

Antoine Dangeard

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EDUCATION

McGill University — B.Eng Software Engineering, Minor in Applied A.I.
CGPA 3.84/4.0

Montreal, Canada
2020 - 2025

PROFESSIONAL EXPERIENCE

Research Assistant

Aug. 2024 - Present

McGill N.L.P. Lab

Montreal, Canada

- Working directly with Ines Arous, Ph.D, under Prof. Jackie Cheung, on the continuation of the TaxoComplete paper.
- Optimized taxonomy prediction function to run about 20x faster.
- Analyzed related works to identify future research direction.
- Work ongoing.

H.i.L. Software Engineer Intern

May - Aug. 2024

Torc Robotics

Montreal, Canada

- Researched, designed and implemented data injection infrastructure for HiL (Hardware-in-the-loop) test benches. Design supported manual and automatic (CI/CD) testing of ROS components with MCAPs.
- Created ROS2 MCAP replay and recording tool from scratch in C++ with Python bindings. Enabled developers to replay and record any messages without requiring prior build of custom message types.
- Simplified testing procedure from requiring custom builds and 15-20 commands to a single distributable environment and under 5 commands.

Software Engineer Intern in Robot Team

May - Aug. 2023

Vention

Montreal, Canada

- Optimized joint speed limiting during Cartesian linear movements of 6-D.O.F. robotic arms, resulting in increased maximum speed of linear movements and improved U.X. Decreased cycle time for pick-and-place tasks by up to 20%.
- Improved U.I. to view and modify end-of-arm tool offsets and view live status of hardware.
- Implemented self-collision checking for end-of-arm tools.

ROBOTICS

Project Manager and Software Lead

Jan. 2024 - Present

McGill Humanoid Project

Montreal, Canada

- Founded undergraduate team focused on building and controlling a humanoid robot
- Led 10 engineers, successfully raising over \$10,000 in value in under 4 months.
- Single-handedly created software architecture, R.L. and R.O.S. simulations (MuJoCo/Unity), R.L. training framework and model-predictive control infrastructure from scratch.

Research Volunteer

May 2024 - Present

Neuro AI

Montreal, Canada

- Aug. 2024-Present: Research project accepted to NeurIPS conference. Implemented RL training pipeline, optimized simulation to improve performance of RL policies, and technical writing for paper.
- May 2024-Sep. 2024: Provided guidance and technical advice. Regularly met with the student implementing the research effort to answer questions, help with problems encountered during implementation and make design decisions.

Research Volunteer

May 2023 - Present

Prometheus Lab

Montreal, Canada

- May 2024-Present: Proposed and implemented independent research project on domain knowledge-based pre-training for reinforcement learning control policies.
- Sep.-Dec. 2023: Re-designed and implemented server infrastructure for multi-agent inter-robot communication and control. Reduced number of lines of code in the server from over 5000 to less than 300 whilst preserving functionality and improving maintainability and compatibility with robot hardware.
- May-Sep. 2023: Technical lead for multi-agent robotic delivery project. Obtained \$7500 TechAccel Summer Stipend from McGill Engine and implemented control, mapping, and planning ROS packages for vehicle from scratch.

McGill Robotics AUV Software

Sep. 2022 - August 2024

Software Team Lead

May 2023 - August 2024

- Created tutorials, onboarding plan, and thorough documentation for new members; more than doubling retention rate from previous years.
- Implemented mandatory code reviews, issue tracking, scheduled documentation upkeep, and automatic integration testing pipelines, successfully preventing any major code breakages throughout the year.
- Build new simulation from scratch with improved performance, more Q.o.L. features, and better sim-to-real than previous framework.
- Assisted members with state estimation, pose control, computer vision, and simulation.

Software Team Member

Sep. 2022 - May 2023

- Reached semi-finals for the first time since 2020 with all-new software stack.
- Built object detection, mapping, and autonomous planner from scratch.

SKILLS

Languages: Fluent in English and French

Programming: Python, Javascript, C++, Bash, C, Java, C#

Frameworks: ROS (1 & 2), Pandas/NumPy, CUDA, PyTorch/TensorFlow/Keras, Unix, WebSocket/TCP/HTTP/UDP, Node.js, React.js

Developer Tools: Colab/Jupyter, Docker, Git, GitHub/GitLab, AWS

AWARDS

Tomlinson Engagement Award for Mentoring in MECH 360 (Principles of Manufacturing)
2nd place at McGill A.I. Hackathon
1st place at McGill RoboHacks
Top 5 of 115 at McHacks
Top 10 at McGill Data Challenge
Grade A in McGill A.I. Society M.L. Boot-Camp

December 2023
September 2023
March 2023
January 2023
January 2023
September - December 2021