Charlotte MORISSETTE
Masters Student in Computer Science

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🎓 EDUCATION

Present **Sept. 2023**	Masters of Science - Thesis, SCHOOL OF COMPUTER SCIENCE, MCGILL UNIVERSITY, Montréal, Canada **Degree :** Computer Science **Thesis Topic :** Tactile Sensing and Foundation Models for Robot Manipulation. **Supervisor :** Gregory Dudek **CGPA :** 4.00/4.00
May 2023 **Sept. 2019**	Bachelor of Science, SCHOOL OF COMPUTER SCIENCE, MCGILL UNIVERSITY, Montréal, Canada **Degree :** Honours Computer Science & Biology, Minor in Statistics **CGPA :** 3.79/4.00

💼 WORK EXPERIENCE

May 2025 **Sept. 2024**	Teaching Assistant, MCGILL UNIVERSITY, Montréal, Canada › TA for COMP462 & COMP561, Computational Biology Methods and COMP421, Database System › TA for COMP421, Database System
Aug. 2023 **May 2022**	Research Intern, SAMSUNG AI CENTRE, Montréal, Canada › Multimodal tactile sensors (working on software and hardware) › Human-Robot Interaction › Zero-shot transfer in reinforcement learning using hypernetworks › Contact shape estimation using visual-tactile sensors
Aug. 2021 **Sept. 2020**	Research Assistant, MCGILL UNIVERSITY, Montréal, Canada › Volunteer research position in Joseph Vybihal's lab at McGill University › Neural network classification with limited training data and Research on image inpainting

🎓 PUBLICATIONS

2025	Abyaneh, A., **Morissette, C.**, Danesh, M., Houssaini, A., Meger, D., Dudek, G. and Lin, H. 2025. "Contractive diffusion policies : Robust action diffusion via contractive sampling with differential equations." *In Review at International Conference on Learning Representations (ICLR) 2026.*
2025	Wen, S., Meriaux, E., Guzmán, MS., **Morissette, C.**, Si, C., Baghi, B. and Dudek, G., "Scalable Aerial GNSS Localization for Marine Robots". In *IEEE International Conference on Robotics and Automation (ICRA), Robots in the Wild Workshop 2025*.
2024	Jilani, A., Hogan, F.R., **Morissette, C.**, Dudek, G., Jenkin, M. and Siddiqi, K. 2024. "Visual-Tactile Inference of 2.5D Object Shape from Marker Texture". In *IEEE Robotics and Automation Letters, presented at ICRA 2025*.
2023	Rezaei-Shoshtari, S., **Morissette, C.**, Hogan, F.R., Dudek, G. and Meger, D., 2023. "Hypernetworks for Zero-shot Transfer in Reinforcement Learning". In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 37).
2022	**Morissette, C.**, Baghi, B.H., Hogan, F.R. and Dudek, G., 2022. "A Study of Human-Robot Handover through Human-Human Object Transfer". In *Advances in Neural Information Processing Systems, Human in the Loop Learning (HiLL) Workshop (NeurIPS) 2022*.

🎓 PATENTS

2024	Jilani, A., Hogan, F.R., **Morissette, C.**, Dudek, G., Jenkin, M. and Siddiqi, K. "Optical tactile sensor and method for estimating shape from touch". United States Patent US 18,378,447. United States Patent and Trademark Office. 19 Sept. 2024
2024	Rezaei-Shoshtari, S., **Morissette, C.**, Hogan, F.R., Dudek, G. and Meger, D. "Hypernetworks for Zero-shot Transfer in Reinforcement Learning". United States Patent US 18,385,696. United States Patent and Trademark Office. 20 Juin. 2024

🎓 SELECT HONORS AND AWARDS

2024 – Present	Fonds de Recherche du Quebec - Nature et Technologies (FRQ-NT) Award.
2023	AAAI-23 Student Scholarship
2020 – 2021	Faculty Of Science Scholarships, Top 5% of the Faculty

▤ SKILLS

Programming	Python, Java, C++, C, C#, MATLAB
Machine Learning Frameworks	PyTorch, TensorFlow
Platforms	ROS, Docker
Robotic Software	Mujoco, Bullet, MoveIt, OpenCV
Other Software	onShape, LaTeX

📑 Research Interests

- Robotics
- Haptics/Manipulation/Tactile Sensing
- Human-Robot Interactions
- Representation Learning

- Reinforcement Learning
- Robot Learning
- Foundation Models for Robot Learning
- Biomechanics

🎓 Relevant Courses

COMP 514 - Applied Robotics, McGill

COMP 550 - Natural Language Processing, McGill

COMP 551 - Applied Machine Learning, McGill

COMP 558 - Fundamentals of Computer Vision, McGill

Coursera - Neural Networks & Deep Learning, Coursera

COMP 765 - Intelligent Robotics, McGill

COMP 417 - Robotics and Intelligent Systems, McGill

COMP 424 - Artificial Intelligence, McGill

IFT 6135B - Representation Learning, UdeM

💻 Select Projects

Modality Fusion for VLA Models — 2025

- › Collaboration with NVIDIA Research.
- › Developed a tactile-augmented VLA model.
- › Examined application of pre-trained tactile representation.

Visual-Tactile Inference of 2.5D Object Shape from Marker Texture — 2024

🔗 Paper

- › Developed a contact shape estimation approach for visual-tactile sensors.
- › Created a 2.5D Shape from Marker Texture algorithm

HyperZero — 2023

🔗 Paper   🔗 SAIC-MONTREAL/hyperzero

- › Developed a framework that allows for approximating RL solutions by learning the mapping between the MDP specifics and the near-optimal policy.
- › Created the method HyperZero using hypernetworks for zero-shot transfer.

Contextual Control Suite — 2023

🔗 SAIC-MONTREAL/contexual-dm-control

- › Built upon DeepMind control suite & allowed dynamics/rewards changes

A Study of Human-Robot Handover through Human-Human Object Transfer — 2022

🔗 Paper

- › Investigated changes in handover behaviour when transferring hazardous objects.
- › Designed and adapted a version of the See-Through-vour-Skin (STS) visuotactile sensor.

🌐 Languages

French	Native/First Language
English	Native/First Language

🧳 Extracurricular Activities

Present May 2024	**Volunteer, PSSAR Network : Supporting Students and Scholars at Risk, Montréal, Canada** › Match students with professors and graduate programs in Canada. › Assist with graduate school applications.
Jan. 2024 Jun. 2022	**Volunteer, Women in AI & Robotics, Montréal, Canada** › Core member of the Women in AI and Robotics (WAIR) group. › Helped found the WAIR Youth Group. › Organized & Participated in Robotics Hackathons.
Feb. 2023	**Session Chair, AAAI conference on artificial intelligence, Washington DC, USA** › Chaired two sessions on *ML : Deep Neural Architectures* during 2023 conference