

Ryan Greenup

Machine Learning
Engineer

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Technical Skills

languages: [R, sh, Julia, Python, Rust, Go, Lua]

ml: [pytorch, tch-rs, tensorflow, jupyter]

dev_ops:

- base: [docker-compose, podman, ansible, git, sqlite, postgresql, mongodb, couchdb, latexmk, wireguard]

- extra: [fzf, fd, rg, sd, nix, openrc]

- misc: [nvim, emacs, pandoc, isympy, openai, rsync, unison]

- fs: [zfs, btrfs]

os:

- linux: [void, gentoo, arch, alpine, debian, fedora, RHEL, silverblue]

- bsd: [openbsd, ghostbsd]

Education

Feb 2021 – **Masters of Research**, Western Sydney University, Parramatta, NSW

- Theory

- Signal Processing, Machine Learning, Academic Research

- Skills

- R, Python, PyTorch, Tensorflow and L^AT_EX

Mar 2020 – **Bachelor of Data Science**, Western Sydney University, Parramatta, NSW

- Awarded Deans Medal

- Theory

- Neural Networks, Non-Parametric Statistics, Big Data and Visualisation.

- Skills

- R, Python, PyTorch, Tensorflow, GGplot and PlotlyJS.

- Mar 2013 – **Bachelor of Mathematical Science**, *Western Sydney University*, Parramatta, NSW
- Jan 2019
- Recognised on Dean's List
 - Theory
 - Calculus, Analysis and Statistics with some Abstract Algebra
 - Skills
 - Mathematica, Sympy and R

Employment

- Jul 2023 – **Subject Co-ordinator and Lecturer in Statistics**, *Western Sydney University*, Parramatta, NSW
- Nov 2023
- Subject Co-ordinator for MATH3005 a subject concerned primarily with time series analysis.
- Developed subject content, lectures, slides and tutorials
 - Delivered lectures and practicals
 - Wrote Final Exam
 - Administered assessments
- Oct 2023 – **Machine Learning Researcher**, *Raenerko*, Parramatta, NSW
- Jan 2024
- Research for a small startup looking to break into the Conversational Documentation space. It grew out of a mining operation after Ethereum moved to Proof of Stake
- Deployed Oobabooga and Stable Diffusion within a Docker Container using `nvidia-container-runtime`
 - Configured Silly Tavern as an LLM Web Interface
 - Finetuned a Stable Diffusion Hypernetwork on a sample of images as a proof of concept.
 - Configured training rack with Arch Linux
 - Deployed a ZFS NFS with FreeBSD, this was later migrated to Void for better Docker support
 - Developed Langchain program to bootstrap training data from documentation using GPT-3
 - Adapted from the Self-Instruct, Flan and Open-Orca papers as well as the Airoboros repository
 - Fine Tuned LLama2 and Mistral 7b models on Elvish.sh documentation
 - Began work Finetuning Microsoft's Phi-1.5
 - Deployed H2O-GPT in a Conda environment over documentation to use RAG search
 - Began work merging RAG search with Model Finetuning
- Nov 2022 – **Research Assistant - NLP in Medical Research**, *Western Sydney University*, Parramatta, NSW
- Feb 2023
- Supervised undergraduate students involved in a NLP-based research project for medical data, associated with Liverpool Hospital.
- Tasked with supporting python and shell scripting to interface with *Google* and *Amazon* backends.

