Nduvho Edward **Ramashia**

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Github | LinkedIn

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
- **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, **4th Year** **Expected Grad. Date: 2025**
University of the Witwatersrand, Johannesburg

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 & Extracurriculars 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)