Kashan Ahmad

905-531-1256 | kasubhani@hotmail.com | LinkedIn | GitHub

Education

University of Toronto **September 2023 – May 2028**
Bachelor of Applied Science, Electrical and Computer Engineering *Toronto, Canada*

Technical Skills

Languages: Python, C++, Java, C, JavaScript, HTML/CSS, Verilog, Assembly, MATLAB
Developer Tools: VS Code, Eclipse, LTspice, Replit, Quartus Prime, Git/GitHub, Linux, Windows
Technologies/Frameworks: PyTorch, OpenCV, NumPy, ROS, FPGA (DE1-SoC), Arduino, EZGL

Experience

University of Toronto Robotics Association (UTRA) **September 2024 – May 2025**
Embedded Systems Engineer *Toronto, Canada*

- Designed and developed **fully autonomous rover** using embedded circuitry, ROS and C++, enabling successful navigation and environmental manipulation tasks
- Implemented **fault detection alarm system** for BLD-750 motor using Arduino microcontroller, reducing motor failure incidents by **95%**
- Documented system architecture and debugging methodologies, improving team knowledge transfer efficiency by **40%**

Ittefaq Electrotech **May 2024 – August 2024**
Electrical Engineer Intern

- Designed and implemented **automated gate driver circuits** for voltage and current control, increasing system efficiency by **25%**
- Programmed low-side MOSFET switching circuits using NE555 timer ICs with optimized duty cycles, achieving **reliable timing control** and maximum efficiency
- Validated hardware designs using **LTSpice simulations**, ensuring 100% compliance with project specifications

Projects

Gesture Recognition with CNN and Transfer Learning | *PyTorch, AlexNet, OpenCV*

- Built convolutional neural network (CNN) to classify hand gesture images using custom dataset of RGB images, achieving **100% training accuracy, 94% validation accuracy and 93% test accuracy**
- Applied **Transfer Learning** with pre-trained AlexNet model to extract features and trained custom classifier, reducing training time by **60%**
- Optimized model performance using SGD and CrossEntropyLoss with training curve visualization, resulting in **stable convergence** and robust classification

The Daily Commute Map | *C++, EZGL, OpenStreetMap*

- Developed interactive mapping application in C++ integrating OpenStreetMap data, enabling **real-time navigation** for 10,000+ street intersections
- Implemented **A* and Dijkstra algorithms** with multithreaded preprocessing, achieving **sub-second route calculation** for complex queries
- Built multi-location courier routing system using multi-greedy heuristics and 2-Opt optimization, reducing delivery time by **30%**

Space Invaders Game | *Verilog, FPGA*

- Developed interactive Space Invaders game using **Verilog and DE1-SoC FPGA board**, successfully implementing complete game logic and user interface
- Integrated PS/2 keyboard input and VGA display output, achieving **seamless real-time gameplay** with 60fps performance
- Designed finite state machines for game logic and VGA signal generation, resulting in **stable hardware-software integration**

Reversi/Othello AI | *C Programming*

- Created interactive Reversi/Othello program with **custom AI algorithm** using object-oriented programming principles, achieving strategic gameplay
- Implemented efficient AI algorithm to analyze user moves and generate rapid responses, resulting in **challenging competitive gameplay**