Michael Li

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EDUCATION

Carnegie Mellon University *Expected Graduation: May 2026*

- **B.S in Computer Science and Statistics & Machine Learning**
- **Coursework:** Artificial Intelligence, Natural Language Processing, Machine Learning, Data Structures and Algorithms, Functional Programming, Linear Algebra, Probability and Statistical Inference

SKILLS

- **Languages:** Python, C/C++, Java, C#, Javascript, HTML, CSS, SQL, R,
- **Frameworks/Libraries/Tools:** TensorFlow, PyTorch, Keras, React, Typescript, Selenium, Node.js, Express.js, Flask, Django, PostgreSQL, Docker, Git, Figma, Postman, Postico, Unity

EXPERIENCE

Machine Learning Engineer Intern, Epirus *June 2024 - Present*

- Built custom **Python** drone simulation for reinforcement learning from scratch, with 2D/3D rendering using MatplotLib and OpenGL; 3D Matplotlib rendering code adopted by mission modeling team.
- Implemented PPO for RL agent using **PyTorch** for drone targeting, with custom policy/value network architecture handling dynamic observation/action spaces for domain-specific challenges.

Software Development Engineer Intern, Beaver Health *May 2023 - August 2023*

- Developed a custom lightweight, generative AI dialogue model framework using GPT-4 with **React, Typescript** and **Express.js** to digitize evidence-based health interventions

Researcher, University of Victoria *July 2022 - May 2023*

- Coded, trained, and evaluated **Temporal Convolutional Networks** (TCN), **CNNs**, and **LSTMs** using **Keras** and **Tensorflow** to predict COVID outcomes based on U.S. county demographic data
- The TCN model outperformed the mean absolute error (MAE) of the CDC's ensemble model by a statistically significant difference (0.0588% to 0.0078%)
- Published work as first author in Journal of Global Health: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10208648/

Creator & Software Developer, COVIDCatcher *December 2021 – May 2023*

- Implemented a low-cost, multimodal ML-based web app to detect COVID-19 symptoms and coughs using **VGG-19** and **XGBoost** with **Python, PyTorch** and **Tensorflow**
- Developed and deployed a COVID-19 forecast dashboard using **React, Flask** and **AWS** to display COVID cases for every county in the United States

Software Engineer, Amador Valley Robotics (AVBotz) *August 2018 – May 2022*

- Developed **OpenCV**/**C++** object detection pipelines, integrating real-time outputs into **ROS** vision control nodes for sub navigation.
- Designed **YOLOv5** and **DetNet** workflows using **PyTorch** and automated training set creation with **Python** and OpenCV.

PROJECTS

- **Shipworthy** Engineered a real-time ship simulator using **OpenCV** and **XQuartz**, extracted key data points from video feed to have real steering wheel manipulate physics and movement in Unity.
- **Stance** Created full-stack web application using **Python**, **Flask**, **scikit-learn**, **LIME** to detect online hate speech. Optimized NLP classification model and integrated Shapley values to enable interpretable analyses.
- **Ad Lunam** Engineered immersive **VR** space exploration game using **C#** and **Unity** with procedurally generated planets and asteroid fields. Implemented physics-based flight mechanics and planetary orbits through extensive scripting.
- **The Roast** Built a daily personalized newsletter generator using **React, Python, Flask** and **PostgreSQL** to automatically curate and summarize content from list of sources.

AWARDS & RECOGNITION

- **Hackathons: HackItShipIt** 1st Place (Shipworthy), **To the Moon and Hack** 3rd Place (Ad Lunam)**, Data Day Grind** Best Data Visualization (Stance)
- **2021 & 2022 California Science and Engineering Fair Poster Presenter** (COVIDCatcher)
- **2021 & 2022 Alameda County Science and Engineering Fair First Place in Computer Science** (COVIDCatcher)
- **2021 Bay Area BioGENEius Challenge Finalist** (COVIDCatcher)