Jay Mody

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Skills

Proficient Python, Java, TensorFlow, PyTorch, OpenCV, Scikit-Learn, NumPy, Pandas, NLTK, Shell, Git, Docker

Familiar C, C++, JavaScript, SQL, HTML, CSS, Spacy, Scipy, Flask, React.js, SWT, wxWidgets, Plotly

Education

McMaster University (3.9/4.0) *Hamilton, Canada*

B.Eng in Software Engineering *09/2018 - 04/2022*

- **Google DSC AI Lead:** Developing workshops and talks with a focus on AI/ML to a chapter of over 200 students
- **Teaching Assistant:** 1DM3 Discrete Mathematics for Computer Science
- **Teaching Assistant:** 1Z03 AI Innovative Technologies taught by Rhodes Scholar Prof. Matthew Jordan
- **Research Assistant:** C++ programmer for the Department of Electrical and Computer Engineering
- **Notable Courses:** Data Structures and Algorithms, Concurrency, Discrete Math I and II, Databases, Intro to Software Development

Work Experience

Leaders Prize *Waterloo, Canada (Remote)*

Top 5 Finalist (Machine Learning, Data Science) *11/2019 - 07/2020*

- **Placed Top 5** as a **solo competitor** against **150+ teams** competing in **Canada's Largest AI Competition**, offering **$1,000,000** to the individual/team that best automated the detection of fake news using AI *(link)*
- Top 10 finalists included Facebook engineers, ex-Google engineers, Kaggle grandmasters, startups, and post-grad ML researchers
- Achieved **70%** performance compared to the human baseline by combining contemporary research in neural language modeling and document reranking into a multi-stage NLP pipeline using **Python**, **PyTorch**, and **Docker**

Magarvey Lab *Hamilton, Canada*

Machine Learning Engineer *05/2019 - 05/2020*

- Increased **f-1 accuracy** by **27%** (0.62 to 0.79) for protein substrate prediction by developing a Python software package that adapted BERT for training and deployment on biosynthetic "languages" (e.g. DNA Sequences)
- **Doubled** BERT's efficiency on long sequences by implementing a sliding window averaging algorithm
- Advised lab projects on feasible machine and deep learning approaches to novel research problems in biochemistry with applications in: Computer Vision, Natural Language Processing, and Reinforcement Learning

Awards & Leadership

McCall MacBain International Fellow *mccallmacbain.org/mmif*

- Awarded a **$24,000** scholarship as **1 of 40 fellows** for the McCall MacBain exchange program awarded to high-achieving undergraduate students who want to expand their University experience by undertaking a full year abroad with the purpose of learning the language/culture of the chosen host country

McMaster AI Society | Vice-President *mcmasterai.com*

- Oversaw all internal operations, logistics, and management of our **50+ member executive team** and **1400+ members**

Canada's Top Student Competition (Scotiabank) *canadastopstudents.ca*

- Placed **1st overall** against **hundreds** of University students across Canada in 3 rounds of case competitions testing entrepreneurship, creativity, and communication skills *(link)*

Projects

Drone Swarm | C++, OpenCV *github.com/jaymody/hackwescam*

- **Won 1st place** prize of **$4000** at Hackwescam 2019 by designing a multi-drone control system for target detection

Spaceship | Python, Tensorflow *github.com/jaymody/spaceship*

- **Rotated bounding box regression** on noisy images using convolutional neural networks (achieved mean IoU score of 0.66)

Polynomial Expansion | Python, PyTorch *github.com/jaymody/seq2seq_polynomial*

- **Seq2Seq transformer** model for polynomial expansion translation task (achieved strict translation accuracy of 0.915)