Myles Lewis

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Education

Ph.D., Computer Science, *The University of Alabama* August 2021 - May 2026*
Advisor: Dr. Chris S. Crawford Jr.

B.S. in Computer Science , *Morgan State University* August 2017 - May 2021
Advisor: Dr. Edward Dillon Jr.

Objective

I am a **Ph.D. Candidate*** in Computer Science at The University of Alabama with research expertise in **artificial intelligence, machine learning, decentralized systems, and human-centered computing**. My doctoral work investigates **adaptive, data-driven systems that enhance decision-making, accountability, and user engagement, combining rigorous experimentation with system design.** I bring experience in algorithm development, empirical evaluation, and interdisciplinary collaboration. I am seeking industry research or applied science roles where I can advance intelligent systems through principled research and translational impact.

Expected Graduation Date

Research Interest

Physiological Computing (PC), Human-Computer Interaction (HCI), Blockchain, Machine Learning (ML), Artificial Intelligence (AI), Brain Computer Interfaces (BCI), Cyber security, STEM Education

Technical Skills

Python, JavaScript, Node.js, CSS, HTML, C/C++, SQL, ROS, MatLab, FireBase, Bootstrap, Git/GitHub, React, Scratch, Jupyter Notebook, Solidity, Ubuntu, Wireshark, Electron, Microsoft Office, Qualtrics, Digital Signal Processing, Explainable AI, Generative Models, Language Models

Publications

Ingram, Vincent, et al. "**'It Wasn't As Bad As I Thought': Exploring K-12 Students' Experiences with Real-Time and Pre-Recorded Physiological Data."** Proceedings of the 57th ACM Technical Symposium on Computer Science Education V. 1. 2026.

Lewis, Myles, et al. **"PhysioBots: Engaging K-12 Students with Physiological Computing and Robotics."** Extended Abstracts of the 2025 Special Interest Group On Computing-Human Interaction (SIGCHI) on Human Factors in Computing Systems. ACM 2025

Hernández-Cuevas, Bryan Y., et al. **"PhysioML: A Web-Based Tool for Machine Learning Education with Real-Time Physiological Data."** Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1. 2025.

Lewis, Myles, and Chris Crawford. **"Towards Blockchain-Based Incentives for STEM Education."** *International Conference on Human-Computer Interaction. Cham: Springer Nature Switzerland, 2024.*

Lewis, Myles, et al. **"Exploring Computational Thinking Perspectives in Black Communities with Physiological Computing."** *2024 IEEE Black Issues in Computing Education (BICE).* IEEE, 2024.

Lewis, Myles, et al. **"Towards a Brain-Computer Interface Framework for Multi-Party Robot Applications.**" *Proceedings of the 2024 ACM Southeast Conference. 2024.*

Lewis, Myles, et al. "**LITI: Learning with Interactive Time Series Information.**" *2023 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*. IEEE, 2023.

Lewis M, Crawford C. (2023). **"Architectural Design for Secure Smart Contract Development."** In *Proceedings of the 14th International Conference on Applied Human Factors and Ergonomics (AHFE 2023)*.

Dillon, Edward, Briana Williams, Ayomide Ajayi, Zipporah Bright, Quinlan Kimble-Brown, Chauncey Rogers, Myles Lewis, Joseph Esema, Ben Clinkscale, and Krystal L. Williams. **"Evaluating Face-to-Face vs. Virtual Pedagogical Coding Review Sessions in the CS classroom: An HBCU Case Study."** In 2021 Conference on Research in Equitable and Sustained Participation in Engineering, Computing, and Technology (RESPECT), pp. 1-5. IEEE, 2021.

Dillon, Edward, Briana Williams, Ayomide Ajayi, Zipporah Bright, Quinlan Kimble-Brown, Chauncey Rogers, Myles Lewis, Joseph Esema, Ben Clinkscale, and Krystal L. Williams. **"Exposing Early CS Majors to Coding Interview Practices: An HBCU Case Study."** In 2021 Conference on Research in Equitable and Sustained Participation in Engineering, Computing, and Technology (RESPECT), pp. 1-4. IEEE, 2021.

