Spencer Osborn

B. A. Sc (Mathematics and Engineering) Candidate
Queen's University

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Spencer Osborn
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Education

Bachelor of Applied Science in Mathematics and Engineering (Communications and Computing) *2022-26*

Core concepts from both Computer Engineering and Applied Mathematics taught within the department of engineering.

Work Experience

Artificial Intelligence Software Engineering Intern *May 2025 - Current*

Novari Health

- Contributed to the development and launch of Intelligent Document Processing (IDP) and Auto-Protocolling tools, using C#, Azure, and open-source frameworks to integrate AI capabilities into Novari Health's software suite.
- Built and maintained internal metrics and monitoring tools for real-time performance analysis of IDP and Auto-Protocolling systems, with outage and under performance alerting, leveraging data pipelines and SQL databases.
- Led the launch of IDP v3, redesigning the backend system architecture to reduce dependencies and cut cloud costs by 82%, leveraging open-source frameworks such as OpenCV and Tesseract.

Software Engineering Intern *November 2024 - May 2025*

Limestone Analytics

- Built Python scripts to efficiently filter, sort, analyze, and update millions of rows of data, streamlining workflows and enabling timely, data-driven insights, using Google Sheets API integration.
- Developed a lightweight repository system to organize and manage data analysis tools, enabling better software reuse and version control for backend development workflows.

Design Team Experience

Director of Perception & Head of Navis *September 2024 - Current*

aQuatonomous

- Leading a team of 6 in the development of an Autonomous Surface Vessel for the international RoboBoat competition, overseeing system integration and backend architecture.
- Developed a lightweight, real-time object detection system using OpenCV and ROS2 on an NVIDIA Jetson Nano, achieving 15 FPS while maintaining full external system functionality and backend data processing.

Director of Competitions & Infrastructure *September 2023 - May 2025*

Smith Engineering Hyperloop Design Team

- Coordinated Hyperloop Global, North America's largest Hyperloop competition, resulting in an increase in participating teams by 20% & reducing overall competition cost by 45%.
- Lead a team of 8 to research & develop a magnetic levitation hyperloop track for the QHDT hyperloop pod.

Personal Projects

1st Place in the Next Generation Medical Simulation Hackathon *February 2024*

- Engineered a neck brace to indicate patient movement to first responders for performing intubation & c-spines, implementing real-time data processing and sensor integration.
- Used sensor data to model the position and acceleration of the patient's neck to ensure proper practitioner technique, developing backend algorithms for data analysis.

Multimodal Agent Malaria Spread Simulation *September 2024*

- Designed a multimodal agent simulation of the spread of malaria in various environments using Lloyd's Algorithm to predict the movement of the agents, implementing backend data processing and analysis.
- Analyzed and located potential high transition areas for current & future infrastructure development considerations, processing large datasets with optimized algorithms.

Technical Skills and Interests

Languages: Java, Python, C/C++, C#, HTML, JavaScript, PHP, MATLAB, LaTeX, SQL
Libraries/Frameworks: NumPy, OpenCV, Pandas, TensorFlow, Tesseract, React
Software: Azure, MS Office, GitHub, Linux, AutoCAD, SOLIDWORKS, SLAM, Arduino, ROS2
Backend & Platform: API development, Database design, Cloud platforms, System monitoring, Aglie Development, Devops, RAG, Prompt Engineering, Unit Tests
Relevant Course Work: Real Analysis II, Algorithms, Control System, Probability II, Engineering Design & Practice III, Object Oriented Programming, Complex Analysis, Linear Algebra II
Interests: Backend development, Platform engineering, Financial technology, Climbing, Volleyball, Cycling, Designing & Creating rugs, Squash