Khantil Desai

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Education

Bachelor's of Computer Engineering, *AI Minor, Eng Business Certificate*, University of Toronto Sept 2019 – Present

- Relevant Courses: APS360 Applied Fundamentals of Machine Learning (A+), ECE297 Software Design (A+), ECE421 Introduction to Machine Learning (A-), ECE245 Programming Fundamentals (A), ESC190 Computer Algorithms and Data Structures (B+)
- Recipient of the Gordan R Slemon Capstone Design Award
- Recipient of the Engineering Science Research Opportunities Program (ESROP) Scholarship

Machine Learning Certificate, Stanford University Jun 2021

Web Development Specialization, University of Michigan Aug 2021

Skills

- **Languages:** Python, C++, C, Spark, MATLAB, HTML, CSS, JavaScript, Verilog, Bash
- **Technologies:** Machine Learning, CNN, Deep Learning, Git, Spark, MLFlow, Linux, Flask, Apache, SQLite

Experience

ML Intern, Xero, Toronto ON May 2022 – Sept 2023

- Developed a **multi-stage model** to classify financial documents, which is currently in production, using tools like **TensorFlow, Spark, MLFlow** and achieved **~90% precision, ~80% recall, the selected threshold.**
- **Developed pipeline used for ETL purposes** for training various models and to allow for continuous retraining using technologies like, **S3, Snowflake, Prefect**

ML Intern, SickKids Hospital, Toronto ON May 2021 – Sept 2021

- Developed documentation to guide and inform ML developers about the complete AI development pathway based on statistics and information available globally

ML Research Intern, Rost Lab, Toronto ON May 2021 – Sept 2021

- Created a generalized version of a genomics-oriented CNN model to train on any time-series data using **PyTorch** and **Pandas** with high AUROC (0.85-0.93) for radio and gravitational wave data

Full-Stack Research Intern, Mann Lab, Toronto ON May 2020 – Sept 2020

- Developed face-recognition, memory extension, Augmented-Reality GPS directions, and more programs for OpenEyeTap smart glasses which ran on **ESP32**, and **Raspberry Pi Zero** controllers
- Designed programs to efficiently gather and display data on the smart glasses while a **Rest API** developed on a **Flask** server with a **SQLite** database ran computationally heavy tasks

Projects

Satellite Tracker | HTML, CSS, JavaScript | A grade Sept 2023 – Apr 2024

- Developed a novel **Python Library** to predict occurrences of satellite interferences with ground telescopes
- Created a **website user-interface from scratch** to allow anyone to access this tool and **hosted it using Vercel**
- https://www.satellitecatcher.ca

Palantir Maps | C++ with GTK, LibCurl, OpenMP | A+ grade Jan 2021 – Apr 2021

- Created a GIS program that can load maps and provide personal navigation and delivery routing services.
- **Implemented pathfinding algorithms** like A* Search, Travelling Salesman Problem + Simulated Annealing
- Designed program while appreciating time considerations of when to preload data and when to use specific data structures with my individual contribution: 115 Git commits and 2,200 lines of C++ code
- https://youtu.be/IlOwogOBfPg

Patents and Publications

Methods, systems and computer-readable media for training document type prediction models, and use thereof for creating accounting records Nov 2022

- Patent for the GRU based multi-stage model and training pipeline I ideated and developed at Xero
- https://patentimages.storage.googleapis.com/9e/66/6d/894bb8c032ca37/WO2024043795A1.pdf

Sensing of the Self, Society, and the Environment Jul 2020

- This publication outlines how smart wearables like the OpenEyeTap integrate with human body systems (BP monitoring, etc…) and with external systems (GPS, face-rec software developed at MannLab, etc …)
- http://wearcam.org/ieeesensors2020/IEEE_Sensors_Sensing_Self_Technology_Society_and_Environment/PID6605899.pdf?mc_cid=3900f52874