

Makhubela Innocent

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Profile

UCT Electrical and Computer Engineering final-year with strong technical expertise in data processing, algorithm design, and systems optimization. Skilled in embedded systems, signal processing, and real-time applications, with hands-on experience in computational modeling, database management, and network systems. Proficient in Python, C, MATLAB, SQL, Java, and Assembly, with a focus on developing efficient, scalable solutions.

Education

University of Cape Town

B.Sc. Eng in Electrical and Computer Engineering

Rondebosch, Cape Town

March 2021 – Present

Malenga Secondary School

Matric Certificate(NSC)

Nwa-Mankena, Giyani

March 2016 – 2020

Work Experience

University of Cape Town

DC and Admin Subwarden

House Committee, Health and Safety Sub-Warden

Varietas Residence, Mowbray

January 2025 – Present

- Assisted students with physical, emotional, and academic needs, and guided them through the proper channels for resolving issues.
- Supported the academic and social needs of students, ensuring adherence to residence rules and university policies.
- Undertook duties as assigned by the Warden, including reporting and collaboration with the Residence Management Team.
- Supervisor of the residence House Committee, Health and Safety Portfolios.

University of Cape Town,

Academic Tutor

Electrical Engineering Department

EEE2041F, EEE2045F

Upper Campus, Mowbray

February 2024 – Present

- Provided academic support and tutoring to students in electrical engineering, enhancing their understanding of course material.
- Provided assistance during the practical labs.
- Marked tests and Assignments.

University of Cape Town, Ad-hoc Practical Development Assistant

Electrical Engineering Department

Upper Campus, Mowbray

Dec 2024 – Feb 2025

- Developed tutorial resources and starting code for the Embedded Systems II (EEE3096S) course.
- Designed practicals using STM32F0 and STM32F4 microcontrollers, focusing on HAL libraries.
- Implemented sound generation and playback circuits, including speaker amplifier and microphone systems.
- Configured timers, ADC, and DAC for embedded signal processing applications.
- Managed project deliverables using GitHub
- Created technical documentation and structured student learning materials.
- Compiled circuit designs, parts lists, and cost analyses for large-scale practical implementation.

University of Cape Town,

Technical Assistant Vac Student

Electrical Engineering Department

Upper Campus, Mowbray

Dec 2024 – Feb 2025

- Integrated outdated labs into a single virtual machine with an updated OS and programming libraries.
- Standardized the lab environment and introduced Jupyter notebooks for structured learning.
- Configured APN settings and programmed SIM cards to enable user devices to connect to a custom mobile network.

- Established a 5G connection using Open5GS and validated network access for phones and USB dongles.
- Set up and utilized Software Defined Radio (SDR) for network performance testing and channel condition analysis.
- Conducted network measurements under different configurations, focusing on optimizing 5G stability.
- Developed Python scripts for automated network measurements and data visualization of signal conditions.
- Compiled detailed reports on network setups, signal analysis, and recommended configurations for optimal performance.

University of Cape Town
Student Front Desk Assistant
Department of Residence Life

Varietas Residence, Mowbray
January 2023 – November 2023

- Provide front desk support, including answering inquiries and assisting residents.
- Perform administrative tasks, such as managing check-ins and check-out.
- Maintain a welcoming and organized front desk area.
- Handle residents' requests and resolve issues promptly and professionally.

Elegen Power
Student Electrician

Mountjoy St, Wilbart
June 2023 – July 2023

- Performed panel and engine wiring, PLC programming, crimping and glanding, fault finding, and testing the final Generators.
- Assisted with panel wiring and PLC programming, gaining hands-on experience in electrical systems.
- Assisted in troubleshooting faulty generators.
- Compiled detailed reports on electrical systems and issues.

Leadership Experience

Varietas Residence
Secretary General
House Committee

Cape Town
April 2023 – September 2023

- Drafted meeting agendas, recorded minutes, and facilitated communication within the house committee.
- Managed point allocation and recorded hours for UCT Plus.
- Served as a member of House Committee executive in making decisions.
- Served as a member of Residence Management Team.

ZCCSF Western Cape
Provincial Deputy Educational Transformation Officer
Provincial Executive Committee

Western Cape
September 2022 – April 2023

- Organized educational events and mentorship programs to support academic excellence and transition for first-year students.
- Promoted academic collaboration among branches.
- Supervised all Western Cape's educational transformation officers and ensure that the events they plan adhere to the organization's policy and regulations.

Technical Skills

Programming: Python, C, MATLAB, SQL, Java, Assembly

Hardware: STM32, PLCs, Oscilloscopes, Signal Generators

Networking: 5G (Open5GS), APN configuration, SIM provisioning

Tools: Git, Jupyter, LTSpice, Linux

1 Referral

Available Upon Request