Lewis M, Ajayi A, Kimble-Brown Q, and Williams B. (2021). **"Exploring the Impact of Exposing Coding Interview Practices to Early CS majors."** In Proceedings of the 52nd ACM Technical Symposium on Computer Science Education (SIGCSE 2021).

Cooper S, Clinkscale B, Williams B, and Lewis M. (2020). **"Exploring the Impact of Exposing CS Majors to Programming Concepts using IDE Programming vs. non-IDE Programming in the Classroom."** In proceedings of the 51st ACM Technical Symposium on Computer Science Education (SIGCSE 2020). Portland, OR.

Projects

Brain Drone Race

University of Alabama; Fall 2022 - Current **[Project Team Leader]**

- Developed a brain-computer interface system that translates EEG brainwave activity into drone control commands using JavaScript (qualifier software) and Python (race execution)
- Recruited and led a multidisciplinary team of 4-5 students, overseeing development, testing, and deployment of the system
- Collaborated with research engineering, and media teams to ensure efficient workflows, system accuracy, and effective public demonstrations
- Maintained and contributed to the project's codebase hosted in the HTIL GitHub repository, implementing modular and scalable development practices

- Scaled the project to three additional universities through cross-institutional collaboration, enabling broader access to neurotechnology research and education

Computer Science Education in K-12
University of Alabama; Fall 2021 - Current **[Assistant Researcher]**
- Investigate how physiological computing (PC) technologies (EMG, EEG, EKG) can support computational thinking among high school students
- Designed and implement hands-on learning experiences using wearable PC devices to increase engagement in computer science education
- Focus on outreach within Alabama's Black Belt region to address inequities in access to emerging technology and STEM learning resources
- Analyze the relationship between PC-based activities and core computational thinking practices, including problem decomposition, pattern recognition, and algorithm design
- Contribute to the development of culturally responsive curriculum that integrates PC into K-12 STEM education for underrepresented students

Adaptive-Gamified Code Review Application
University of Alabama; Spring 2025 - Current **[Project Team Leader]**
- Designed a adaptive code review application integrating artificial intelligence and gamification to enhance the motivation, usability, and self-efficacy in educational settings
- Developed a web application that leverages NLP, LLMs, and python interpreters in accordance to user feedback to system effectiveness
- Implemented game-based elements including digital badges, points, and competition mechanics to increase student motivation and engagement in the grading process
- Researched the intersection of artificial intelligence, software engineering, educational tools and game-based learning principles to create a actionable code review model for identifying key features in educational environments
- Aimed to advance equity and accountability in code review systems through innovative use of emerging technologies and behavioral incentive structures

Experience

Code-N-Sensor Future Lab Summer Camp, The University of Alabama
Graduate Researcher & Workshop Facilitator, Summer 2025
- Co-hosted and facilitated the **inaugural week-long Code-N-Sensor Future Lab camp** for 4th–6th grade students from Tuscaloosa County, focused on hands-on physiological computing and engaging STEM learning
- Guided participants through innovative activities using platforms such as **Neuroblock** for brain/muscle-computer interfacing, allowing students to design and control custom sensory-driven applications
- Oversaw interactive lessons featuring **Makey Makey kits**, where students explored electrical conductivity by creating banana piano keyboards, reinforcing circuit principles and sensor design
- Led programming and logic workshops using **Ozobots**, helping campers learn sequencing, pattern recognition, logical reasoning, and debugging through maze-design challenges
- Organized and executed a **robot race finale**, where students applied physiological sensing to control robots via muscle signals—culminating in creative competition and public excitement
- Collaborated closely with faculty across engineering and education, as well as with industry partners like **VEX Robotics**, to craft and deliver a cutting-edge, inclusive STEM outreach experience

Research Experience for Teachers (RET) Program
Graduate Researcher & Workshop Facilitator, Summer 2025
- Co-designed and facilitated a summer program for K–12 teachers focused on integrating engaging, hands-on STEM activities into their classrooms.

