# Khantil Desai

Email: khantildesai2001@gmail.com          Cell: (647) 332-7853

Github: https://github.com/khantildesai?tab=repositories

**PROFILE:**

I am a career-oriented student with sound academic background, who has won many awards and scholarships in the high school and at university. I am an invaluable team player and am familiar with agile work environments. My goal at your company will be to quickly understand your operations and to make meaningful contributions to the projects/opportunity that are assigned to me.

**Technical Skills:**

| | |
|---|---|
| Python (Fluent) | BASH/ Linux Environment (Fluent) |
| HTML, CSS, Javascript (Fluent) | C, C++ (Fluent) |
| GIT Version Control (Fluent) | Numpy & Scipy Libraries (Functional) |
| TensorFlow Library (Functional) | Android/Web Development (functional) |
| ARC GIS API | ROS (Functional) |

## Experience:

***MannLab****:  Research intern - UofT ESROP Research Scholarship Recipient, May to September 2020*

As a research intern at MannLab, I was working with a team to improve upon the OpenEyeTap smart glasses, which are open source smart glasses. I was personally responsible for the development of a wearable face recognizer app, extended social memory app, live GPS directions for the smart glasses. These programs were mainly written in Python, HTML, CSS, JavaScript, and Flask. These applications were practically tested, and a paper was published based on these new applications and was presented at the IEEE Sensors 2020 conference.

***Hack the North:*** *Invited Participant, September 2019*

Our team demonstrated a peripheral device called 'GyGlove' that can learn hand gestures to operate various devices. We used machine learning algorithms, Microsoft Azure and Arduino sensors to create device. Device was aimed at physical disabled people to allow them to interact with technology in a more natural way.

## Publications:

***Sensing the Self, Society and the Environment***

Co-author of a paper with esteemed professor Steve Mann. Paper targeted at introducing new use cases and framework for development of wearable computing to better facilitate interactions between the self, the society and the environment. This paper is published in the IEEE Sensors 2020 conference where Prof. Mann, the Lab team are invited to present our paper. Please see: Page# 10&17 of this link. https://2020.ieee-sensorsconference.org/sites/sensors20/files/2020-10/sensors2020-program_sl.pdf

## Projects:

***Self-made Multilayer Perceptron Neural Network for classifying images***

I created an MLP neural network without use of any extra libraries for classifying handwritten digits and other types of images from MNIST database. I am fluent in understanding of Machine Learning algorithms and their applications with industry standard software.

***Algorithm to predict text based on various training texts***

This predictive text algorithm learns patterns from learning text and can provide predictive text assistance. Implementation of various Data Structures, OOP, and industry standard Data Storage is made effectively in this algorithm.

### *Climate Update App for Home Monitoring*

I have developed a home climate monitoring system. This system was implemented using a Wi-Fi enabled controller that collects and processes temperature and humidity data from various sensors and posts that data to a flask-based server. A GUI was developed to be able to display this data on a smart phone or a PC.

### *Mathematical Simulation using Numerical Methods*

I Used Matlab to perform mathematical modeling's numerical methods to analyze dynamic reaction of a 2-story building to an earthquake. I made use of System Identification application in Matlab to analyze results.

### *BST based Search Engine*

I worked on Implementation of various types of BSTs (Binary Search Trees) to develop an efficient algorithm that can search through Data Set with great speed.

### *Basic Image Editing Software*

I have created a Python library to perform image augmentation tasks such as crop, rotate, color palette switches and hue alteration.

## Design Teams / Professional Clubs:

### *University of Toronto Aerospace Team – Software Division – 2019 to present*

- Developed software to detect objects on the group from camera on the drone
- Trained neural network to learn various objects to be identified
- Familiar with ROS platform

### *University of Toronto Machine Intelligence Team – 2019 to present*

- Development of and training of Recurrent Neural Network to model Visual Attention patterns

## Education:

### *Computer Engineering – University of Toronto – 2019 to present*

I am currently enrolled in Computer Engineering at the University of Toronto and I am planning to minor in the Machine Intelligence option. I have courseware in Computer Science, Software Development, Microcontrollers and Numerical Methods.

### *Machine Learning – Stanford University (Through Coursera - Online) – 2020*

I am currently enrolled in the online Stanford Machine Learning course on Coursera and I have an understanding of MATLAB, Octave, Linear regression, Gradient descent and regularization.

## Achievements:
ESROP Summer Research Scholarship, UofT
Waterloo Math Contest School Champion 2016, 2017, 2018, 2019
- Galois, Hypatia, CSMC, Euclid