Steven Mathew

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Technologies

Languages	Python, Java, C, Typescript, HTML, CSS, Rust, SQL, zsh
Frontend	React, Next, Tailwind
Backend	Node, Express
Databases	MongoDB, PostgresQL
Tools	Git, Unix, Postman, Makefile, Neovim, tmux

Education

University of Toronto (BSc)
Specialist in Computer Science.
Minor in Mathematics.

Campus: St. George
Expected: May 2023

Received **Dean's List Scholar** award with a GPA of **3.94** (Major: 4.0). Entered with a **$2000** UofT Entrance Scholarship.

Studied topics in: Object-Oriented Software Development, Algorithm Design and Analysis, Data Structures and Data Management, and Unix, Socket, Shell, Systems Programming.

Projects

illuminote
repo
devpost
demo

Pair-programmed a mixed-reality multiplayer game submitted to Hack the North 2020++ written in **Pygame** and **OpenCV**.

Arrange sticky notes on the screen to design the game map, scan the map with a phone allowing the players to interact with the real world.

Used **canny** edge detection to extract sticky notes and the screen contour.

Accurately applied a transformation matrix to the screen contour to warp the image to a regular perspective.

kNN-predict
repo

A distributed, lightweight handwriting recognition tool written in **C** using k-nearest neighbors (with euclidean and cosine distance heuristic functions).

Used **parallelism** to efficiently distribute classification over multiple cores in the CPU.

Increased speeds up to **x64** using this multi-threaded approach.

argus.
repo
devpost

Built a real-time accident detection solution for CCTV footage leveraging **TensorFlow**'s machine learning model in **Python**.

Reports road accidents immediately to the web and phone via **Express** and Twilio API to reduce response time for assistance accommodations.

Accurately reports the location of the crash using Google geolocation and shows truncated footage of the crash.

Othello/Reversi
repo

Created a Java application that uses Minimax and Alpha-Beta Pruning for artificial intelligence to play Othello.

Designed the **heuristic** function which calculates the utility value of a board position by assigning different weights to the corners-captured on any given board configuration.

Optimized the AI to make a move in under **1 second** of real-time.

Competitive Progamming
repo

A repository containing over **400** competitive programming solutions to online judges such as Codeforces, DMOJ, and Leetcode written in C++, Java, and Python.

Included a C++ open-source library of **blazingly-fast** templates for algorithms and data structures.

Covered topics on Graph Theory, Dynamic Programming, Data Structure, and more.