- Led weekly workshops introducing teachers to emerging technologies, including Arduinos, CyberPi systems, EEG, and EMG sensors, emphasizing real-world applications to spark student interest in STEM.
- Developed interactive instructional materials and project-based lessons that translated complex computing and physiological concepts into accessible classroom activities.
- Mentored and collaborated with participants to adapt research-driven methods into K–12 educational contexts, strengthening teacher capacity to inspire future STEM learners.

Technology Innovation at Southern Company
Part-time Intern, Fall 2024 - Spring 2025
- Collaborated on the research, development, and implementation of Retrieval-Augmented Generation (RAG) systems to enhance decision-making and operational workflows.
- Leveraged Microsoft CoPilot and Azure Databricks to streamline data analysis pipelines, support predictive modeling, and generate actionable insights from large enterprise datasets.
- Explored and assessed the feasibility of emerging technologies such as AI-powerd clustering, automation tools, and enterprise knowledge systems to improve business efficiency.
- Contributed to the design and deployment of internal tools that integrated advanced AI solutions across departments, translating technical prototypes into scalable implementations.
- Work cross-functionally with technical and non-technical teams to communicate findings, document innovations, and support adoption strategies across business units.

The University of Alabama, Tuscaloosa
Graduate Researcher, Fall 2021 - Present
- Lead and conduct interdisciplinary research projects in Artificial Intelligence, Machine Learning, Virtual Reality, Blockchain, and Physiological Computing.
- Oversee lab operations including budgeting, supply management, and equipment maintenance to support ongoing research initiatives.
- Mentor and supervise undergraduate researchers, guiding them through experimental design, technical development, and scholarly writing.
- Contribute to the design of research protocols, development of technical systems, and articulation of research goals in collaboration with faculty and students.
- Co-authored multiple peer-reviewed publications and presented work through live demonstrations at academic conferences and outreach events.

Crossroads College Ministry
Vice President, Spring 2024 - Spring 2025
- Lead a team of five in executing outreach, event planning, and day-to-day operations to support the spiritual and personal development of college students.
- Manage the ministry's LinkedIn presence, increasing engagement and visibility through strategic content creation and consistent updates.
- Design flyers, digital assets, and promotional materials to support on-campus and community events, ensuring clear communication of the ministry's mission and activities.
- Collaborate closely with the President to plan and execute events, delegate tasks and maintain alignment with organizational goals and values.
- Play a key role in enhancing the ministry's impact by integrating leadership, communication, and creative digital strategies.

National Society of Black Engineers
Regional PCI Chair, Spring 2023 - Spring 2025
- Directed all K-12 STEM outreach initiatives across Region 3 (FL, AL, GA, KY, TN, MS), managing NSBE Jr. chapters, advisors, and Pre-College Initiative Chairs.

- Led the planning and execution of the Region 3 PCI Mini-Conference, a 3-day STEM immersion event in Atlanta (Fall 2023) and Birmingham (Fall 2024) for 100+ K-12 students, featuring hands-on engineering activities and college readiness workshops.
- Coordinated funding from corporate partners and strategically allocated resources to support local chapter events, regional programs, and student competitions.
- Oversaw summer programming that enabled K-12 students to engage with engineering concepts and projects, including research-based experiences and interactive challenges.
- Mentored aspiring engineers, provided strategic guidance to chapter leaders, and strengthened regional collaboration to expand access to STEM education for underrepresented communities

National Society of Black Engineers
Chapter *Pre-College Initiative Chair*, 2022-2023 Academic School Year
- Organized and led over five STEM outreach events aimed at K-12 students, introducing them to engineering and college preparedness through hands-on and informational programming.
- Coordinated events ranging from College Application Week support for high school students to a Go-Kart building workshop for elementary school girls.
- Directed a committee of NSBE members, delegating responsibilities for event planning, logistics, and marketing to ensure successful program execution.
- Maintained thorough documentation of events, including attendance records, planning outlines, and contact logs, to support future PCI Chairs in sustaining and expanding outreach efforts.

