

# Jonathan Wang

DATA AND SOFTWARE ENGINEER · DATA SCIENTIST

📞 (+44) 7490877955 | ✉ jonnowangnz@gmail.com | 🌐 jonnowang | 📄 jonathan-wang-nz

## Experience

### Smarkets

London, United Kingdom

DATA ENGINEER & SCIENTIST

Sep. 2022 - Present

- Designed and developed an industry-leading recommendation engine. Collected and processed user activity data which was fed into an implicit matrix factorisation model minimising RMSE loss. Hyperparameter tuning was done using a custom metric suite through a dockerised project using AWS EC2 resources. A/B testing revealed a **40% increase in user engagement compared to baseline unpersonalised events**.
- Implemented a new asynchronous data ingestion pipeline in response to increased data volume. Designed a two-part system involving data streaming into postgres database from Kafka and an asynchronous Python job which loaded archived S3 files without severe I/O bottlenecks. New system **reduced processing time for terabytes of CSV data to 12 minutes per day of data, down from 2 hours per day previously**.
- Worked closely with internal DevOps team to begin the process of migrating pricing engine data systems from outdated infrastructure to a unified architecture. Involved the migration of Rust code and removal of Nix from the system (in favour of Docker). Careful QA to minimise trading downtime and data disruption. **Reduced the engineering maintenance effort by 50% due to unified code architecture**.
- Helped marketing department improve acquisition strategy using user behavioural data. Created new event triggers which paid affiliates based on sustained activity rather than acquisition. **Saved over £30,000 a month in affiliate costs**.

### HomeX

Cambridge, United Kingdom

APPLIED DATA SCIENCE INTERN

Jun. 2021 - Sep. 2021

- Built a backend API using Python's FastAPI serving a regression model to generate various statistics about homes. Model was integrated to 5 other internal services to be used throughout the organisation.
- Built a front-end BI data visualisation dashboard using TypeScript and React with interactive street maps and tables.
- Deployed these services from scratch using a pipeline involving Docker, Kubernetes and Terraform to generate infrastructure allowing data ingestion from AWS S3 and Snowflake and data serving via Kubernetes pods to a dedicated domain. CircleCI to allow for CI/CD.

## Education

### University of Cambridge

Cambridge, United Kingdom

M.ENG (HONS), INFORMATION AND COMPUTER ENGINEERING & BIOENGINEERING

Oct. 2018 - Jun. 2022

- Graduated **Honours with Distinction** (1st Class thesis & 1st Class exam results).
- First Year: **74%** ; Second Year: Ungraded (As a result of CoVid-19) ; Third Year: **71%** ; Fourth Year: **72.5%**.
- Masters Thesis:** Using natural language processing and machine learning to train a counter speech dialogue system that can respond intuitively to hate speech. Introduced a novel unsupervised evaluation metric using neural networks with associated custom data sets. Fine-tuning and architectural modification of cutting edge dialogue models such as Blender Bot & GPT-3 to achieve state-of-the-art performance. Familiarity with Linux command line tools to schedule jobs on HPC supercomputing clusters.

### Westlake Boys' High School

Auckland, New Zealand

5A\* AT A LEVEL

Feb. 2013 - Dec. 2017

## Skills

<b>Programming</b>	Python, Rust, TypeScript, RESTful API, Unix, Git
<b>Data</b>	SQL, S3, Redshift, BigQuery, PostgreSQL, Redis, Kafka
<b>DevOps</b>	AWS, GCP, Docker, Kubernetes, Grafana

## Projects

### Conference for Truth and Trust Online

Boston, Massachusetts

FEATURED SPEAKER

Oct. 2022

- Gave an on-stage presentation to a 100+ person audience regarding the novel technical contributions and NLP research based on my Master's thesis. (<https://truthandtrustonline.com/>)

### Cambridge University Robotics Society

Cambridge, United Kingdom

CORE MEMBER

Nov. 2018 - Jun. 2021

- Designed an optimisation strategy using image pre-processing to reduce live computational times by over 70%.

## Honors & Awards

2021	<b>College Prize for Engineering</b> , Robinson College	Cambridge, UK
2019&20	<b>College Exhibition Awards for Academic Achievement</b> , Robinson College	Cambridge, UK
2017	<b>New Zealand Outstanding Scholars - Top 50 in Country</b> , NZQA	Auckland, NZ