

ZUHAYR LOONAT

Electrical & Computer Engineer
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<https://github.com/zuhayr>

I am a final-year Electrical and Computer Engineering student at the University of Cape Town, with a strong interest in embedded systems, circuit design and software development. I thrive in roles related to problem-solving, enjoy learning new skills, and am committed to working hard and adding value wherever possible.

EDUCATION

BSc Eng. in Electrical & Computer Engineering, University of Cape Town **2021 - Present**

Roles:

Wiring and Safety Sub-Lead – Formula Student Africa August 2024 - February 2025
Electrical Team Lead – Formula Student Africa February 2025 – Present

High School, Islamia College **2018 - 2020**

- Matric Average: 83.7%
- Distinctions in Maths, Physics, CAT, and IT
- Participated in multiple school activities, including debating and basketball, and was the treasurer of the school charity society.

Hifthul Quran, Memorised Entire Quran **2013 - 2017**

SKILLS

Programming: Python, C/C++, Icarus Verilog, Java, MATLAB, MySQL, Assembly
Platforms and Tools: KiCAD, LTSpice, Linux, Git, Fusion360, STM
Technologies: Raspberry Pi, ESP32, Arduino
Tool Experience: Photoshop, Figma, Docker, Basic Welding, CNC Programming, Pneumatics, Fitting & Turning

WORK EXPERIENCE

Intern **March 2025 - Current**
Moths Inc

- Designed and built a receiver for a smart lighting system, including the design of 3D models, circuit diagrams, and the PCB.
- Programming of ESP32 and Raspberry Pi for smart light configuration

Reference: Julian Banks - +27 83 670 8106

Academic Tutor **July 2023 - Current**
University of Cape Town

- Tutor for Introduction to Electrical Engineering I & II, High Performance Embedded Systems
- Assisting students in understanding the basics of electrical engineering concepts
- Assisting with labs and practical sessions.
- Marking Tests and Assignments

Cashier/Cook **March – December 2023**
Pancake Mechanic

- Worked in a food cart selling pancakes
- Duties included frying, topping and sales

Reference: Salmaan Ahmed - +27 78 680 0946

PROJECTS

Thesis – Water Salinity Sensor (Current)

- Currently working on a water salinity sensor array, which uses the conductivity of water to calculate the salt levels.

Time Distance of Arrival Project

- Created and programmed a detection system for a Time Difference of Arrival Detector.
- Designed circuitry for the system.
- Created a program to interface between a Raspberry Pi acoustic detection circuit and a personal laptop through both Python and MATLAB.

Computer Science Capstone Project

- Created a website for first years with resources to help their university journey, a student help guide.
- Used JavaScript, Node.js, HTML and CSS for programming, design and functionality.
- Included games and quizzes with scores, linked to a firebase database, for a leaderboard.
- Used Git for version control and collaboration.

Bird Monitoring System

- Created a web interface for a bird monitoring system, which allowed the user to view images and files and look at statistics, with the use of PHP, HTML and JavaScript, on a Raspberry Pi using an Apache server.
- Created a program that sent files from an ESP32 to a Raspberry Pi.
- Raw data was sent from an ESP32-CAM to the Raspberry Pi where it was processed.

Image Steganography System

- Created an image steganography program with C++ and OpenCL to encode and decode data from images.
- Worked with parallelism and multi-threading in OpenCL, including concepts such as speedup.

Other Personal Projects

- Computer Science Help Guide – Guide for 2nd Year Computer Science Course
- Desktop PDF Utility App
- Home Lab

HOBBIES & INTERESTS

- | | |
|---------------|---------------------|
| • Photography | • Squash (UCT Team) |
| • Art | • Padel |
| • Football | • Surfing |