Oliver Babington Ellis

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Experience

Acorn Insurance — April 2023 – Present

Software Engineer

- Sole developer on data science team and the main point of contact between other dev/dev-ops teams and data scientists
- Authored applications comprised of multiple micro-services, using Python's FastAPI framework and deployed to Kubernetes on Azure. Designed for critical real-time business operations, these applications significantly enhanced price optimization and facilitated predictive analytics for claims cost and intervention probabilities.
- 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
- Collaborated with central ops teams in creation of deployment pipelines and other CI

Mastercard — March 2022 – April 2023

Software Engineer (Ops/MlOps focus)

- 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, maintenance and testing of Go and Python micro services
- Worked between the MLEs and data engineers to harmonize simultaneous development/deployments

KX - First Derivatives — October 2021 – March 2022

Software Engineer on Capital Markets Graduate Program

- 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
- Developed kdb+ style tickerplants across various time-series databases and technologies, including TimescaleDB, Influx, and Prometheus.

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 reading extensively and frequently attending tech events, 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 and Courses

Time Priority Order Book | *Python* **2024**
- Implemented order book to accept market, limit and stop orders for simulations of historic market events/exchanges

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

Practical Time Series Analysis | *Python, r* **June 2024**
- 6 week online course supplied by The State University of New York
- Gained proficiency in time series analysis techniques including ARIMA, SARIMA, and exponential smoothing

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**
- Implemented hardware specific optimisation such as arbitrary precision types, unrolling loops and pipelining

Technical Skills

Languages Advanced: Python (NumPy, Pandas, Fastapi...) , Go (Gin, Mux...)
Languages Intermediate: SQL, Kdb+/q
Languages Beginner: C++, Typescript, F#
DevOps: Kubernetes, Docker, Helm, Terraform, Azure Pipelines
Data Storage/Processing: Postgres, MySQL, Mongo, Redis, Kafka, Azure Service Bus, Fivetran, Kdb+, TimescaleDB
Cloud: Azure, Google Cloud Platform, Firebase, DataBricks
Observability: Prometheus, Grafana, Kibana, Loki