small electric vehicles to bring mobility to toddlers born with physical disabilities	<i>September 2018 – May 2019</i>