Tom Marsh

Contact details

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Work Experience

Ströer Labs NZ, Christchurch NZ - *Data Scientist* - **FEBRUARY 2018 - Present**

Company: Ströer Labs NZ is a New Zealand based development house for the European digital programmatic advertising company Ströer. While working in an AGILE environment, I picked up many different programming languages and technology stacks.

Role: I started working for Ströer as a **Java-based Software Engineer** before being given the opportunity to help start a data team for our New Zealand branch. This allowed me to experience the full spectrum of data roles including; **Data Engineering**, **Data Science**, and **Machine Learning Operations**. Giving me a solid foundation for taking projects from end to end.

Projects: These ranged from typical classification and numeric prediction to optimisation and risk management. As most of the data was categorical in nature this led to mainly decision tree-based algorithms and timeseries analysis. The datasets being in the **TB** and **PB data** range meant utilising distributed computing platforms such as Apache Spark was critical.

Highlights: Reducing the time taken to render impressions on the page by 50% (generating **tens of millions of additional Euros each year**). Reducing outgoing data costs for some of our applications by up to 35% (**saving tens of thousands of USD in operating costs each year**). Introducing versioning and reporting tooling that is usable by all walks of employees.

Pyper Vision, Christchurch NZ - *Consultant and Contractor* - **JULY 2024 - FEBRUARY 2025**

Company: Pyper Vision was an aerospace startup with the goal of dispersing fog at airports by using drones. They reached out to me near the end of my thesis and asked for my expertise to help them pivot into a tech company that forecast fog using machine learning. The new company goal was to reduce the impact fog has on commercial operations at airports.

Role: I joined the team part-time as a contractor and their sole tech person, developing and building a full stack data science solution.

Projects: This project involved building data collection and processing services through utilising the Google Cloud Platform (**GCP**), exploring different machine learning model architectures such as **LightGBM**'s implementation of **Gradient Boosted Decision Trees** (**GBDT**) and **TensorFlow**'s implementation of **Deep Learning** and **Convolutional Neural Nets** (**CNNs**).

Highlights: By leveraging decades worth of high resolution weather data and advanced machine learning I was able to standup a competitive product in 6-months of part-time contracting.

Programming Languages

Daily: Python, SQL, Scala
Occasional: Java, Kotlin, JavaScript, C, VBA, GDScript, R

Technologies

Data Engineering: Spark, EMR, AWS Glue, Apache Airflow, Apache Kafka, Amazon S3
Data Science: LightGBM, XGBoost, Sklearn, Pandas, NumPy, Jupyter Notebooks, Keras, TensorFlow
Machine Learning Operations: AWS SageMaker, AWS Lambda, Docker, MLFlow
Other: Streamlit, AWS Athena, SuperSet, Linux, OSX, GCP, Kubernetes, Godot Engine

Education

JULY 2022 - JULY 2024

University of Canterbury, Christchurch NZ - *MSc Physics*

My area of research was in atmoshperic physics, specifically in how extreme precipitation events change over the country in a warming climate. To achieve this we analyzed over 4000 years of model simulation at various spatial and temporal resolutions. I gave a talk on this work at the Meteorological Society of New Zealand annual conference 2023. This work was also a collaboration with the National Institute of Water and Atmospheric Research (NIWA)

FEBRUARY 2015 - DECEMBER 2017

University of Canterbury, Christchurch NZ - *BSc Physics and Computer Science*

My undergraduate capstone project was in solid state physics where I grew $Y2SiO5$ thin films to be doped with rare earth elements and used as quantum information devices. This taught me many practical lab skills and how to take projects from concepts to minimum viable products. We were successful in proving the efficacy of Pulsed Laser Deposition for these devices.

Miscellaneous

Mentoring and Public Speaking

Over the years I have enjoyed mentoring entry-level tech workers from Australasia across the tech space. During 2022 I worked with TechWomen NZ alongside another mentor to facilitate a peer group mentoring circle for entry-level tech workers. More recently in 2023, I have dipped my toes into public speaking on my experience as a Data Scientist with a physics background.

Taking on Interns

I have also worked with the **University of Canterbury** and the Master of Applied Data Science program to take on interns at Ströer each summer since 2021. This has been a valuable experience teaching as it allowed me to solidify my understanding and develop my ability to break down complex topics.

Talented School Students Award 2013

Administered by the Royal Society of New Zealand this scholarship entailed a pilot focussed taste of basic astronaut training at **NASA**'s U.S. Space & Rocket Center.