Jalen Edusei

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EDUCATION

University of Georgia, Morehead Honors College, Athens, GA — May 2026
Bachelor of Science, Computer Systems Engineering — GPA: 3.60

SKILLS

Programming: Assembly, C, C#, C++, HTML, Java, JavaFX, JavaScript, MATLAB, Python, R, SQL, Verilog
Software: Autodesk Fusion 360, Blender, CAD, Figma, Git, GitHub, Graphic Design, Microsoft Suite, NASA F Prime, Unity3D, Virtual & Mixed Reality Development, Website Development, Wix, WordPress, Xilinx, Zephyr
Hardware and Embedded Systems: 2U CubeSat, Basys2 FPGA Boards, Raspberry Pi Pico 2W, Raspberry Pi 4, Sensors, Signal Processing, STM32 Microcontrollers
Core Competencies: Business Case Development, Collaboration, Data Analysis, Critical Thinking, Human-Computer Interaction, Problem Solving, Product Strategy, Project Management, Strategic Leadership, Technical Communication

PROJECT EXPERIENCE

AnimalDot — Athens, GA
for Capstone Design, CSEE 4910 — August 2025 – present

- Design a contactless smart sensing bed to monitor animal heart rate and respiration using geophone-based vibration sensing, prioritizing minimal animal disturbance and continuous passive data collection.
- Develop a modular sensing and processing pipeline integrating geophones, load cells, and temperature sensors with analog signal conditioning, filtering, and feature extraction to separate physiological signals from environmental noise.
- Architect an embedded-to-mobile system that transmits processed data to a companion mobile application for real-time visualization, trend tracking, and caregiver-facing health insights, with validation planned through bench testing and veterinary-guided evaluation.

Kitchen Chaos VR — Athens, GA
for Virtual Reality, CSCI 6830 — October 2025 – December 2025

- Built an Overcooked-style multiplayer VR cooking game for Meta Quest 3 in Unity, implementing physics-driven interactions, locomotion, and object handling across a modular C# gameplay architecture.
- Integrated VelNet networking to synchronize player avatars, spawning, and round state across clients, enabling reliable session flow from bootstrap to gameplay with deterministic event handling and scene management.
- Developed a recipe and scoring pipeline using ScriptableObjects, trigger-based ingredient tracking, and interpretable score breakdowns, then integrated an AI dish judge via REST API calls with strict JSON outputs and text-to-speech narration.

BreakBuddy — Athens, GA
for Human-Computer Interaction, CSCI 4800 — August 2025 – December 2025

- Designed BreakBuddy, a guilt-free stress management application for educators that converts 2 to 5 minute pauses into guided micro-break sessions with social accountability and low cognitive load.
- Conducted user research through semi-structured interviews, affinity mapping, POV and HMW framing, and assumption mapping, then validate concepts via experience prototyping and iterative heuristic evaluation.
- Built and tested paper and high-fidelity prototypes featuring a robust activity timer, defensive design error states, and a Reports dashboard with streak tracking and data visualization, while assessing privacy, social pressure, and workplace misuse risks.

Virtual Reality Portfolio 2 — Athens, GA
for Virtual Reality, CSCI 6830 — October 2025 – November 2025

- Developed two advanced XR experiences for the Meta Quest 3, including a VR Mini Museum and an MR Room, featuring spatial audio storytelling, physics-based interactions, and hand-tracked UI using Unity URP, OpenXR, and the Meta XR SDK.
- Implemented mixed reality features such as depth-based occlusion, passthrough visualization, spatial anchors, distance grabbing, haptic feedback, and real-time object spawning across a modular system of more than 20 C# scripts.

- Built an AI-driven NPC assistant using Wit.ai for natural language understanding, speech synthesis, and lip-synchronized responses that enable voice-controlled panels, object manipulation, and dynamic XR interactions.

Smart Plant Watering Assistant Athens, GA
for Sensors and Transducers, ELEE 4230 August 2025 – November 2025

- Built an automated plant monitoring system using a Raspberry Pi Pico 2W connected to a soil moisture sensor, thermistor, and LDR to analyze environmental conditions in real time.
- Integrated analog signal conditioning, operational amplifier stages, and Kalman filtering to stabilize noisy sensor data and enhance measurement precision.
- Implemented control logic for a transistor-driven water pump with predictive thresholding to maintain optimal soil moisture, demonstrating reliable closed-loop system performance.

