Rhys **Compton**

FULBRIGHT SCHOLAR · MACHINE LEARNING RESEARCH · COMPUTER SCIENCE MAJOR

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Education

New York University, Courant Institute   *Manhattan, New York City*

M.S. IN COMPUTER SCIENCE, GPA: 3.9/4   *Jan 2021 - Dec 2022 (Expected)*

- **Scholarships:** Fulbright NZ Science and Innovation Scholarship; NYU GSAS TIP Award
- **Relevant Coursework:** Machine Learning for Healthcare; Fundamental Algorithms; Bioinformatics; Deep Learning Systems

University of Waikato, Faculty of Computer Science and Math   *Hamilton, New Zealand*

B.E. (FIRST CLASS HONS) IN SOFTWARE ENGINEERING, GPA: 8.4/9   *Feb. 2016 - Dec. 2019*

- **Scholarships:** FCMS Dean's Award of Excellence (Top 10 students per cohort); Taught Postgraduate Scholarship (Semester A & Semester B)
- **Relevant Coursework:** Advanced Machine Learning; Information Visualisation; Extremely Parallel Programming; Artificial Intelligence

Publications

MEDCOD: A Medically-Accurate, Emotive, Diverse, and Controllable Dialog System   *ML4H 2021*

CURAI HEALTH   *Dec 2021*

- Conference Paper; Github;

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

UNIVERSITY OF WAIKATO   *May 2020*

- Conference Paper; Github; Elevator Pitch (1 min); Full Talk (15 min)

Experience

Machine Learning Research Intern   *Palo Alto, CA, USA*

CURAI HEALTH   *June. 2021 - Sept 2021*

- Improved human-ness of medical chatbot by combining DL-based natural language generation with medical domain expertise.
- Explored novel GPT-3 prompting methods for data synthesis, increasing NLG variation.
- Utilised pre-trained SBERT and PCA to embed medical conversations, enabling an accurate emotion classifier despite limited data.
- Full technical paper accepted at top-tier machine learning healthcare conference (ML4H 2021).

Machine Learning Intern   *Hamilton, New Zealand*

REZARE SYSTEMS   *Nov 2019 - Feb 2020*

- Used Faster-RCNN to rapidly deliver a robust object-detection-based animal counting application, reducing errors for saleyard workers (video).
- Analysed viability of synthetic data, utilising Weights and Biases to track experiments.
- Generated time savings of 40% by using Docker and GitHub Actions to develop automated model deployment pipeline.
- Migrated project to Tensorflow-lite, allowing it to run in real-time on consumer laptop with Google's Coral USB, removing reliance on cloud GPUs.

Machine Learning Research Intern   *Cambridge, New Zealand*

ROCKETSPARK   *Nov 2018 - Feb 2019*

- Designed and implemented a GPT-based NLG SEO-optimisation tool to enhance customer website search rankings and site traffic, enabling automatic generation of SEO-relevant website content. Led project from initial scoping to model deployment.
- Scraped and processed custom dataset of over 400k webpages with Python and BeautifulSoup, enabling a *controllable* NLG model.
- Leveraged Docker and Google Cloud Run to deploy model as auto-scaling API.

Research & Teaching Assistant   *Hamilton, New Zealand*

UNIVERSITY OF WAIKATO   *Feb 2020 - Nov 2020*

- Implemented Shrunken Centroid classifier and ScoreCAM saliency map method for open-source ML package, improving CNN interpretability.
- Designed and built a Model Zoo, enabling package users to easily use pretrained models for training and inference.
- Acted as teaching assistant/grader for graduate-level machine learning class - COMPX521: Advanced Machine Learning.

Software Engineer Contractor   *Hamilton, New Zealand*

COMPTON TECH   *Feb 2020 - Jan 2021*

- Built C#/NoSQL application as sole SWE contractor. Managed process from customer planning through to timely delivery and documentation.

Skills & Projects

Technologies   Python · SQL · Java · Javascript · C · HuggingFace · PyTorch · Linux · Weights & Biases · AWS · GCP · Docker · Vue.js

Projects   Improving Chest X-Ray Generalisation via Non-ROI Masking