Khantil Desai

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Education

Bachelor's of Computer Engineering, *Machine Intelligence Minor*, University of Toronto Sept 2019 – Present

- Relevant Courses: ECE297 Software Design (A+), ECE245 Programming Fundamentals (A), ESC190 Computer Algorithms and Data Structures (B+), ECE243 Computer Organization
- Recipient of 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, MATLAB, HTML, CSS, JavaScript, Verilog, Bash
- **Technologies:** Machine Learning, CNN, Deep Learning, Linux, Flask, Apache, SQLite, Git

Experience

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

- Evaluating and providing feedback on ML projects being worked on at SickKids, helping them reach a state with high commercialization potential
- Liaised between ML researchers and tech transfer office by providing suggestions and recommendations to help tech transfer office understand ML technologies
- Submitted these models to competitions where these generalized time-series models competed against models designed specifically towards classifying Radio Signals (SETI) and Gravitational Waves (EGO).

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

- Created a generalized version of a genomics-oriented CNN (Convolutional Neural Network) model to train on any time-series data using **PyTorch** and **Pandas**
- Demonstrated model performance with high AUROC (0.85-0.93) for audio, radio, and gravitational wave data
- Developed documentation to guide and inform ML developers about the complete AI development pathway based on statistics and information available globally

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
- Developed **bash scripts** which managed the operation of different C programs to ensure that they were operating efficiently on the limited computational resources of the smart glasses

Projects

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

- Developed a GIS program that can load a set of maps from the OpenStreetMap database and display requested details, 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
- https://youtu.be/IlOwogOBfPg

DE1-SoC Battleship Game | C, ARMv7 | A grade Jan 2021 – Apr 2021

- Developed the classical Battleship game for the DE1-SoC system by Terasic.
- Wrote library functions to drive a VGA port on the SoC and Keyboard input drivers.
- Coordinated multiple input/output ports (such as audio and video) using interrupt-driven I/O
- https://youtu.be/XYkoDwQCkNU

Publications

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