

Rhys Compton

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Machine Learning Profile

Quality-driven, Fulbright awardee from New Zealand with hands-on experience designing and delivering solutions via utilisation of advanced machine learning methods. Adept at successfully developing and implementing machine learning projects, providing real value from use of ML in business and research. Proficient at automating procedures and maximizing operational efficiency by designing innovative systems and using industry-standard tools. Analytical professional with notable success publishing 'Embedding Java Classes with code2vec: Improvements from Variable Obfuscation' at international conference. Expert at leveraging programming skills to explore, analyse, and interpret data to gain useful insights.

Technical Proficiencies

Python, Java, C#, PyTorch, TensorFlow, Fast.ai, SQL, HTML, CSS, Vue.js, PHP, Laravel, AWS, GCP, Docker, Azure DevOps, Bitbucket Pipelines, GitHub Actions, Weight & Biases.

Career Experience

Rezare Systems, Hamilton, Waikato

2019 – 2020

Machine Learning Intern

Single-handedly delivered a project using an object detection model (Faster-RCNN) to count animals through FAIR's Detectron2 library. Drove on-time project delivery by planning business requirements, gathering and labelling data, as well as ensuring compliance with design objectives by validating model performance. Analysed feasibility of synthetic data by conducting A/B testing and research of labelled data, utilising Weights and Biases to track experiments. Ensured effective animal calculation by designing counting system for saleyards ([Video Demo](#)).

- Generated time savings of 40% by using Docker and GitHub Actions to develop automated pipeline for model upgrade/deployment.
- Integrated substantial optimisations within application, allowing it to move off the cloud and function in real-time on a consumer-grade laptop.

University of Waikato, Hamilton, Waikato

2019 – 2020

Research/Teaching Assistant

Graduate student Teaching Assistant for COMPX521 - Advanced Machine Learning. Implemented machine learning algorithms for the WEKA workbench. Served as lead maintainer of WekaDeeplearning4j, adding a range of new features to modernize it for the current DL workflow.

- Created a 'Model Zoo', enabling WEKA users to easily use pretrained models for training and inference.
- Implemented SOTA saliency map generation (via ScoreCAM), vastly improving model interpretability.

Rocketspark, Cambridge, Waikato

2018 – 2019

Machine Learning Intern

Planned and implemented ML project from initial phase to deployed MVP. Developed a language generation system using a state-of-the-art NLP model, enabling Rocketspark users to generate SEO-friendly text, enhancing their search rankings and site traffic ([Product Page](#)). Leveraged Docker and Google Cloud Run to model as scalable API. Established automated browser, unit tests, and testing pipeline with Bitbucket Pipelines.

- Utilised OpenAI's GPT architecture to build neural text-generation model, training it on custom dataset of over 400K scraped webpages.

Key Engagements

Compton Tech, Hamilton, Waikato

Sole Contract Software Engineer

Improved operational efficiency of gas pipeline engineers through design and build of an NG-18 gas pipeline application. Acted as sole contractor to manage entire project from scoping with customers through to delivery and documentation.

Palmerston North Hospital, Manawatu

Student Radiographer

Improved patient care through thoughtful communication, empathy, and delicate handling of sensitive information. Developed strong interpersonal skills and a deep knowledge of hospital systems in action.

Pepper Creative, Hamilton, Waikato

AR Software Developer

Increased productivity by designing AR application for HMT-1Z1 headset enhancing worker efficiency by enabling visual delineation of defected parts.

LuminateOne, Matamata, Waikato

Full-Stack Web Developer

Developed single-page ticketing and events web-app using Laravel and Vue.js with AWS Cognito. Leveraged management skills to complete project within designated time frame via industry-standard tools.

University of Waikato, Hamilton, Waikato

Hololens Developer

Increased student enrolments during university open days by creating open day promotional video and interactive music game ([Video Demo](#)) using Unity for Microsoft Hololens with creative, eye-catching features.

Additional Experience

Cleaner at St Peters School, Cambridge, Waikato

In-Home Support Worker at Private Care, Hamilton, Waikato

Customer Service/Lane Technician at Bowlarama Palmerston North, Manawatu

Education

Masters in Computer Science

New York University, New York City, USA, (Current)

Bachelor of Engineering in Software Engineering

University of Waikato, Hamilton, New Zealand (2019)

Honors & Awards

2020 Science and Innovation Graduate Award, Fulbright New Zealand

Excellence in Presentation, 2020 University of Waikato Engineering Design Show

Excellence in Poster, 2020 University of Waikato Engineering Design Show

Publications

Embedding Java Classes with code2vec: Improvements from Variable Obfuscation, published at MSR 2020 (colocated with ICSE 2020)

- Conference Site: [MSR 2020](#)
- Project GitHub: [GitHub](#)
- Paper: [ArXiv](#)
- Short version (1 min): [MSR 2020 Elevator Pitch - Embedding Java Classes with code2vec](#)
- Full Talk (15 min): [Embedding Java Classes with code2vec: Improvements from Variable Obfuscation](#)

Workshops

Hosted virtual workshop for deep learning library (WekaDeeplearning4j) as lead maintainer at I2K 2020.

<https://www.janelia.org/sites/default/files/You%20%2B%20Janelia/Conferences/6.pdf>