

Alex Usher

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EDUCATION

Imperial College London

Master of Engineering in Computing, First Class.

London, UK

September 2019 – June 2023

Trinity College London

Associate's Diploma in Music Performance, Distinction.

London, UK

July 2017

EXPERIENCE

Software Development Engineer Intern

April 2022 - September 2022

Amazon, Prime Video Technology

London, UK

- Designed, implemented, scaled and released a cache on a 500k+ TPS request flow between two tier-1 services.
- Reduced traffic to one of the team's tier-1 services by 90%, saving the team over \$5M/yr in public AWS costs.
- Onboarded onto team projects, picked up stories from the sprint and helped deliver towards team goals.
- Gained an understanding of how to effectively prioritise work and achieve project goals.
- Learned a lot about the best practices for end-to-end development on a high-scale tier-1 service.

Software Development Engineer Intern

June 2021 - August 2021

Expedia Group

London, UK

- Designed, developed and tested a NodeJS API to get health information about the team's services.
- Terraformed required AWS resources and set up a TeamCity pipeline for test and production environments.
- Integrated with AWS, Grafana and internal services to obtain troubleshooting and debugging information.

Software Consultant

November 2020 - March 2021

MoveMed - Imperial Junior Solutions

London, UK

- Communicated with clients to develop games for patients with reduced hand-eye coordination and dexterity.
- Developed a Unity game in C# with fluid difficulty that could adjust to the user's ability.
- Learned how to develop an application to a client's needs, in a customer-oriented fashion.

PROJECTS

WebGPUUniverse | *ReactJS, Firebase, WebGPU, WGSL*

November 2021 - January 2022

- Collaborated in a group of seven to develop an online sandbox for the new WebGPU graphics API.
- Implemented render pipelines to support a range of mesh types, including 3D and user-defined 2D meshes.
- Highlighted the power of WebGPU over WebGL with a custom sandbox for compute shaders.
- Challenged by a lack of documentation, little browser support and evolving WGSL language specifications.

WACC Compiler | *Kotlin, ANTLR, ARM11*

January 2021 - March 2021

- Developed and tested an optimising compiler for the WACC language in a group of 4.
- Worked effectively as a team to achieve a grade of over 95%.
- Learned much about compiler concepts, parser generators, symbol tables and optimisation techniques.

Website Manager - IC Symphony Orchestra | *ReactJS, Firebase*

April 2020 - June 2022

- Migrated the pure-HTML website onto a React app with a lightweight backend.
- Automated several responsibilities and implemented quality-of-life features for future website managers.
- Designed and implemented new features at the request of the committee.

Genetic Stocks | *C, Python, Machine Learning*

June 2020

- Implemented a genetic algorithm to optimise the hyperparameters of a multi-layer perceptron.
- Challenged to choose implementations of high accuracy that could be created within a short timeframe.

TECHNICAL SKILLS

Most Experienced: Java, Kotlin, C, NodeJS, SQL, Web Development, Data Structures

Comfortable With: Python, Scala, Haskell, ReactJS, C++, C#

Tools: Git, AWS, Firebase, Docker, L^AT_EX, ANTLR, Spring DI

NOTABLE ACHIEVEMENTS

David Howarth Prize | *Imperial College London*

June 2022

Coldstream Guards Award | *Imperial College London*

April 2019 - June 2022

Ash Scholarship | *Imperial College London*

April 2019 - June 2022

National Youth Orchestra | *Clarinettist*

December 2017 - December 2019