

MANNY MIFSUD CASSAR

Curious learner and determined problem-solver building intriguing AI software and embedded systems

[Email](#) | 647-546-4442 | [My Website](#) | [LinkedIn](#)

TECHNICAL SKILLS

- **Languages:** Python, C/C++, Bash, LLM Prompt Engineering, Java, Makefiles, SQL, LaTeX
- **Software:** VSCode, GitHub, Docker, Azure, Microsoft DevOps, Atlassian Suite, PostgreSQL, CAD Modelling, VPN
- **Packages:** Pandas, Numpy, pyTorch/Tensorflow, ffmpeg, Scipy, Dash/pyQT5, LangChain/Chainlit, Azure
- **Hardware:** Arduino/ESP32, CAN Bus, FPGA, BMS, Inverter, Motors, Servos, Sensors, Electrical Soldering/Testing

SELECTED PROJECTS

Formula SAE Team: Integrated in a team of engineers developing an electric Formula SAE racecar.

- Architected C++ library to initialize communication of our car's ECU, BMS, inverter, dash, and sensor suite.
- Built a real-time PyQt5 telemetry dashboard to visualize battery cell temperatures, SOC, wheel speeds, and throttle/brake inputs from CAN Bus data, laying the foundation for iteration on the car's settings and design in testing.
- Contributed to the design, fabrication, calibration, and testing of our car's electrical harness to ensure race reliability.
- Collaborated with ~10 Electrical team members using version control to meet a critical software package deadline.

My Java Web Server: Created and managed an online multiplayer Minecraft Java server.

- Built, ran, and scaled a Java server to meet demand of up to 80 players at a time.
- Developed a marketing campaign to generate \$1000+ of revenue through a custom e-commerce plugin.
- Hired and trained a 5-person team to address increased customer service requirements, enabling scalable growth.

Reinforcement Learning Agent: Coded a Proximal Policy Optimization agent for a competitive tournament.

- Engineered observation/action features and reward shaping to balance exploration with dynamic enemy avoidance.

Python Web Development: Used Python server to automate anything, for fun!

- Implemented a SQL backend, processing core, and web interface for a neural network running face and license plate detection to classify and store my live security camera feed, automating security notifications.
- Built an app using the Selenium API and web scraping to automate COVID questionnaire forms for 10 friends.

PROFESSIONAL EXPERIENCE

Software Engineering Intern, Evertz Microsystems, Burlington, ON **2023 – 2024**

- Engineered the company's internal RAG LLM's OAuth2.0 authentication, Python data ingest engine, Postgres vector database, frontend features, and Grafana analytics dashboard to powerfully AI-augment the workforce.
- Developed a DDR controller userland API to leverage GPU, reducing logo stream bandwidth requirement by 50%.
- Conceived and executed a new string conversion library that patched over 200 buffer overflow vulnerabilities.
- Implemented automatic Playwright unit tests in a dev-test-live deployment pipeline for the internal RAG system.
- Spearheaded a team of 20 co-ops designing a web-controlled microcontroller irrigation system for our garden beds.

Signals Intelligence Specialist, CAF 21 Electronic Warfare Regiment, Kingston, ON **2022**

- Led military platoon of 30 recruits through a training exercise and completed 20 outdoor training missions. Fostered goal planning and problem-solving skills. Instilled cohesive teamwork through effective communication.

EDUCATION

Bachelor of Computing Honours, Queen's University, Kingston, ON **2025**

- **Specialization:** Artificial Intelligence
- **Relevant Courses:** Artificial Intelligence, Algorithms, Data Structures, Reinforcement Learning, Neural and Genetic Evolutionary Computing, Software + Computer Architecture, Operating Systems, System Level Programming.
- **GPA:** 3.67/4.0, awarded Dean's Scholar with Distinction (*Summa Cum Laude*) (Top 3% of Faculty)

OSSD Ontario Scholar, De La Salle College "Oaklands", Toronto, ON **2020**

LEADERSHIP AND ACTIVITIES

- **Teaching Assistant:** Elements of Data Analytics for Machine Learning (Dr. Hazem Abbas, Winter 2025)
- **Clubs:** Queen's Formula SAE Team, Canadian Undergraduate AI conference delegate, and Rock-Climbing Club
- **Volunteering:** Chef and waiter at St. Francis Table, Housekeeper at Good Shepherd Ministries
- **Interests:** Podcasts, Formula 1, Small Engine Repair, Fishing, Aquariums, Bouldering, NFL, CAD / 3D Printing