Antoine Dangeard

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Education

McGill University — B.Eng Software Engineering, Minor in Applied A.I. Montreal, Canada
CGPA 3.85/4.0 *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 (Self-Supervised Taxonomy Completion) paper.
- Optimized taxonomy prediction function from 45 minute runtime down to 2 minutes.
- More TBD.

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 ROS2 messages without requiring prior knowledge of custom ROS message types.
- Simplified testing procedure from requiring custom ROS2 builds and about 15-20 commands to a single docker container 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.
- Added CAD U.I. to view and modify end-of-arm tool offsets and implemented self-collision checking for end-of-arm tools.
- Built connection status detection and corresponding UI for UR arms.

Robotics

Project Manager and Software Lead Jan. 2024 - Present
McGill Humanoid Project *Montreal, Canada*
- Founded undergraduate design team focused on building an R.L.-controlled 16 D.O.F. humanoid robot
- Led 10 engineers, successfully raising over $10,000 in value and finishing electrical/mechanical/software designs in under 4 months.
- Single-handedly created software architecture, R.L. and R.O.S. simulations (MuJoCo/Unity), and R.L. training framework from scratch.

Research Volunteer May. 2023 - Present
Prometheus Lab *Montreal, Canada*
- *Dec. 2023-Present*: Served as Multi-Agent Robotics Advisor for new students joining the lab. Provided mentorship, advice, and technical assistance to several teams.
- *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.
- *Ma-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.

Software Team Lead May 2023 - Aug. 2024
McGill Robotics AUV *Montreal, Canada*
- Created tutorials, an 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. - May 2023
McGill Robotics AUV *Montreal, Canada*
- Built object detection, mapping, and autonomous planner from scratch, enabling the team to reach semi-finals for the first time since 2020.

Skills

Languages: Fluent in English and French
Programming: Python, Javascript, C++, Bash, C, Java, C#
Frameworks: ROS (1 & 2), Pandas/NumPy, React.js, CUDA, Node.js, PyTorch/TensorFlow/Keras, Unix, WebSocket/TCP/HTTP/UDP
Developer Tools: Colab/Jupyter, Docker, Git, GitHub/GitLab, AWS

Activities and Awards

Cube Technician at The Cube (McGill 3D printing service) September 2023 - January 2024
Tomlinson Engagement Award for Mentoring in MECH 360 (Principles of Manufacturing) December 2023
2nd place at McGill A.I. Hackathon September 2023
1st place at McGill RoboHacks March 2023
Top 5 of 115 at McHacks January 2023
Top 10 at McGill Data Challenge January 2023
Grade A in McGill A.I. Society M.L. Boot-Camp September - December 2021