

MICHAEL ADELEKE

m.adeleke01@gmail.com | 443.824.3226 | linkedin.com/in/michael-adeleke-4a1228217 | Tuscaloosa, AL

RESEARCH INTERESTS

Radar-based sensing and micro-Doppler signal processing; machine learning for interactive systems; human-computer interaction; equitable and accessible AI/ML education; virtual reality for learning and empathy; broadening participation in computing.

EDUCATION

The University of Alabama

Tuscaloosa, AL

Ph.D. in Computer Science, expected May 2030

Advisor: Dr. Chris Crawford, Human-Technology Interaction Lab

GPA: 4.0. SREB Doctoral Fellow, Graduate Council Fellow.

Morgan State University

Baltimore, MD

B.S. in Computer Science, December 2024

Advisor: Dr. Naja Mack, Human-AI eXperience Lab

Summa Cum Laude. GPA: 3.87.

RESEARCH EXPERIENCE

Graduate Research Assistant

Aug 2025 – Present

Human-Technology Interaction Lab (HTIL), The University of Alabama, Tuscaloosa, AL

- Investigate radar-based sensing systems, analyzing signal behavior and data interpretation to develop applications for interactive human-technology experiences.
- Develop SensDS, a desktop application that makes micro-Doppler radar sensing usable as a hands-on machine learning education platform (see Research Software).
- Conduct literature review positioning radar-based interaction within the human-robot interaction education tradition, establishing novelty for HCI and computing education venues.

Lead Undergraduate Researcher

Dec 2022 – Aug 2025

Human-AI eXperience (HAX) Lab, Morgan State University, Baltimore, MD

- Designed and evaluated applied research systems across AI, VR, and STEM education, including VR concussion education tools, conversational AI bias detection, and K-12 STEM outreach programs.
- Contributed to culturally responsive youth computing programs and to peer-reviewed publications at SIGCSE, CHI, and BICE.

Summer Research Assistant

May 2023 – Aug 2023

Human-Technology Interaction Lab, The University of Alabama, Tuscaloosa, AL

- Built interactive learning systems integrating robotics, physiological sensors, and machine learning.

TEACHING, MENTORING, AND PROGRAM LEADERSHIP

Adjunct Faculty

Jan 2025 – May 2025

Department of Computer Science, Morgan State University, Baltimore, MD

- Instructed Introduction to Computer Science I and contributed to curriculum development in computing and emerging technologies.

Program Coordinator, Summer AI Research Institute (SAIRI)

May 2025 – Aug 2025

Center for Equitable AI & Machine Learning Systems (CEAMLS), Morgan State University, Baltimore, MD

- Coordinated 50+ undergraduate researchers across logistics, communication, mentor management, and research workflow for a summer AI research program.

Camp Coordinator

Summers 2023 – 2025

CodeBears

- Coordinated a K-12 computing camp across three consecutive summers, introducing students to programming fundamentals.

PUBLICATIONS

Peer-Reviewed Conference Papers

1. Naja A. Mack, **Michael B. Adeleke**, Elijah Ballou, Destiny Davis, Vincent Ingram, and Katlyn Cox. 2024. Breaking Stereotypes and Feeding the STEM Pipeline. In Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1 (SIGCSE 2024), March 20–23, 2024, Portland, OR, USA. ACM, New York, NY, USA, 7 pages. <https://doi.org/10.1145/3626252.3630793>
2. Naja A. Mack, **Michael B. Adeleke**, Vincent Ingram, Elijah Ballou, Jamika K. Briggs-Belt, and Alexis Jordan. 2024. CodeBears: Key Insights Gained from a Summer Coding Camp Empowering Underrepresented Youth. In 2024 Black Issues in Computing Education (BICE), February 2024. IEEE, 80–86. <https://doi.org/10.1109/BICE60192.2024.00021>

Extended Abstracts

3. Naja A. Mack, Clyde W. Tandjong, **Michael B. Adeleke**, Elijah Ballou, Amyra Harry, and Jaunel Panton. 2025. Revolutionizing Culturally Relevant Math Education Through AI and Co-Designing Strategies. In Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI EA '25), April 26–May 1, 2025, Yokohama, Japan. ACM, New York, NY, USA, 6 pages. <https://doi.org/10.1145/3706599.3719835>

Manuscripts Under Review

4. A Radar-Based Tool for Teaching Machine Learning to High School Students. Under review, ACM Technical Symposium on Computer Science Education (SIGCSE).

