MANNY MIFSUD CASSAR

Curious and adaptable learner seeking an energetic team building impactful AI software

m.cassar@queensu.ca | 647-546-4442 | mcassar4.github.io | linkedin.com/in/mannycassar

TECHNICAL SKILLS

Languages: Expert Python, Intermediate C++ & a bit of C, Beginner SQL, Prompt Engineering, Bash, Makefiles
Currently Learning: JavaScript, TypeScript
Software: Git + Actions + Copilot, Docker, Azure, pgvector, Atlassian, Microsoft DevOps, OCR + Textract, Wireshark
Currently Learning: AWS (EKS, RDS, S3, SageMaker), Kafka, Figma, Twilio, SendGrid, Vercel, Grafana
Packages: pyTorch, LangChain/Chainlit, YOLO + OpenCV, WebSocket, Pandas/Numpy, Playwright, OpenAI
Currently Learning: Node.js, React, CUDA, FastAPI, Dash, PyQt5

EDUCATION

Bachelor of Computing Honours (Specialization in AI), Queen's University, Kingston, ON **2025**

- **GPA:** 3.67/4.0; *Graduated with Distinction*
- **Relevant Courses:** Artificial Intelligence, Deep Learning, Computer and Software Architecture, Reinforcement Learning, Algorithms, Data Structures, Operating Systems, Evolutionary Computing, System Level Programming.

PROFESSIONAL EXPERIENCE

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

- I was the first intern to meet with the CTO and ask where I could drive the most impact. I played a key role in building a RAG LLM end to end, from data ingest to insight, accelerating workflows and decisions for 2,000+ employees.
- Integrated cloud storage, Atlassian Suite, and SMB data into a unified ingest engine powering a vector database.
- Optimized vectorDB updates from daily to minutely using caching and quantified hardware utilization with Grafana.
- Developed an analytics dashboard in Dash with Postgres, surfacing sales and service trends for leadership insight.
- Implemented product reference tags and conversational memory & continuity to vastly enhance retrieval relevance.
- Automated unit testing with Playwright in dev-test-deploy pipeline, validating code and reducing deployment risk.
- Delivered inline retrieved document viewer and custom file upload context injection, enhancing user workflow.
- Implemented user feedback on responses and analyzed chats in Chainlit to understand satisfaction drivers.
- Tuned system prompts to filter disallowed responses, aligning outputs with corporate compliance requirements.
- Protected restricted access with OAuth2 and JWT and analyzed requests with WireShark.
- Collaborated with hardware team to engineer 32-bit logo overlay support by extending software in C++ and validating changes through memory analysis and testing, effectively doubling revenue generation capability for our customers.
- Developed a GPU DDR controller API for hardware efficiency, enabling more complex broadcasts for customers.
- Discovered stack canary buffer overflow with GDB memory analysis and patched 200+ callsites with a custom library.

SELECTED PROJECTS

Live AI Copilot: Building a solution for land brokers that allows them to engage more clients with live AI augmentation.

- Listens to live calls, learns structured client preferences, surfaces contextual property insights in real time with RAG and search, and orchestrates follow-ups (research, document requests, showings, and comms) end-to-end.

Deep Learning Home Apps: Used Python to AI-equip my home and learn!

- Implemented a SQL backend, YOLO + OpenCV processing core, and vibe-coded web interface for an app running face and license plate detection to classify and store my live security camera feed, automating security notifications.

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

- Engineered observation/action features with reward shaping, leveraging PyTorch in OpenAI Gym and GPU acceleration to optimize training and improve agent performance in a dynamic enemy-avoidance competition setting.

Formula SAE Team: Senior team member directing engineering of our EV racecar's computer and software systems.

- 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.

Online Web Server Business: Created a multiplayer Minecraft server at 14 years old; had fun building what I loved.

- I built, ran, and scaled a Java server to meet demand of up to 80 players at a time, generating $1000+ in revenue.
- Hired and trained a 5-person team to foster community engagement and enable scalable growth.

LEADERSHIP AND ACTIVITIES

Teaching Assistant: Elements of Data Analytics for Machine Learning (Dr. Hazem Abbas, Winter 2025)
Conferences: Canadian Undergraduate AI Conference Delegate, Elevate Startup Accelerator Initiative