Liam Watts

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SUMMARY

I am a Computer Science graduate from the University of Sydney, where I completed a thesis on Meta-Learning in Natural Language Processing (NLP). I've completed a wide range of data analytics projects through internships at Telstra, including customer conversion prediction to enhance a marketing campaign, and working with internal developers to create an interactive database visualisation. I also have three years of experience in Machine Learning through research and coursework at University, model development and deployment at Telstra, and research in NLP at CSIRO.

EDUCATION

Bachelor of Advanced Studies (Honours) (Computer Science) 86 WAM | Mar 2021 - Dec 2021
University of Sydney

- Honours thesis: *The Applications of Meta-learners to Few-Shot Incremental Learning*
- Coursework: Natural Language Processing, Deep Learning, Advanced Machine Learning
- Through research I learnt valuable skills including hypothesis creation and testing, assumption validation, understanding academic literature, designing solutions to complex problems and communication and presentation of technical material to both experts and laymen

Bachelor of Computer Science with Distinction 89 WAM | Feb 2018 - Dec 2020
University of Wollongong

- Global Honours Scholar, which funded an exchange year in Singapore and Dubai
- Coursework: Machine Learning Algorithms and Applications, Linear Algebra and Groups, Advanced Engineering Mathematics and Statistics

EMPLOYMENT

CSIRO | Student Researcher Dec 2021 - Present

- I've learnt a new field, Information Retrieval, and reimplemented the SOTA base retrieval method from the TREC2021 Clinical Trials track. I also developed an improved, 10x smaller model with similar effectiveness
- Trained the 3 billion parameter T5 model on a computing cluster with slurm, pytorch lightning and deepspeed
- Tested our in-house API and reimplemented several baseline neural re-ranking methods with it as examples for a demonstration paper under review. Code is available here

TELSTRA | Data Analytics and Management Summer Vacationer Nov 2020 – Feb 2021

- I performed feature engineering for large amounts (1-5Gb) of unstructured event data with Numpy and Pandas
- Then trained an ML model to perform time series classification on the event data using Tensorflow
- I optimised the model for the particular business problem, focusing on the precision metric, and assisted in deploying the model to production

TELSTRA | Data Analyst Intern Jan 2020 – Feb 2020

- I developed a customer conversion forecasting model to increase the effectiveness of an advertising campaign
- I extracted training data from a large database, using customer purchases and demographic data as features
- The model identified a customer segment 6x more likely to purchase a product next month. I then deployed it to AWS for use in production

TELSTRA | Big Data Intern Nov 2018 - Dec 2018

- I developed visualisation software to help internal teams understand our complex database structure
- I retrieved data with SQL and Spark and extracted features with Pandas
- Then created an interactive graph with D3.js, and improved it based on user feedback

SKILLS

Languages: Python, SQL, C++, JavaScript, Java, R, Bash
Libraries: Pytorch, Pytorch Lightning, Transformers, Tensorflow, Numpy, Pandas, Matplotlib
Technologies: Teradata, Slurm, Git, AWS Sagemaker
Machine Learning: Deep Learning, NLP, Statistics, Linear Algebra, Optimization, Multi-Dimensional Calculus
Natural Languages: English (Native), Japanese (Intermediate)