Ansh Aneel

ansh.aneel@mail.utoronto.ca | LinkedIn | GitHub | Portfolio

Education

University of Toronto (GPA **3.90**/4.00)

- Computer Science Specialist | Software Engineering Stream — Class of 2025
- Statistics Specialist | Data Mining and Machine Learning Stream

Skills

Languages: Java, Python, C, C++, R | **Databases:** SQL, Firebase | **Tools/Frameworks:** GitHub, JavaFX, NumPy, Matplotlib, Git, SVN | **Web Development:** HTML, CSS, JavaScript, Django | **Principles:** OOP, MVP, AGILE, SCRUM, SOLID, Design Patterns

Professional Experience

Teaching Assistant — Sep 2022 – Present

University of Toronto | Python, CSV Files, NumPy, Matplotlib, Calculus

- Courses: Calculus I (MATA31), Calculus II x2 (MATA36, MATA33), Introduction to Programming (CSCA20)
- Held tutorial sessions with attendance of **30-40** students to reinforce concepts and review code for assessment
- Teaching Concepts Include: Data Structures, SQL, CSV Files, NumPy, Matplotlib, Python Core Concepts

Research Assistant — May 2022 – Present

University of Toronto Computer and Mathematical Science Research Group

- Working alongside Professor Brian Harrington to conduct research on computing and education
- Co-authored research paper on impact of Covid-19 on computing education, submitted to **SIGCSE TS' 2023**

Quality Assurance Software Engineer Intern — Sep 2019 – Jun 2020

Microart Services Inc | Python, C++, Arduino, Raspberry Pi

- Collaborated with team of over **20** engineers to construct testcases for software and circuitry in electronics
- Worked on designing, writing, documenting, and executing test plans for all stages of product development as well as implementing functionality according to testcases following TDD, increasing efficiency by over **25%**

Projects

Histopathologic Cancer Detection CNN Model (Presently Working On)

- Algorithm will identify metastatic cancer in small image patches taken from larger digital pathology scans
- CNN model of 6 convolutional layers, 6 batch normalization layers using PyTorch Libraries
- Trained on over 198,000 scans with feed forward function that uses Leaky ReLU Activation function

Course Planner App | GitHub |

- Developed Android app to help students register for courses and plan schedules
- Implemented Admin and User login services with Firebase Authentication and Realtime Database
- Created 6 user stories following SOLID principals and software design patterns testing with Junit and Mockito

Health Canada App | Video, GitHub | Amazon HackTo Submission

- Implemented user and client-side interfaces in Android Studio using Java/Kotlin focused on drastically decreasing wait times by **5x** by introducing centralized health data and records for a more seamless clinic experience
- Currently working on Blockchain integration to store records and increase network security by over **120%**

Multilayer Perceptron Neural Network

- Developed Supervised Learning Classification model using Perceptron activation function with binary outputs
- Optimized backpropagation to adjust weighting of inputs and increase accuracy of model by over **150%**
- Tweaked learning rate to find optimal balance between training time and accuracy using mean squared error

Academic

- **Voting Theory:** Programmed 6 voting systems to study their diverse effects on elections using Python
- **Movie Database:** Programmed a movie review database in C using Visual Studio inspired by IMDB
- **Music Sequencer:** Utilizes Binary Search Trees to store and tune notes adjusting pitch and frequency of music

Activities

Learn AI Associate, UofT AI — Jan 2022 – Present

- Aided in the organization and development of the Learn AI course teaching AI concepts and frameworks (e.g. TensorFlow, PyTorch) as well as important algorithms to over **600** undergraduate students

Member, UofT Machine Intelligence Student Team — Sep 2022 – Present

- Aided in NumerAi Quant project by providing backtesting strategies to avoid overfitting and survivorship bias
- Provided insight into strategies utilizing options and implied volatility to leverage position by up to **10x**