

Hussein Saad

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EDUCATION

McMaster University

MSc Computer Science (Supervisor: Dr. Matthew Giamou)
Honours Computer Science, Minor in Mathematics

(Expected) Apr. 2026
Apr. 2024

EXPERIENCE

Autonomous Robotics and Convex Optimization Lab

Jan. 2024 – Present

Research Assistant

Hamilton, Ontario

- Developing production-grade Python packages implementing our optimization solutions for robotics.

McMaster University

Sep. 2024 – Dec. 2024

Teaching Assistant

Hamilton, ON

- Taught classes of 40+ students, discussing topics such as logic, discrete mathematics, and program correctness.
- Led lab sessions on numerical methods using Julia, covering ODEs, interpolation, and regression.

Cisco

May 2023 – Dec. 2023

Software Development Intern

Ottawa, ON

- Developed and maintained critical BGP features for Cisco Nexus Data Center Switches, enhancing routing security and stability for enterprise-scale deployments.
- Helped design and implement a BGP-focused test automation suite that streamlined pre-commit validation across virtual and physical routers, cutting commit cycles from days to hours.
- Engineered a Python solution for virtual NX-OS routers to optimize network traffic analysis, ensuring stable automation pipelines.

Royal Bank of Canada

Jan. 2023 – Apr. 2023

Software Development Intern

Toronto, ON

- Designed and implemented a scalable Java-based data ingestion pipeline, successfully decoupling a corporate treasury data layer and improving system maintainability.
- Wrote queries to efficiently transfer data between SparkSQL tables, resulting in a **30% reduction** in processing time and enhancing overall performance.
- Created a REST API with Spring Boot to provide seamless integration and control for the data ingestion.

PUBLICATIONS

- [1] Alaap Grandhi, *Hussein Saad*, Veerash Palanichamy, Matthew Giamou, Onaizah Onaizah. “Optimal Arrangement of Electromagnetic Actuators.” To be submitted to: *IEEE Transactions on Robotics (T-RO)*
- [2] Veerash Palanichamy, *Hussein Saad*, Matthew Giamou, Onaizah Onaizah. “OMASTAR: Optimal Magnetic Actuation System Arrangement.” In: *International Conference on Robotics and Automation (ICRA)*, 2025.
- [3] Ethan Sequeira, *Hussein Saad*, Stephen Kelly, and Matthew Giamou. “Optimal Beacon Placement for Range-Aided Localization.” In: *Conference on Robots and Vision*, 2024.

PROJECTS

Deep Learning for Lung Disease Detection (Capstone) | Python, PyTorch, Flask, Deep Learning, Computer Vision

- Worked with 4 students under Dr. Mehdi Moradi to build a lung disease classification and segmentation model.
- Trained a PytorchDenseNet model achieving an average classification AUC of **0.86** across 6 diseases.

VeganCheck | JavaScript, Express.js, jQuery, MongoDB, Mongoose, REST

- Created a website to check food products for vegan compatibility.
- Utilized Express.js and Mongoose to develop a REST API to fetch, store and update MongoDB database entries.

TECHNICAL SKILLS

Languages: Python, Julia, Javascript, Java, SQL (MySQL), HTML/CSS, Bash

Frameworks: Pytorch, Numpy, Vue.js, Node.js, Express.js, MongoDB, Spring Boot, pyATS, cvxpy

Developer Tools: Git, VS Code, Visual Studio, PyCharm, Postman, Eclipse