GERALD NKANSAH

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PROFESSIONAL SUMMARY

Computer Engineering graduate with proven experience delivering full-stack applications, AI-driven systems, and FPGA-based hardware solutions. Adept at designing secure, high-performance software and hardware integrations that enhance user experiences and optimize efficiency. Excels in problem-solving, analytical thinking, and collaborative execution to tackle complex technical challenges. Ready to contribute immediately to software, embedded, or AI/automation projects with measurable impact.

TECHNICAL SKILLS & COMPETENCIES

- Node.js
- API Development
- Oscilloscope Usage
- Analytical Thinking
- Frontend Development
- Interactive Web Design
- Full Stack Development
- CI/CD
- Vercel
- FPGA Design
- GitHub Actions
- Communication
- AWS EC2 / Beanstalk
- Digital System Design
- Docker
- React.js
- Adaptability
- Collaboration
- Microcontrollers
- Problem Solving
- Signal Processing (Matlab)

PROFESSIONAL EXPERIENCE

Dashboard Developer   03/2025 – 05/2025
RHT - Robert Half Technology   Atlanta, GA
- Designed and deployed an interactive dashboard using React.js and Node.js that automated numeric data classification and format transformations, streamlining user workflows and reducing manual processing time.
- Configured MongoDB for secure session management and data persistence, integrating JWT-based authentication to safeguard access and strengthen system reliability.
- Optimized the interface for mobile responsiveness with asynchronous processing and dynamic UI components, enhancing performance and improving overall user experience across devices.

Software Engineer   07/2024 – 12/2024
Ebenezer Presby Church   Woodbridge, VA
- Developed an AI-powered computer vision system for real-time lane tracing and object detection, enabling structured crowd flow and reducing congestion during large gatherings.
- Integrated machine learning algorithms on low-resource platforms, optimizing accuracy and performance while minimizing hardware and power constraints.
- Implemented automated routing and monitoring features that enhanced attendee safety, improved event coordination, and supported seamless management of high-traffic processions.

Front End Customer Service Associate   06/2020 - Current
Walmart   Ashland, VA
- Resolved and documented POS and self-checkout errors, applying systematic troubleshooting approaches relevant to technical problem-solving.
- Ensured transaction data integrity by carefully monitoring system responses, reinforcing accuracy and attention to detail in record-keeping.
- Self-checkout kiosks: Helping customers navigate the interface, fixing minor errors, and troubleshooting issues with the scale or item recognition.

ACADEMIC & PERSONAL PROJECTS

George Mason University | Function Generator — Op Amp Pro
- Constructed a function generator circuit using operational amplifiers capable of producing sine, square, and triangular waveforms, applying analog design principles to replicate multiple signal types.
- Tested waveform accuracy with oscilloscopes and signal analysis tools, validating performance across frequency ranges and ensuring reliable functionality for academic and prototyping applications.

George Mason University | Self-Aware Lane Tracking for Autonomous Systems
Senior Design Project
- Developed a lightweight AI system for real-time lane detection and autonomous navigation on resource-constrained platforms, leveraging Raspberry Pi prototypes to optimize processing efficiency.
- Implemented object detection and tracking algorithms to enhance lane-assistance accuracy, improving system reliability while minimizing computational and power requirements for low-end autonomous systems.

Institute of Data | Digital Keypad Project   **12/2024 –03/2025**

Mini Project 1: Developed a basic number conversion function that converts decimal numbers into binary, octal, and hexadecimal.

- Implemented conversion logic using JavaScript, tested a wide number ranges, and ensured accuracy for conversions.

Mini Project 2: Built a simple UI for users to enter numbers and view their conversions dynamically.

- Incorporated a React-based frontend, added user input handling, and displayed the conversions in real time.

Institute of Data | Digital Keypad Capstone Project

- Integrated all mini-project components into a fully functional Digital Keypad Converter App, implementing backend API connectivity and testing performance to ensure a seamless, reliable user experience.
- Enhanced the application with token-based authentication and user-specific data storage, strengthening security and enabling personalized conversions while demonstrating end-to-end full-stack development capabilities.

EDUCATION & CERTIFICATIONS

Certificate in Software Engineering   **02/2025**

Institute of Data – Virginia Commonwealth University (Accredited)

- **Key Focus:** Software Development Principles, API Development, Full Stack Development, Frontend & Interactive Web Design, React.js 2:1 | Head of School's Commendation for Academic Performance

Bachelor of Science in Computer Engineering   **05/2024**

George Mason University

- **Relevant Coursework & Technical Topics:** Embedded Systems, Microcontrollers, Digital System Design, Computer Architecture, Object-Oriented Programming, Data Structures, Operating Systems, Computer Networking, Continuous & Discrete Signals, Python/Java/C/C++ Programming, Microprocessor Design, Signal Processing, Hardware Programming

AWARDS & HONORS

- **Dean's List** – Recognized for academic excellence, Spring 2021 & Spring 2024
- **YMCA Volunteer of the Month** – Honored for outstanding community service and leadership
- **Walmart Five-Year Excellent Service Award** – Acknowledged for consistent performance, reliability, and dedication