

Nduvho Edward Ramashia

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Professional Summary

Final-year Electrical & Information Engineering student with hands-on experience in embedded systems development, firmware design in C/C++, PCB design and prototyping, circuit testing, and R&D instrumentation. Proven ability to take projects from concept to prototype, including firmware, wireless communication, and interface design. Nationally awarded for computing, high-performance computing (HPC), and data science, demonstrating strong problem-solving skills and a solid mathematical foundation. Successful in both solo and collaborative engineering projects, with a deep passion for embedded electronics research and development.

Technical Skills

- **Programming Languages:** C, C++, Python, AVR Assembly, Matlab, JavaScript, HTML/CSS, Next.js14, Tailwind
- **Tools:** VS Code, Git, LTspice, Proteus Design Suite, Autodesk Eagle, Fusion 360, Matlab, LOGO Soft Comfort, Microsoft Excel, Power BI
- **Hardware:** STM32, Atmel AVR, ESP32, Siemens LOGO PLC, Oscilloscopes, Multimeters, Soldering (through-hole & basic SMD), Circuit Debugging & Repair
- **Platforms:** Linux (various distros + CLI), Windows.

Experience

Assistant to the Services Manager, Integrated Mining Technologies - Kuruman Auto December 2024 – January 2025

- Developed an Excel-based job card system to streamline service reporting, eliminate redundant data entry, and standardize data capture.
- Analyzed service data to identify failure trends and process bottlenecks, leading to improved maintenance planning and resource utilization.
- Leveraged engineering KPIs (e.g., MTTR, MTBF) to evaluate system performance and support data-driven strategies that reduced downtime and operational costs.

Junior Electrical Engineer (Part-time), iMining (Pty) Ltd February 2024 – May 2024

- Designed and programmed firmware (C/C++) for an inductive piston position measurement system, supporting integration and reducing component costs.
- Designed and implemented a communication port extender using an STM32 microcontroller to drive RS485 and CAN buses, enabling external device interfacing.
- Developed and tested custom PCBs for embedded measurement and control applications.
- Performed circuit diagnosis and fault finding during prototype bring-up and lab testing.
- Assembled and soldered PCB prototypes (through-hole and SMD) as part of system prototyping and debugging.
- Collaborated with cross-functional engineering teams to align hardware and firmware specifications.

Student Electrical Engineer, iMining (Pty) Ltd

December 2023 - January 2024

- Designed a sensor-driven PCB measurement system for explosive substances, replacing manual methods and improving safety and accuracy.
- Integrated pressure and flow sensors to automate tank level tracking and dispensing.
- Created schematics in Autodesk Eagle and mechanical models in Fusion 360 for electromechanical integration.
- Built and soldered system prototypes for hardware validation, testing, and calibration.
- Developed a web-based interface for remote monitoring and wireless system testing.
- Assisted with firmware, PCB testing, and diagnostics during prototyping phases.

Undergraduate Research Assistant, Wits of School of Electrical and Information Engineering

June - July 2023

- Supported research on programmable LED lighting systems used in mosquito breeding experiments.
- Performed fault-finding and circuit diagnosis on laboratory equipment.
- Calibrated, maintained, and tested lab equipment to ensure reliable experimental results.
- Ensured laboratory safety, documentation accuracy, and environment organization.

Volunteer, Data for Municipal Infrastructure Assets

June 2021 – August 2021

- Retrieved and processed data for road–river crossing assessments
- Evaluated infrastructure and prioritized repairs to optimize maintenance planning

Teaching Assistant, University of the Witwatersrand

Feb 2021 – June 2021

- Supported groups and individual students in mastering microprocessor concepts, with a focus on Assembly language programming.
- Assisted with software setup, debugging Assembly code, and applying development tools during practical lab sessions.
- Facilitated hands-on learning by guiding students through troubleshooting and programming challenges.

Lecturer Assistant, Wits – School of Electrical and Information Eng.

Nov 2020 - Feb 2021

- Tested and evaluated new microcontrollers for integration into upcoming courses and lab exercises.
- Implemented and validated practical lab experiments to ensure technical accuracy and feasibility.
- Reviewed lab instructions to improve clarity, workflow, and timing for enhanced student learning outcomes.

Education

BSc (Hon) Electrical and Information Engineering,
University of the Witwatersrand, Johannesburg

4th Year

Expected Grad. Date: 2025

Achievements and Awards

- Triumphs in High-Performance Computing (HPC) and Data Science Competitions:
 - ✓ CHPC-SCC 2021 – 2nd out of 4 national finalists.
 - ✓ DIRISA Datathon 2020 – 2nd out of 9 national competitors.
 - ✓ ISC22-SCC – Selected to represent South Africa at the International Supercomputing Conference 2022.

Certifications

The Cybersecurity Threat Landscape, LinkedIn Learning, 2023

Teamwork & Extracurricular Activities

- Music Collaboration & Performance:
 - Proficient in electric piano and bass guitar; self-taught with consistent practice and discipline.
 - Collaborate regularly with musicians in group settings, demonstrating good teamwork, creativity, timing, and team synergy.
- Competitive Strategy & Systems Thinking:
 - Active in online gaming communities, where strategic thinking and coordination under pressure are essential.
 - Demonstrate rapid decision-making, adaptive problem solving, and multi-layered systems analysis in real-time environments.

Professional Memberships

- Student Member, South African Institute of Electrical Engineers (SAIEE)
- Subscriber, Creamer Media (Engineering News, Mining Weekly)

Professional Development

- Attendee, Industry Readiness Program, Wits FEBE, 2025