Khizar Malik

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Education

Carleton University, Ottawa **2026 (Expected)**

Computer Science: Artificial Intelligence and AI Stream

- **Relevant Courses:** Data Structures and Algorithms, Software Engineering, Object Oriented Software Engineering, Discrete Structures I/II, Fundamentals of Web Applications

Projects

Lock'dIn: Real-Time Engagement Analysis System

- Led a team of 4 to engineer a real-time engagement tracking system using OpenCV and MediaPipe that achieved **97% accuracy** in detecting user distraction patterns, leveraging facial mesh detection with 468 landmark points and computer vision algorithms, winning **3rd place** in a hackathon
- Architected a full-stack solution with **React** and **Tailwind CSS** for responsive frontend visualization, integrated with **Flask backend API**, processing 30+ frames per second through a custom neural network model (PyTorch) that analyzes 12 distinct facial features including head pose, gaze direction, and eye contact duration
- Implemented thread-safe frame processing with queue-based architecture handling 100+ feature sensitivity adjustments per minute, while maintaining smooth 60+ FPS video feed through optimized CPU/GPU resource allocation and batch normalization techniques

2D Game Simulation

- Developed an immersive **C++** simulation in the **Ubuntu Linux** environment, following **Agile methodology** and utilizing **object-oriented design principles** with **UML diagrams** (including **state** and **sequence diagrams**) to simulate complex interactions within a 2D grid environment, adhering to industry-grade **software development** practices
- Implemented **polymorphism** and **dynamic binding** to support over 5 different character classes with distinct behaviors, potentially generating 100+ random player positions and following
- Ensured robust memory management and error-free code with **extensive testing** through **Valgrind** and **GDB** for **debugging** and **memory leak detection**

Apple Stock Price Predictor

- Collected and processed over 5 years of historical Apple stock data using **yfinance and Pandas**, extracting key features and visualizing trends
- Built and fine-tuned a machine learning model using **linear regression** in Python, achieving an **85% accuracy rate** in predicting future stock prices
- Evaluated model performance through 5-fold cross-validation, improving buy and sell signal predictions by 20% compared to baseline models

Awards and Certifications

Microsoft Badges/Awards **Nov 2024**

Microsoft

- Earned Microsoft badges including **Plan with DevOps**, **Discover DevOps**, and **Core Architectural Components of Azure**, demonstrating foundational knowledge in **DevOps processes**, **agile planning**, release management strategies, and Azure's core architecture.

Supervised Machine Learning: Regression and Classification **Jul 2024**

DeepLearning.AI *Stanford University*

- Completed a comprehensive course in supervised machine learning with a focus on deep AI techniques, gaining proficiency in **Linear Regression, Logistic Regression, Classification, Scikit-Learn, NumPy, and Pandas**

Award of Academic Excellence for International Students **Sep 2022 - Apr 2023**

Batch of 2022 *Carleton University*

- Got selected for the award, a prestigious honor bestowed annually to only 3 individuals out of 1000+ of applicants

Technical Skills

Languages: Python, Java, SQL, C++, C, JavaScript, HTML, CSS

Technologies & Frameworks: React, Flask, Node.js, Express.js, Tailwind CSS, OpenCV, MediaPipe, PyTorch, NumPy, Pandas, Scikit-Learn, Matplotlib, Qt

Tools & Practices: Git, GitHub, VS Code, Vim, Npm, Agile (Scrum, Kanban), DevOps