

# ARAN MCCONNELL

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Software Engineer and C/C++, Python, and Typescript Developer focused on ML Compilers. I'm interested in ML, AI, using tech to accelerate a greener future, and tech for good.

## EXPERIENCE

### Fractile

ML Compiler Engineer

July. 2024 – Present

London, UK (Remote)

- Key role in designing the compiler from scratch for a cutting edge systolic ASIC system.

### CaptainApp

Software Engineer

Feb. 2024 – June. 2024

Bristol, UK

- Built an asset management application demo for a client. Utilising Flutter, and Typescript running on Firebase and Google Cloud.
- Built other demo applications mainly using Typescript React.

### Career Break

Took a working holiday in Canada to focus on snowboarding and climbing

Nov. 2022 – Dec. 2023

B.C, Canada

### XMOS

Graduate Software Engineer

Oct. 2021 – Nov. 2022

Bristol, UK

- Wrote runtime optimisations to neural network operators in C++ to improve ML model performance on XMOS silicon.
- Wrote compiler optimisations with MLIR to improve ML (TensorflowLite) model performance on XMOS silicon.
- Developed tools to profile the performance of popular ML models with our optimisation framework, and identify bottlenecks to direct future work.
- Developed the first public release of internal Python APIs for utilising our AI acceleration framework. These APIs were designed to allow seamless migration from other AI frameworks such as Tensorflow Lite.
- Set up CI for testing my work using Jenkins and Github Actions
- Collaborated within a small team that was a mix of remote and hybrid in the UK and North America.

### Beko R&D

Summer Intern

June - Sept. 2020

Cambridge, UK

- Designed and conducted experiments in the lab, analysing the results in Python.
- Built an evaluation kit for testing a novel measurement method in production. Worked with IMUs, and Sensor Fusion techniques on microcontrollers.
- Co-Invented a Patent under application.

### Lascar Electronics

Summer Intern

June - Sept. 2019

Whiteparish, UK

- Redeveloped firmware for an industrial panel meter. EFR32 Platform.
- Had a major role in developing the firmware for a new flagship datalogger using FreeRTOS, and low-power design.

## EDUCATION

### MEng Electronic Engineering

University of Southampton, First Class Honours

2021

Southampton, UK

- Masters group dissertation on Recognising Activities of African Wild Dogs Using Machine Learning
- 94% in Advanced Machine Learning
- 71% in Foundations of Machine Learning
- 76% in Computer Vision

### A Levels

Gower College Swansea

2017

Swansea, UK

- A - Mathematics, Further Mathematics, and Physics
- A - AS Level Chemistry

## TECHNICAL SKILLS

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**Languages:** English (Native)

**Programming Languages:** C, C++, Python, Typescript

**Frameworks:** Tensorflow, Django, NextJS, React

**Cloud & Database:** Firebase, SQL

**Developer Tools:** Git, Github Actions, Jenkins, Bazel, Docker, Jira, VS Code

## PROJECTS

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### 4th Year Group Dissertation - Recognising Activities of African Wild Dogs using Machine Learning

[Report](#)

Investigated a variety of machine learning and deep learning techniques to predict the behavior of African wild dogs from a collar-mounted sensor. The data used for training was all self-collected and labeled. The final model made great use of time domain features from Fourier and wavelet transforms, and utilised deep learning techniques.

### Predicting used car prices using machine learning

[Report](#)

An exploratory project using the Kaggle Used Cars database to produce a model that accurately predicted a used car's price. Supervised techniques such as XGBoost and emsembling were utilised.

### Website for University Surf Club

[Site](#) | [Source](#)

- Built using Django, HTML, CSS, and Bootstrap
- Developed custom features such as users, events, equipment logging and borrowing, and a blog.

## HONOURS AND AWARDS

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### UKESF - UK Electronic Skills Foundation Scholar

**Oct. 2019 - June 2021**

*Sponsoring Company - BEKO R&D*

- One of 50 students in UK Electronic Engineering courses to receive a UKESF scholarship.
- I attended a 4-day professional development workshop with the UKESF, and spent a summer as an intern with my sponsoring company BEKO R&D.

### Gold Crest Award

**2017**

*Engineering project With Swansea Bay Tidal Lagoon*

## ORGANISATIONS

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### Southampton University Formula Student

**2018 - 2020**

*Electronics Team*

*Southampton, UK*

### Southampton University Wakeboarding Club

**2018 - 2021**

*President, Treasurer, and Social Secretary*

*Southampton, UK*

### Southampton University Surf Club

**2019 - 2021**

*Vice President, and Trip Secretary*

*Southampton, UK*

### Southampton University Kitesurfing Club

**2020 - 2021**

*Treasurer*

*Southampton, UK*

## INTERESTS

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ML, Generative AI, Health Technology, Green Tech, Edge Computing, Kitesurfing, Surfing, Climbing, Snowboarding, Mountaineering, Ski Touring, Cycling, and Trail Running.