# Oliver Babington Ellis

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## Experience

**Acorn Insurance** **April 2023 – Present**

*Machine Learning Engineer*

- Sole developer on data science team and the main point of contact between other dev/dev-ops teams and data scientists
- Authored and architected an app composing of multiple micro services to support price optimization models
- Aided the data scientists in the standardization of ML pipelines, delivering reusable objects for rapid development and automated retraining, complemented by robust data preparation and pipelines
- Met all requirements with almost 100% availability and response times under SLA with good margins and scalability
- Maintained a key focus on observability (LGTM stack) during app development, ensuring app performance and stability, delivering said performance/stability metrics and insights to stakeholders for informed, confident decision making
- Lead the migration of data ingestion jobs to a real time event driven architecture
- Implemented better testing in staging environments, a method now standardized across the company to improve testing
- Worked with centralised ops teams to aid the creation of deployment pipelines and to follow the business best practises

**Mastercard** **March 2022 – April 2023**

*Data Science Operations Engineer (MLOps)*

- Key actor in the deployment of ML anti-fraud application to kubernetes host on-prem Azure cloud scoring over 99.9% UK bank transactions
- Provided real time support to maintain downtime/service degradation within the requirement of our SLA
- Development and maintenance of Go and Python micro services
- Worked between the MLEs and data engineers to ensure simultaneous development didn't cause issues

**KX** **October 2021 – March 2022**

*Data Scientist on Capital Markets Graduate Programme*

- Lone Software Engineer Deployed to a Formula 1 Race team tasked with the creation of Race Ops Application
- Co authored Data Ingestion pipelines to meet strict requirements to ensure data was available to trackside engineers
- Delivered a Proof of Concept, as a team of 3, to a race series resulting in sale of both product and promise of future work
- Founded a deep understanding of the vector-oriented programming language Q and Time Series Databases KDB by completing multiple personal projects and training not available as part of the standard grad course

**Imperial College London** **August 2020 – October 2020**

*Undergraduate Research Opportunity*

- Assisted a postgraduate student in the development of resource sharing on FPGAs, targeting the resource sharing of statically and dynamically scheduled components. This involved adapting source Intermediate Representation (IR) using LLVM to meet specifications for High-Level Synthesis (HLS) and 'Dynmatic' scheduling methodologies
- Developed a deeper understanding of Intermediate Representation and the respective optimisations

## Education

**Imperial College London** **Sep. 2017 – May 2021**

*Upper Second-Class Honors: Bachelor of Engineering in Computer Engineering (EIE)*

**Relevant Modules**: Machine Learning; Artificial Intelligence; Mathematics for Signals and Systems; Deep Learning; Simulation and Modelling; Object Oriented Programming; High-Level (functional) Programming; Computer Vision; Software Engineering; Data Structures and Algorithms; Algorithms and Complexity; Databases; Computer Networks and Distributed Systems; Language Processors; Mathematics 1 and 2 and Computer Architecture 1 and 2.

*Please turn over*

## Profile

As a Computer Engineering graduate with a proven track record of academic excellence, including achieving 100% in multiple exams (mostly maths). My diverse experience, sitting in different roles across machine learning and development teams, has equipped me with a comprehensive appreciation of the entire software lifecycle, from development to deployment. This experience is further enriched by my hands-on knowledge in both development and operations, emphasizing my ability to deliver robust solutions while understanding the synergy within a tech team.

My professional journey is marked by a strong preference for collaborative, in-person work environments where I can contribute to and learn from my peers. I thrive in settings that require teamwork and actively seek opportunities to engage in dynamic group projects. This inclination towards collaboration is matched by my genuine and substantial passion for technology. I am constantly engaged in enhancing my technical knowledge, whether it be through mastering the fundamentals or exploring the bleeding edge of tech advancements. This enthusiasm extends beyond my professional life, by both reading and frequently attend tech events to immersing myself in the latest industry trends and connecting with fellow tech enthusiasts.

In summary, I am a driven and adaptable professional with a keen interest in all things tech. My approach combines a solid foundation in mathematics, a wide-ranging technical skill set, and a sincere commitment to continuous learning and professional growth.

## Projects

**Recruitment AI web app** | *React (Typescript), Python, Firebase* **November 2023**
- Leveraged OpenAI assistants to develop a user-friendly web app, enabling non-technical recruiters to interact effectively with candidates in technical screenings (GPT wrapper).
- Integrated drag-and-drop functionality for easy upload and AI-driven analysis of CVs and job descriptions, converting them from PDF to text for processing
- Established a robust testing framework to ensure the reliability of the web app, while continuously updating agents to align with the latest advancements in AI

**Neural Network Library, Python (Graded 100%)** | *Python, GitLab CI* **December 2020**
- Developed a library from scratch (excluding NumPy) for implementation and training of dense neural networks
- Supported all most common activation functions such as RELU and Liner as well as features such as drop out and bias's

**Deep Learning Research Paper** | *Python* **March 2021**
- Implemented and analysed the following: Common CNN architectures, RNNs, Autoencoders, VAE-GANS and RL networks

**Image Classification using a Convolutional Neural Network** | *Python* **November 2020**
- Image Classification on MNSIST Fashion using PyTorch, test set accuracy 95.95% (better than 5th place on Kaggle)

**Monte Carlo Simulation of CPU Cores' Interaction with Ticket Spinlocks** | *Python, Bash* **November 2020**
- Monte Carlo Simulation (personal project) and Mathematical Analysis (graded 60%) investigating the effect of varying the number of CPU Cores' on both; time taken to execute a given number of jobs and average number of cores in use

**C98 to Mips Compiler (Graded 66%)** | *C++, Bash* **July 2019**
- As a group of 2 we co developed a lexer, parser and code generator to compile C98 into Mips Assembly
- Using the same skeleton, we constructed a C98 to python translator
- Developed Bash Test Bench to compare outputs from our compiler and GCC

**MIPS Simulator (Graded 77%)** | *C++, Bash* **November 2018**
- Emulation of a CPU's memory and register file when given MIPS-1 big-endian binaries
- Developed test bench of over 200 MIPS assembly tests to validate functionality and ensure system reliability

**FPGA Real Time Image Processing end of first year project (graded 72%)** | *C, Python* **June 2018**
- Developed a deep understanding of hardware specific optimisation such as arbitrary precision types, unrolling loops and pipelining
- Matured time and resource management skills including the creation and application of Gantt and Activity Network diagrams
- Took the lead role writing an 8000-word technical report

## Technical Skills

**Languages Advanced**: Python, Go
**Languages Intermediate**: SQL, F#
**Languages Beginner**: C++, Typescript
**DevOps**: Kubernetes, Docker, Helm, Terraform, Azure Pipelines
**Data Storage/Processing**: Postgres, MySQL, Mongo, Redis, Kafka, Azure Service Bus, Fivetran, KDB+
**Cloud**: Azure, Google Cloud Platform, Firebase
**Observability**: Prometheus, Grafana, Kibana, Loki