- Mar 2021 – **Teaching - Undergraduate Statistics in Data Science**,
 Nov 2023 *Western Sydney University*, Parramatta, NSW
 Tutor for both statistics and programming for data science. This is at both the undergraduate and postgraduate levels.
- Sep 2022 – **Teaching - Undergraduate Neural Networks**, *Western*
 Sep 2023 *Sydney University*, Parramatta, NSW
 Tutor for Neural networks in Python, tasked with teaching feed forward, LSTM and CNN architectures in PyTorch.
- Nov 2021 – **Research Assistant - Linear Computation Coding**, *International Centre for Neuromorphic Systems*, Penrith, NSW
 Dec 2021 Implemented an approximate matrix multiplication algorithm that improved the performance of neural networking using bit-shifting. The algorithm reduced matrices to base-2 values so as to minimize the $\mathcal{L}_2$ distance in the result. This allowed the network to bitshift the products.
- 2018 – 2019 **Data Scientist**, *Reliable Coaches, Pty Ltd.*, Parramatta, NSW
- Developed a KNN in Python to cluster past customers into categories
 - Developed an ARIMA model in R to forecast demand for different times of the year and days of the week
 - Developed a Decision Tree to predict customers with a high likelihood of retention based on past trips, expenditure, location, and time.
 - Deployed a Mediawiki instance inside a Docker container as a knowledge base
 - Deployed Paperless for Business Documentation
- 2017 **Data Scientist**, *Brisons Motorcycle Wreckers*, Blacktown, NSW
- Wrote python script to scrape internet for motorcycle prices
 - Wrote a decision tree to predict prices for motorcycles
 - Created Categories of most common motorcycles
 - This was used by the owner to set the purchase price for write-offs
- 2012 **Data Analyst**, *Brisons Motorcycle Wreckers Pty Ltd.*, Blacktown, NSW
- Created a SQLite database to track stock inventory
 - Developed an Invoicing System in LibreOffice Base
- 2012 – 2015 **Data Analyst**, *Pope Batteries Pty Ltd.*, Blacktown, NSW
- Exported an Invoicing system based on Excel into SQLite
 - Began development on a LibreOffice Base Frontend
 - Developed Moving Average Forecasts for Sales prediction
 - Deployed a Dokuwiki instance for the business on a dedicated Ubuntu box
 - Migrated the computers from Windows XP to Ubuntu 12.04.
 - Configured CUPS with Samba for Printing Invoices.

- 2009 – 2012 **Vehicle Accessory Fitter and Office Hand**, *Pope Batteries Pty Ltd.*, Blacktown, NSW
- Fit mechanical Accessories to vehicles, acted as an apprentice mechanic
 - Data entry and office hand

Achievements

- 2021 – 2022 **Dean's Medal for Data Science**, *Western Sydney University*, Parramatta, NSW
- 2021 – 2022 **Dean's List for Data Science**, *Western Sydney University*, Parramatta, NSW
- 2019 – 2020 **Dean's List for Mathematical Science**, *Western Sydney University*, Parramatta, NSW
- Dec 2020 – **HDR Training Scholarship**, *Western Sydney University*,
Feb 2021 Parramatta, NSW
- Implemented a Neural Network to solve ranking problems, adapted work from Microsoft Ranknet.
- Jan 2013 – **High Distinction Coursework**, *Western Sydney University*, Parramatta, NSW
Present
- Mathematics of Signal Processing, Complex Analysis, Physics, Big Data, Research Capstone, Statistics for Data Science, Analytics Programming, Programming Fundamentals, Visualisation, Astroinformatics

Projects

- 2017 – **Dotfiles**, *GitLab*
Present My dotfiles managed with a bare git repo.
- 2022 – **NNFS**, *Codeberg*
Present A jupyter book describing Neural Networks from Scratch. Used to teach undergraduate students the theory of Neural Networks.
ryangreenup.codeberg.page/notebooks/_build/html/nneg/
- 2022 – **egui Task Manager**, *Gitlab*
Present A GUI program in Rust used to manage tasks with text files
ryangreenup.codeberg.page/notebooks/_build/html/nneg/
- 2022 – **Bare Dot File Manager**, *Gitlab*
Present A Go program written for my students to help them manage there dotfiles with a bare git repository
- 2022 – **Go Note Taking**, *Gitlab*
Present A Go program to help me take my notes (it's basically finished, although I usually run *Mediawiki* in a docker container now).