Virtual Reality Portfolio 1 Athens, GA
for Virtual Reality, CSCI 6830 August 2025 – October 2025

- Constructed a four-part Unity portfolio demonstrating key VR design principles including transformation, physicsbased motion, immersion, and user interaction with spatial environments.
- Authored over 15 C# scripts integrating real-time lighting, spatial audio, collision detection, and smooth locomotion, translating theoretical VR concepts into practical, interactive learning modules.
- Explored the relationship between sensory cues and user perception by experimenting with movement scaling, timed feedback, and interactive triggers, resulting in scenes that sustained user focus 40% longer during testing.

Audio Tracking Car Athens, GA
for ECSE Design Methodology, ECSE 2920 January 2025 – April 2025

- Engineered a Python-based control system on Raspberry Pi 4 that autonomously navigated towards specific audio frequencies, improving tracking precision by 20%.
- Developed a PID motor control algorithm utilizing optical encoder feedback and ADC signal processing, enhancing motor response time by 15%.
- Directed GitHub codebase with 200+ commits and launched a Wix user manual site accessed by 50+ users, elevating project usability and collaboration.

LED Frequency Filter Athens, GA
for Linear Systems, ELEE 6210 August 2024 – December 2024

- Designed a frequency filter circuit to classify signals into predefined bands and visualize them via LEDs, achieving 98% signal classification accuracy.
- Iterated hardware design through oscilloscope analysis and voltage optimization to minimize signal attenuation and distortion.
- Conducted rigorous validation with hardware testing, improving circuit reliability and response time by 10%.

Mission for Education and Multimedia Engagement Satellite (MEMESat-1) Athens, GA
Flight Software
for the Small Satellite Research Laboratory at the University of Georgia March 2024 – December 2024

- Developed CubeSat flight software in C++ using NASA F Prime framework, optimizing embedded system performance on Raspberry Pi Compute Module 4.
- Achieved 90% line coverage and 60% branch coverage through comprehensive verification suite, ensuring software safety and mission reliability.
- Collaborated with cross-functional team to deploy custom Linux-based environment, streamlining satellite software integration.

Creation and Development of Websites Athens, GA
for the Joyner Research Laboratory & for the National Society of Black Engineers September 2022 – May 2024

- Spearheaded interactive WordPress and JavaScript website development, enhancing digital presence and increasing site traffic by 500+ monthly visitors.
- Coordinated with 10+ stakeholders to define requirements and apply UX principles, ensuring multi-device compatibility and seamless user experience.
- Implemented rigorous testing protocols, reducing bugs and downtime by 30%.

Travel Itinerary Application Athens, GA
for Software Development, CSCI 1302 December 2023

- Created JavaFX-based GUI application integrating Google Places and other RESTful APIs for dynamic data loading on hotels, attractions, and restaurants.
- Engineered efficient background threading to enable smooth UI responsiveness during data retrieval, increasing user satisfaction.

- Delivered a visually appealing and highly organized application interface, improving usability scores by 25%.

RELEVANT EXPERIENCE

Capital One, *Business Analyst Intern,* McLean, VA June 2025 – August 2025

- Spearheaded development of a business case for a Notifications Preferences Center for CreditWise, projected to streamline customer communication management for 60M+ users.
- Analyzed performance of CreditWise email campaigns, creating a valuation framework to quantify engagement and retention impact and propose a new email domain.
- Partnered with cross-functional teams to present actionable recommendations to senior leadership, driving alignment on future messaging strategy.
- Leveraged SQL, Python, Excel, and data visualization tools to evaluate KPIs, delivering insights that informed product roadmap decisions.

University of Georgia Housing, *Resident Assistant,* Athens, GA August 2023 – May 2025

- Cultivated an inclusive community for 45 residents by organizing 10+ educational and social events each semester, boosting resident engagement by 30%.
- Mediated and resolved 30+ conflicts and safety concerns, maintaining a secure and supportive environment.
- Partnered with housing staff to implement programming focused on academic success and mental health awareness.

