LUKE PLASTOW

Second Year Computer Engineering Student
University of Southampton

@ Contact Me 🌐 luke.net.za in Luke-Plastow ⌂ spekb

EXPERIENCE

Mentor - University Taster Course
University of Southampton

📅 Summer 2025

The University of Southampton holds a 5-day annual Electronics and Computer Science summer course for potential applicants. As a mentor I fulfilled a number of roles in the course:

- I acted as a demonstrator in laboratories, teaching students skills e.g. soldering, circuit design, and boolean algebra
- I worked closely in a team environment other mentors and supervisors to organise activities and deal with any problems that arose

PROJECTS

Off-Grid E-Learning Systems for Rural Schools
kalahariexperience.org/lms

📅 Jan 2020 - Present   📍 Northern Cape, South Africa

Skills developed: Python, Linux, Javascript (SvelteKit based), Leadership

Throughout high school, I was a lead of a Service Group named Kalahari Education Experience Project, which supports education in a few impoverished areas of the Moshaweng Valley in rural Northern Cape, South Africa.

One of my main roles in this group was to lead development of a system that allowed students in the valley to access a wide array of digital study resources without internet, which I have continued though my time at university. This is important as physical study resources like textbooks are often unavailable due to prohibitive costs and internet connection in the valley is only available through an unreliable and expensive mobile data connection.

Random Forest Machine Learning Classifier
University Project

📅 May 2025   📍 University of Southampton

Skills developed: C++, Data Structures, Object Oriented Programming, Machine Learning Concepts

For my data structures and algorithms module, I wrote a decision tree classifier in C++ using only the standard library. This algorithm predicts the class of a specific object based on its characteristics, after training on sample data. An example use case would be deciding whether a bank should give someone a loan based on factors like income, employment type, savings, etc. This project allowed me to apply my knowledge of data structures to a real-world, performance critical situation. Because I wrote the decision tree class using object oriented programming principles, I was easily able to create many instances of the tree with some slight randomness in their training, and compare their results, which improved accuracy. This technique is known as a random forest.

For more projects and demos - please visit my portfolio site!
luke.net.za

ABOUT ME

I am interested in the border between hardware and software. Keeping the hardware in mind when writing software allows me to achieve high performance and low power consumption.

SKILLS

- Extensive understanding of **Python**, including common data analysis and networking libraries and **OOP**
- Deep experience with **C++**, **C**, and **MATLAB** programming languages
- Understanding of the **SystemVerilog** hardware description language for programming FPGAs and designing ASIC chips
- Circuit design & debugging as well as PCB design
- Experience using **Git** version control, common **CI/CD** pipelines, and coding as part of a team
- Good experience using **Linux** and **Bash** Scripting
- Experience with HTML, CSS, and **JavaScript** for making rich user interfaces
- Rich report writing using $\LaTeX$

EDUCATION

BEng Computer Engineering
University of Southampton

📅 2024 – 2027   📍 United Kingdom

International Baccalaureate Diploma
Frankfurt International School

📅 2019 – 2024   📍 Germany

Leader of Media & Broadcasting Society; E-Learning Equality Lead of Kalahari Education Experience Project

Maths; Computer Science; Physics; German; English; Geography

Global Online Academy

📅 2019 – 2022

Synchronous, semester-long online courses in Cybersecurity, Business Management, Microeconomics