

PATRICK MAINA

16239-00610, Nairobi · +254704258762

Patrickmaina364@gmail.com · [Linkedin profile](#) · [Github](#)

I am a motivated Electrical and Electronics Engineering graduate skilled in collaborating closely with senior mentors and engineers to design, develop and test Engineering systems. I have prior experience in Research and Development, PCB Design, CAD Design, Machine Learning, FPGA Development for Digital Design, Linux Development for Embedded Systems and Telecommunications.

EXPERIENCE

MAY 2022 – AUGUST 2022

STUDENT ON ATTACHMENT, GEARBOX KENYA

- We were divided into four main teams namely: **Machine Learning, Cloud and IoT, Robotics and Design and Fabrication**. I was part of the Machine Learning team where we developed a facial recognition model that would be implemented in a door automation system for the Gearbox Academy. My task was specifically to aid in collecting data, in the form of images, from the other students as well as the staff who would interact with the system and sort the data to be included in the Machine Learning model for training.
- I undertook a Computer-Aided Design (CAD) course using Autodesk Fusion 360 where I was introduced to various types of designs including, but not limited to: ECAD, MCAD

AUGUST 2022 – PRESENT

RESEARCH AND DEVELOPMENT SCHOLAR, KENYA SPACE AGENCY

- I am currently involved in the development of the Tafiti 3U CubeSat under the Kenya Space Agency. The project is being developed by a consortium of four Kenyan Universities, with close guidance from Kenya Space Agency and Sayari Labs.
- My role is in the development of the On-Board Computer (OBC) and Payload Subsystems.

EDUCATION

SEPTEMBER 2018 – SEPTEMBER 2023

BACHELOR OF SCIENCE, BS IN ELECTRICAL AND ELECTRONICS ENGINEERING, UNIVERSITY OF NAIROBI

Grade attained: **Second Class Honors Upper Division**

Relevant course material: **Digital Electronics, Analog Electronics, Circuit Theory, Computer Science, Telecommunications, Control Systems, Applied Electronics and Microwaves and Antennas.**

SKILLS

- Printed Circuit Board (PCB) Design
- Computer-Aided Design (CAD)
- Embedded Software Development
- Python Programming
- Hardware Descriptive Language (HDL) Programming
- Digital Design for FPGA Implementation
- Machine Learning Algorithm Development

PROJECTS

1. **Development of a custom STM32H7 Printed Circuit Board (Final year capstone project):** This project involved the design of a custom PCB implementing an STM32 microcontroller, an SD Card for data storage, a camera connector that was used to interface an external ArduCAM camera to the board for real-time image capturing and a debug connector for interfacing the STM32 debugger for programming.
 - **Project link:** [STM32H7 Board Design](#)
2. **Four-bit full adder implementation on the Basys 3 Artix-7 FPGA board:** This project involved the design of a four-bit full adder by instantiating a half adder and a one-bit full adder using the Verilog programming language. From the code, a bitstream file was generated which was then implemented in the Basys 3 FPGA board and tested for
 - **Project link:** [Full adder implementation](#)

REFERENCES

Will be available upon request