# Jay Mody

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## Experience

### Leaders Prize | Finalist (ongoing)
*Nov 2019 - Present*
- **Placed 1st** among **150+ teams** as an individual for the first round **in Canada's largest AI competition**, offering **$1,000,000** to the individual (or team) that best automated the detection of fake news using AI (*article*).
- Utilized topic modeling, transformers, and word embeddings to classify misinformation.
- Trained and deployed large multi-stage ML models using **PyTorch** and **docker** on Google Cloud.
- Final round results to be announced in July 2020.

### Magarvey Lab | ML Engineer
*May 2019 - Present*
- Developed a software package that pipelined the training and deployment of **BERT** for biosynthetic "languages" (e.g. DNA).
- Used BERT to increase **f-1 accuracy** of substrate prediction from **0.62 to 0.79**.
- Advised lab projects on feasible machine learning approaches to novel research problems.

### McMaster AI Society | Executive
*Sept 2019 - Present*
- Hosted tutorials for over 100 club members, teaching fundamental machine learning and data science concepts.
- Organized and advised club project teams for Kaggle Competitions, AI for Good, and more.

### McMaster University | Research Assistant
*Dec 2018 - May 2019*
- Implemented image processing algorithms (**OpenCV**) in **C++** to improve object detection for video annotation software.
- Designed GUI components for a video player in wxWidgets.

## Education

### McMaster University | Software Engineering (B. Eng)
*Sept 2018 - Apr 2022*
- 3.6/4.0 GPA
- **Notable Courses:** Data Structures and Algorithms, Intro to Software Development, AI Innovative Technologies

## Awards

### McCall MacBain International Fellow
- Awarded the MMIF scholarship **($24,000)** given to students that want to expand their undergraduate experience by undertaking a full year abroad to study, work, and learn the language of a host country of their choice (Japan).
- Year abroad delayed due to COVID-19.

### Canada's Top Student Competition
- Competed in 3 rounds of case competitions testing entrepreneurship, creativity, and communication skills. **Placed 1st** overall against hundreds of University students across Canada (*article*).

## Skills

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| **Languages** | Python, C, C++, Java, JavaScript, Shell, SQL |
| **Tools** | TensorFlow, PyTorch, SKLearn, NumPy, OpenCV, Flask, React.js, LaTeX, Docker |

## Projects

### Drone Swarm | C++, OpenCV
*github.com/jaymody/hackwescam*
- Won **1st place** prize of $4000 at Hackwescam 2019, a 3-day long hackathon rooted in drone control and object recognition.

### NumPy-ML | Python, NumPy
*github.com/ddbourgin/numpy-ml*
- Cut computation time in half for activation function gradient calculations for a popular open source machine learning repository with over 8600 stars on GitHub.

### Linkipedia | Java, Spring
*github.com/jaymody/linkipedia*
- Developed a Java Spring webapp to find the shortest path between two Wikipedia articles via hyperlinks.
- Implemented efficient search, sort, and graph algorithms to operate on top of the wiki-topcats graph dataset (~2 million nodes, ~29 million edges).