

# Michael Li

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## EDUCATION

### Carnegie Mellon University

2022 - 2026

- **B.S in Computer Science and Statistics & Machine Learning**
- **Coursework:** Fundamentals of Programming and Computer Science, Multivariable Calculus, Concepts of Mathematics, 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, Node.js, Express.js, Flask, Django, PostgreSQL, Docker, Git, Figma, Postman, Postico, Unity

## EXPERIENCE

### Software Development Engineer Intern, Beaver Health

June 2022 - 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
- Deployed into production on **CloudSQL** and **App Engine**

### 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

- Built pipeline for object detection and image processing to classify and recognize path markers underwater by leveraging performant **OpenCV** and **C++** code
- Designed and implemented workflows using **PyTorch** for real-time object detection via **YOLOv5** and **DetNet**
- Automated training set creation with **Python** via OpenCV image labelling

## PROJECTS

- **Shipworthy** Engineered a real-time ship simulator using **Python**, **OpenCV** and **XQuartz**, extracted key data points from video feed to have real steering wheel manipulate physics and movement in Unity game engine.
- **SEA** Architected robust deep learning pipeline leveraging **TensorFlow**, **Keras** and **Python** to classify endangered marine wildlife from datasets. Tuned **VGG16 CNN** architecture to improve validation accuracy and handle real-world challenges.
- **Stance** Created full-stack web application using **Python**, **Flask**, **scikit-learn**, **LIME** to detect online hate speech. Optimized **NLP** classification model and integrated interactive visualizations to enable transparent analyses.
- **The Roast** Built a daily personalized newsletter generator using **React**, **Python**, **Flask** and **PostgreSQL** to automatically curate and summarize content.
- **Multivac** Designed and developed interactive fiction game engine using **Python**, **React**, **Flask**, **LangChain** and **LlamaIndex**. Constructed custom **vector databases** and cleaning pipelines in Python. Deployed with **AWS**
- **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 pinpoint planetary orbits through extensive scripting. Ported experience to mobile VR using gyroscope input and stereoscopic rendering for accessibility.

## AWARDS & RECOGNITION

- **Hackathons:** HackItShipt 1st Place, To the Moon and Hack 3rd Place, Data Day Grind Best Data Visualization
- **2021 & 2022 California Science and Engineering Fair Poster Presenter**
- **2021 & 2022 Alameda County Science and Engineering Fair First Place in Computer Science Category**
- **2021 Bay Area BioGENEius Challenge Finalist**