Prithvi Seran

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Education

University of Toronto — Toronto, Ontario
BSc. Honours Computer Science (GPA: 3.78) — *Sept. 2023 – Sept. 2028*

Experience

Firmware Developer — February 2024 – Present
University of Toronto Aerospace Team — *Toronto, Ontario*

- Developed embedded software for the FINCH satellite's Emergency Power Supply using STM32's micro-controllers
- Utilized interrupts and manipulated STM32 Nucleo Boards' drivers and registers for testing

Data Processing Member — January 2024 – Present
University of Toronto Aerospace Team — *Toronto, Ontario*

- Worked on the destriping project for FINCH satellite to detect crop-residue from low-orbit.
- Leveraged transfer learning to implement diffusion models to remove complex noise (any distortions in the image such as image noise, dead pixels, stripes, etc) from hyper spectral images using TensorFlow and virtual environments.

Algorithmic Trading Bot Implementation — Nov. 2023 – Present
Freelance/Part-Time — *Whitby, Ontario*

- Implemented automated trading strategies using OANDA's API to execute and manage trades, and retrieved and analyzed currency pair data.
- Developed a Python module to seamlessly interact with the Google Cloud API, facilitating the creation of schedulers, Pub/Sub topics, Cloud Functions, and the deployment of trading bots to Google Cloud
- Employed Terraform and the python-terraform module to establish and configure Google Storage Buckets, optimizing storage for Python scripts associated with the trading bot
- Designed and implemented an iOS app using Swift and SwiftUI, featuring secure login and registration functionality backed by Firebase authentication

Projects

EZSpeech | *OpenAI API, GCP, Flask, HTML/CSS* — August 2023 – November 2023

- EZSpeech is a web application facilitating seamless communication across languages.
- Leveraged multiple Google Cloud APIs such as Google Text to Speech API to synthesize speech responses in multiple languages, providing immersive interaction experiences.
- Utilized Flask and HTML/CSS to build a user-friendly interface, ensuring intuitive navigation and a seamless user experience.
- Deployed EZSpeech on the Google Cloud platform, leveraging its robust infrastructure and scalability features for reliable performance and global accessibility.

YOLO v1 Implementation From Scratch | *Tensorflow, Matplotlib, Pillow* — August 2023 – November 2023

- Built the architecture of the YOLO V1 computer vision model using TensorFlow Functional API
- Trained the entire model from a custom dataset of 200 images, and achieved a loss value of around 7.9 and mAP of 0.92

TensorFlow Object Detection Model | *TensorFlow, Matplotlib, Pandas* — August 2023 – September 2023

- Loaded the SSD mobile net V2 pre-trained layers using TensorFlow's Object Detection API and trained the new prediction head with dataset of 200 images, resulting in and accuracy of 83 and a loss of around 1.1.

Certifications

Deep Learning Specialization — July 2023 – August 2023

- Learned foundational and intermediate skills in structuring machine learning projects, neural networks, convolutional neural networks, sequence models, and hyperparameter tuning, regularization, optimization

Technical Skills

Languages: Java, Python, C/C++, SQL, JavaScript, HTML/CSS, R
Frameworks: TensorFlow, PyTorch, Django, React, Node, Flask
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, STM32CubeIDE
Libraries: pandas, NumPy, Matplotlib, python-terraform, Sklearn, GSAP, Lenis