Samanvay Vajpayee

4A Computer Engineering | 519-781-4839 | svajpaye@uwaterloo.ca | LinkedIn | Github | Portfolio

Technical Skills

Languages: Python, C++, Swift, C, C#, Java, Objective-C, HTML/CSS
Technologies/Tools: TensorFlow, MySQL, Flask, Docker, AWS, NLTK, XGBoost, OpenCV

Experience

3D Machine Learning Intern Jan 2021 – April 2021
Rocscience *Remote*
- Conducted research and ran ML experiments on FEA Convergence Prediction on 3D geometric models by implementing Graph CNNs with an ADAM optimizer in Jupyter Notebooks
- Performed hyperparameter tuning for classication models using Bayesian Optimization improving recall by 4%
- Wrote & parallelized execution of a 3D meshing framework in C#, reducing runtime by 18%

Machine Learning Intern (iOS) May 2020 – July 2020
Stealth Mode Startup *Remote*
- Integrated face detection with the main iOS app by implementing MTCNN in Objective-C & Swift using tf-lite
- Wrote a TensorFlow Object Detection pipeline for a real-time video feed achieving a 0.045s latency
- Integrated a voice-based survey form with the iOS app by implementing a Decision Tree in Swift

Machine Learning Intern Sept 2019 – Dec 2019
IBM Watson *Toronto*
- Engineered a machine learning pipeline leveraging Tensorflow object detection and Keras classification with 98% accuracy used in a bid for a client project, generating $\sim$ 300,000 CAD in revenue
- Worked on IBM Watson's NDA Facial Recognition service implementing research papers on ArcFace, EVM, PyTorch and MTCNN aimed at solving the Open-Set Facial Recognition problem
- Integrated the service with IBM's internal iOS app using Vision, CoreML and UIKit frameworks in Swift
- Containerized the service with Nvidia-Docker and developed a Flask API to integrate it with iOS devices

Software Engineering Consultant Intern Jan 2019 – April 2019
KPMG *Toronto*
- Engineered a PoC supervised document-classification NLP pipeline for a multi-class, multi-label client dataset
- Performed hyperparameter tuning for client NLP chatbot's intent classfication LSTM models in Node.js & Flask
- Wrote an XML parser in Python to extract tabular information from unstructured documents for a client project generating $\sim$ 10,000 USD in revenue
- Built a Tesseract OCR RESTful microservice for real-time processing of images from KPMG iOS app in Swift
- Developed an abstractive text-summarizer web app with a React front-end, Flask and MySQL DB backend implementing the TextRank algorithm

Undergraduate Research Assistant Sept 2018 – Dec 2018
University of Waterloo *Waterloo*
- Researched on real-time safety-critical systems in the context of autonomous driving algorithms
- Worked with anomaly detection algorithms and reinforcement learning models

Software Engineering Intern May 2018 – Aug 2018
Finastra *Toronto*
- Developed an employee productivity tracker WPF application with C#, .NET, deployed to $\sim$450 employees
- Followed best SQL practices in writing stored procedures improving time efficiency by 15%

Projects

DIAS Edtech | Software Engineer + Product Manager April 2020 – Present
- Worked on Flask and C++ scalable microservices and implemented a Content Delivery Network (CDN)

JamViews | Java Android App, Deep CNN Image Classification, Spotify API
- Developed a mood-based song suggestion app inspired from Snapchat at Hack the North (Honorary Mention)

Education

University of Waterloo Waterloo, ON
BASc in Computer Engineering *Sept. 2017 – April 2022*