

Matthew Lones

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EDUCATION

Queen's University – Smith School of Engineering and Applied Science Kingston, ON
B.A.Sc., Applied Mathematics & Computer Engineering; GPA: 4.0/4.3 Class of 2028
• Relevant Courses: Data Structures, OOP, Computer Architecture, Linear Algebra, Real Analysis

EXPERIENCE

QMIND (Queen's Machine Learning Club) Kingston, ON
Consulting Design Team Member Oct 2025 – Present
• Researching and developing a multimodal large document RAG system for AI4Support with LangGraph.
• Building the ingestion pipeline with unstructured.io, whisper, and ffmpeg to normalize input into JSON with metadata.

Queen's Aerospace Design Team 🔄 Kingston, ON
Computer Vision Manager Oct 2024 – Present
• Hired a team of 8 to create the computer vision systems for the AEAC autonomous unmanned aerial vehicle urban firefighting competition. Developing robust perception pipelines with OpenCV for VTOLs and an autonomous drone.
• Creating algorithms to detect the location of circular markers relative to features of an unknown building from a camera mounted on a VTOL in real time. Utilizing SLAM to enable a drone to autonomously navigate and spray indoor targets.
• Containerized a development environment of Ubuntu 22.04, ROS2, PX4, Gazebo and additional dependencies for members on all operating systems. Ran workshops to onboard members in Git, Docker, ROS2, and PX4.

PROJECTS

Glassbox – An Agentic AI Project Management Platform for Enterprise 🔄 Jan 2026
AWS CDK, Redis, Langgraph, Go, Python, Next.js
• Building a recursive node-based project management tool to improve the tractability of agentic AI in enterprise.

Algorithm for Autonomous Car Orchestration 🔄 Oct 2025 - Dec 2025
MATLAB
• Developed a MATLAB graph-object simulation of a taxi fleet on a node-based map of Toronto from shapefile data.
• Used Lloyd's algorithm on a time-varying demand density map to redistribute idle taxis to optimize user base wait time.

Second Brain 🔄 Jan 2026
AWS SAM, Python, Electron
• 1st place in AWS track at KingHacks with an overlay app that transforms users' thoughts into executable actions.

HarveStar – Robotic Arm Control System 🔄 Jan 2025 – May 2025
Python, React, PySerial, CircuitPython, OpenCV, Raspberry Pi Pico, Flask
• Created a control system for the EEZYbotARM MK2 in partnership with the Canadian Space Agency.
• Developed CircuitPython code on a Raspberry Pi Pico which leveraged inverse kinematics to control the arm.
• Established serial communication between the arm and a laptop to host a live-streamed React website accessible via ngrok, allowing operators to remotely control the arm in real time.
• Integrated an IMU controller that enabled operators to control the arm through hand movements.

LEADERSHIP & COMMUNITY

Queen's Engineering Society Kingston, ON
First Year Finance Project Coordinator Oct 2024 – May 2025
• Shadowed the Director of Finance responsible for auditing the Bank of EngSoc, which manages a six-figure balance that supports over 50 Smith Engineering design teams and clubs.
• Created an Excel tracking sheet with VBA macros to record and sort all future transactions within the Bank of EngSoc.

Model United Nations Ottawa, ON
Club Head Sept 2023 – Jun 2024
• Led a Model UN club branch of 30 members.
• Chaired an inter-school debate conference with over 80 delegates representing different nations to resolve conflicts.
• Mentored younger students in public speaking, interpersonal skills and problem solving.

RKY Camp Parham, ON
Boating Head & Counsellor July 2023 – Aug 2025
• Ran daily boating activities for overnight campers. Served as co-head lifeguard for the camp and mentored counsellors.
• Taught and examined over 30 leadership participants in Bronze Cross, a lifeguard certification in the Lifesaving Society.
• Facilitated group games and high ropes activities for hundreds of students throughout the spring.

ADDITIONAL INFORMATION & INTERESTS

Languages & Tools: AWS, C, C++, Python, MATLAB, OpenCV, LangGraph, ROS2, Linux, Bash, Git, Docker.
Musician: Jazz saxophonist of 8 years in school and community bands; also enjoy piano, guitar and composition.
Outdoors Enthusiast: Participated in Scouts Canada camping for over a decade; whitewater kayaker and ski instructor.