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, a VR Mini Museum highlighting artistic storytelling and an MR Instrument Room simulating real-world object interaction through hand tracking and passthrough visualization.
- Applied Unity's Universal Render Pipelines (URP), OpenXR framework, and Meta XR SDK to create physics-driven, hand-tracked interactions and persistent spatial anchors across more than 20 custom-built C# scripts.
- Implemented mixed reality concepts such as depth-based occlusion, real-time sound mapping, and PBR material design, achieving lifelike reflections, accurate haptic timing, and stable performance on the Meta Quest 3.

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.