Blockchain Developer
Linx Digital Studio, Summer 2022 - Spring 2023
- Designed and implemented utility features for NFT holders on the Algorand blockchain, including a token distribution system, sports-betting platform (NFL Playoffs, World Series), and a 3D arena-style virtual environment (low-level meta verse).
- Developed backend and frontend components using JavaScript and Python; code maintained in a private Github repository.
- Built foundational components for an NFT marketplace and integrated cross-project token functionality for partnered Web3 initiatives.
- Co-managed a Discord server of ~1,000 users and supported a test group of 10-15 active users, using community feedback to refine system design.
- Collaborated in a tea of three, applying agile workflows to prototype, iterate, and troubleshoot blockchain-integrated applications.

Clango, Inc.
Security Intern, Summer 2021
- Collaborated closely with company administrators to develop a mobile application that assessed customer systems for vulnerabilities and recommended security solutions.
- Built the frontend using JavaScript and React, with Firebase as the backend cloud database for real-time data handling and user authentication.
- Gained hands-on exposure to cybersecurity principles, with a focus on Identity and Access Management (IAM), and completed a formal course to strengthen understanding of secure authentication and authorization protocols.
- Worked in a small, agile team of two, contributing to both the technical build and user experience design of the application

Black Student Fund
Virtual Tutor, Summer 2020 - Summer 2021
- Delivered virtual instruction in computer programming to students in grades 4-9, with a focus on improving self-efficacy, problem-solving, and foundational coding skills.

- Designed and implemented an integrated computer science and math curriculum tailored to diverse learning levels and aligned with real-world applications.
- Organized and led coding workshops for student groups of up to 10, targeting key programming concepts and reinforcing mathematical reasoning.
- Facilitated interactive lessons using project-based learning approaches to engage students in logic, algorithmic thinking, and creative coding.

Morgan State University
Undergraduate Research Assistant; Fall 2019 - Spring 2021
- Supported research on improving computer science education at the collegiate level by contributing to large-scale survey data processing and analysis of video-based problem-solving tasks.
- Analyzed student whiteboard coding sessions to extract patterns in computational thinking, error types, and problem-solving strategies.
- Utilized Google Spreadsheets and statistical methods to manage and interpret quantitative and qualitative data from hundreds of student responses.

Computer Science REU at University of Alabama, Tuscaloosa
Undergraduate Research Assistant; Summer 2019
- Developed a web application using JavaScript and Node.js to interpret EEG brainwave data and control a drone in real time.
- Collaborated with research team via GitHub, contributing to codebase management, version control, and documentation using Markdown.
- Gained first-hand experience in applied research, integrating software engineering, human-computer interaction, and data processing.

Awards & Fellowships

3rd Place at TAPIA Conference ’24 Graduate Student Research Competition
Fall 2024, Association for Computing Machinery

Graduate Computer Science Student of the Year
Spring 2024, Engineering Council of Birmingham

ACM Outstanding Student Leader & UPE Outstanding Graduate Award
Spring 2023, College of Engineering (Computer Science)

Student Researcher of the Year
Spring 2022, The University of Alabama

Southern Regional Education Board (SREB) State Doctoral Scholar
August 2022 - August 2025

The University of Alabama Graduate Research Assistantship
August 2021 - Present, The University of Alabama

Activities

National Society of Black Engineers
Fall 2022 - Current

Hosted Workshop at NSBE Annual Convention
Spring 2025

Hosted Workshop at Black is Tech Conference
Fall 2024

Hosted Workshop at NSBE Fall Regional Conference
Fall 2024

Hosted Workshop at Minority Youth Tech Expo
Fall 2024

Hosted Workshop at NSBE Fall Regional Conference
Fall 2023

Colloquium Talk at Morgan State University
Spring 2023

Multicultural Engineering Program
Member, Fall 2021 - Fall 2022

Black Data Processing Association
Member, 2019 - 2021

National Society of Blacks in Computing
Member, 2019 - 2021