PRESENTATIONS AND RESEARCH COMPETITIONS

1. Collision Course: Elevating Concussion Awareness Through Immersive Virtual Reality. International Conference on Applied Human Factors and Ergonomics (AHFE), Summer 2025.
2. CodeBears: Breaking Stereotypes and Feeding the STEM Pipeline. ACM Undergraduate Research Competition, ACM Richard Tapia Celebration of Diversity in Computing, 2024. Poster and presentation, 3rd Place.
3. Have a Heart. ACM Student Research Competition, ACM Richard Tapia Celebration of Diversity in Computing, 2023. Co-author on award-winning submission.
4. Collision Course. Morgan TechFest poster competition, 2023. Co-author, 2nd Place.
5. VR Stress Assessment Using EmotiBit. STARS Celebration, 2023. Presenter.

RESEARCH SOFTWARE AND SYSTEMS

SensDSv2

Radar-Based ML Education Platform

- Six-tab PyQt6 desktop application supporting live micro-Doppler spectrogram visualization, gesture data collection, Vision Transformer model training, prediction testing, and optional VEX AIM robot control.
- Implemented the full signal processing pipeline (Range FFT, MTI, STFT) against the Infineon BGT60TR13C 60 GHz radar sensor, including chirp parameter configuration through the Infineon SDK.
- Built a PCA-based novelty scoring module that flags classroom-collected captures falling outside the training feature space, motivating on-device training as a design target.
- Resolved cross-platform performance constraints for classroom deployment on Surface Pro hardware through model selection and inference scheduling.
- Distributed as signed macOS and Windows executables with an accompanying user guide.

AWARDS, HONORS, AND FELLOWSHIPS

- SREB Doctoral Fellow, The University of Alabama
- Graduate Council Fellow, The University of Alabama
- 3rd Place, ACM Undergraduate Research Competition, Tapia Celebration of Diversity in Computing, 2024, for CodeBears: Breaking Stereotypes and Feeding the STEM Pipeline
- 2nd Place, Poster Competition, Morgan TechFest, 2023, for Collision Course

- Best Technical Solution, Be Smart Hackathon, 2023 and 2024
- Summa Cum Laude, Morgan State University, 2024

SELECTED GRADUATE COURSEWORK

Machine Learning (CS 451/551): supervised classification with scikit-learn, recurrent and LSTM architectures, end-to-end data collection and modeling pipelines.

Brain-Computer Interfaces (CS 561): EEG signal analysis with MNE, motor imagery classification, topographic mapping.

Additional: CS 560, CS 648 (Cyber Security), CS 692 (Research Seminar), CS 503, AHE 603 (College and University Teaching).

TECHNICAL SKILLS

Programming Languages: Python, Java, C#, JavaScript, Node.js, Ruby

Machine Learning: PyTorch, scikit-learn, Vision Transformers, CNNs, RNN/LSTM, PCA and dimensionality reduction

Signal Processing and Sensing: micro-Doppler spectrogram analysis, Range FFT, MTI filtering, STFT, Infineon BGT60TR13C radar, MNE (EEG), EmotiBit physiological sensing

Application Development: PyQt6, pyqtgraph, Unity, VR development, PyInstaller, Git and GitHub Actions

Conversational AI: IBM Watson Assistant, Dialogflow

REFERENCES

Available upon request.