

# ABAYOMI OMOTOSHO-IKURU

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## EDUCATION

### Loughborough University

*Master of Science, Artificial Intelligence*

- Machine Learning, Robotics, Natural Language Processing, AI Ethics

Loughborough, UK

Oct. 2021 – Oct. 2022

### University of Sheffield

*Bachelor of Engineering, Electronic Engineering with a Year in Industry. Class 2:1*

- Engineering Software Design, System Design Analysis, Semiconductor Electronics

Sheffield, UK

Sep. 2017 – Jun. 2021

## WORK EXPERIENCE

### Data Engineer

*Kasaie Ltd - Startup*

- Implemented an organised structure for updating customer data on a database using GraphQL
- Automated the transfer of customer data from independent platforms using a REST API

May 2022 – Sep 2022

London, UK

### Electrical Design Engineer

*VolkerRail Ltd - Placement Year*

- Designed and developed electrical design schematics and simulations in a team for use on the railway
- Managed the entirety of a design job; understanding the scope, rectifying issues in electrical simulations, improving design workflow with efficient organisation of project files, and effective communication with parties involved

June 2019 – June 2020

Doncaster, UK

### Web Development Intern

*CBC EMEA*

- Expanded my knowledge on creating websites using HTML, CSS and JavaScript in an agile environment

Aug. 2016

Lagos, Nigeria

## OTHER EXPERIENCE

### SpaceDART Avionics Engineer

*Project SunrIde, University of Sheffield*

- Developed and implemented the Ground Station Telemetry system with Grafana and InfluxDB
- Developed data ingestion tools for the telemetry system using Python, REST API and WebSockets
- Deployed the system to the internet to be used by SunrIde team members using Docker and Nginx
- Contributed to the embedded avionics systems software on SunrIde rockets using C++ via Git

July 2021 – Sep 2022

Sheffield, UK

### Electric Powertrain Systems Engineer

*Sheffield Formula Racing (IMechE Formula Student), University of Sheffield*

- Designed and developed the foundation of an electric formula student car in a team as part of a new initiative
- Conceptualised communication and data logging systems using microcontrollers and CAN
- Improved technical knowledge of embedded systems software in electro-mechanical designs
- Developed communication and teamwork skills in the inter-disciplinary team of 60 members

May 2017 – June 2021

Sheffield, UK

## VOLUNTARY EXPERIENCE

### Cybersecurity Society Technical Lead

*Student's Union, Loughborough University*

- Delivered engaging presentations on cybersecurity topics and curated fun challenges for society members
- Planned and organised society events in a team that prioritised member participation

Feb. 2022 – Aug 2022

Loughborough, UK

### Photography Society Publicity Officer

*Student's Union, University of Sheffield*

- Improved member engagement through an effective use of social media platforms
- Developed illustration and animation design skills for publicity material to promote society events

May 2019 – June 2021

Sheffield, UK

## PROJECTS

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- AI Robot Arm - MSc. Project** | *Python, Nvidia Omniverse Isaac Gym* Apr. 2022 – Aug. 2022
- Researched and developed a vision-based Deep Reinforcement Learning algorithm to intelligently control a 6 DoF robot arm using Sim2Real transfer
  - Documented my findings in a structured report along with a video presentation and demo
- Simple Suspend Safari Extension** | *JavaScript, HTML/CSS* Mar. 2022 – Apr. 2022
- Solved the issue of high memory usage with many open Safari browser tabs by developing a web extension to suspend tabs manually or after a set period of time
  - Open sourced the extension on GitHub
- Smart Room** | *C/C++, Linux Containers (LXC)* Feb. 2022 – Mar. 2022
- Designed and developed Internet-of-Things (IoT) devices using microcontrollers, CAD software and 3D printed parts
  - Deployed an instance of Home Assistant using LXC to orchestrate and facilitate the use of the IoT devices with voice assistants
- AI Robot Car - Postgraduate Project** | *Python, Jupyter Notebook, TensorFlow, ROS* Nov. 2021
- Developed software in a team of 5 for a robot car to follow a Human using an Intel RealSense RGB-D camera
  - Utilised Mobilenet V2, a pre-trained convolutional neural network model to detect people and avoid obstacles
  - Implemented human-like behaviours for the robot to perform based on pre-determined conditions
- Cryptocurrency Trading Bot** | *Python, Node.js, SQLite, REST API, Git* May 2021 – Aug. 2021
- Developed a CLI application to speed up the process of trading cryptocurrency pairs using the APIs of two prominent cryptocurrency exchanges.
  - Implemented a database for logging trades using SQLite
  - Managed and responded to issues on the GitHub issue tracker for the project which has 50+ stars
  - Re-architected the project from a simple python script to an object-oriented Node.js application, allowing for asynchronicity, extensibility and separation of concerns
- Invisible Image Watermarking - Undergraduate Project** | *Python, OpenCV, Next.js* Sep. 2020 – May 2021
- Developed an algorithm using Python, NumPy and OpenCV to embed an invisible watermark in the frequency domain of image that is robust to the process of dithering in physical prints
  - Deployed a full-stack web application with Flask serving as a REST API, Next.js for the frontend and Redis as a task queue to allow for user testing of the watermarking algorithm online
- HomeLab - Server and Networking** | *Linux, KVM, Kubernetes, Docker, Nginx, CI/CD* Mar. 2020 – Present
- Built and setup homelab infrastructure for virtualisation, experimentation and deploying personal services online
  - Implemented VLANs and a Site-to-Site VPN using WireGuard to connect a Virtual Private Server (VPS) network to my home network
  - Deployed multiple web applications hosted locally using Nginx as a reverse proxy
  - Managed self-hosted applications using a virtualised 3-node Kubernetes cluster and Docker running in LXCs
  - Implemented PCIe GPU pass-through from a KVM Hypervisor Host to a Guest VM using IOMMU
- Video2Live - iOS App** | *Swift, SwiftUI, Google Admob* Nov. 2019 – Sep. 2020
- Developed an iOS app to convert video files to Apple's Live Photo format using Swift, for use as a Live Wallpaper
  - Published the app to the Apple AppStore gaining 38K+ downloads, an average 4-star review and double-digit revenue from in-app purchases and ads

## TECHNICAL SKILLS

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**Languages:** Rust, Python, C/C++, Swift, JavaScript, HTML/CSS, SQL

**Frameworks:** React, Node.js, Flask, Flutter

**Developer Tools:** Git, Docker, Kubernetes, Linux, AWS, Ansible, Terraform, VS Code, Xcode, VIM

**Libraries:** NumPy, pandas, Matplotlib, TensorFlow, PyTorch

**Other:** Photoshop, Blender