Joyner Research Laboratory, *Research Assistant,* Athens, GA September 2022 – May 2023

- Designed and launched a new laboratory website, increasing research visibility and engagement by over 500 monthly visitors.
- Conducted 50+ experiments including ELISAs and DNA/RNA extractions supporting malaria bioinformatics projects.
- Analyzed and documented data contributing to 2 peer-reviewed manuscripts.

Great American Cookies & Marble Slab Creamery, *Shift Leader,* Dallas, GA May 2022 – July 2022

- Managed daily operations and supervised a team of 5 employees, increasing shift efficiency by 20%.
- Processed 100+ customer orders daily with exemplary service, achieving top customer satisfaction ratings.
- Trained new staff, improving onboarding time by 40%.

CAMPUS & COMMUNITY INVOLVEMENT

Vice President, *National Society of Black Engineers* May 2025 – present

- Lead a 100+ member chapter in strategic planning, aligning operations with national initiatives and regional directives.
- Coordinate logistics for national and regional conventions, managing travel, accommodations, and registration for 50+ members.
- Design and implement a centralized digital resource hub, providing internship pipelines, alumni contacts, and project archives to boost member success.

Member, *Tau Beta Pi Honor Society* October 2024 – present

- Selected for academic distinction, leadership, and commitment to ethical engineering practice.
- Participate in professional development forums and community service events promoting excellence in STEM education.
- Represent the university within the nation's oldest and most prestigious engineering honor society.

Brother, *Theta Tau Fraternity, Iota Epsilon Chapter* January 2024 – present

- Co-organize technical workshops, speaker panels, and community outreach efforts enhancing professional growth for 120+ members.
- Foster fraternity values of brotherhood, service, and lifelong learning through active participation in chapter initiatives.
- Engage in leadership and skill development through national seminars and industry collaborations.

Student Advisor, *Louis Stokes Alliance for Minority Participation* August 2023 – May 2025

- Planned and execute 8+ workshops each semester supporting academic success for 30+ underrepresented STEM students.
- Assisted in strategic programming and mentoring initiatives contributing to increased retention and engagement.

- Developed and maintained the organization's digital and social media strategy, increasing online engagement by 50%.

Senator, *National Society of Black Engineers* May 2024 – May 2025

- Represented chapter at regional and national levels, voting on legislation and advocating for student-centered initiatives.
- Led conference interest meetings, managing all travel logistics and budget allocations in coordination with the Treasurer.
- Drafted and presented semester goals fostering alignment between chapter activities and national objectives.

ELS Peer Leader, *Office of Engagement, Leadership, and Service* January 2024 – May 2024

- Selected for leadership coaching program supporting first- and second-year student engagement in UGA involvement pathways.
- Conducted 1:1 mentorship sessions, connecting students to leadership opportunities, clubs, and resources across campus.
- Facilitated interactive workshops that improved student understanding of values-based leadership and self-discovery.

Telecommunications & Vice Public Relations Chair, *National Society of Black Engineers* May 2023 – May 2024

- Increased chapter social media engagement by 40% through data-driven content strategies and visual design.
- Designed and launched a new chapter website to streamline communication, centralize resources, and showcase events.
- Created branded promotional materials that boosted event attendance by 15% and enhanced chapter visibility.

STUDY ABROAD EXPERIENCE

Study Abroad in Germany May 2023 – June 2023

- Completed coursework on engineering ethics, professionalism, and global collaboration, earning 3 credit hours.
- Delivered 3 technical presentations and authored 2 academic papers exploring case studies in ethical engineering practice.
- Traveled independently to Germany, France, and Austria, building intercultural fluency and adaptability.

HONORS AND AWARDS

Extraordinary Engineer February 2024

- Recognized by the College of Engineering for leadership, academic excellence, and service to the engineering community.

Presidential Scholar (2x) December 2022, May 2023

- Awarded for maintaining a 4.0 GPA during consecutive semesters of full-time coursework.

Dire Needs Project Fund: $1500 Project Grant August 2023 – May 2024

- Selected through a competitive process to receive funding for a student-led project addressing a pressing engineering challenge.