

Charlotte MORISSETTE

Masters Student in Computer Science

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[Google Scholar](https://scholar.google.com/citations?user=QWzJyjUAAAAJ&hl=en)

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 : 3.78/4.00

WORK EXPERIENCE

May 2025 Sept. 2024	Teaching Assistant, MCGILL UNIVERSITY, Montréal, Canada ➤ TA for COMP462 & COMP561, Computational Biology Methods ➤ 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 interactions ➤ Zero-shot transfer in reinforcement learning using hypernetworks
Aug. 2021 Sept. 2020	Research Assistant, MCGILL UNIVERSITY, Montréal, Canada ➤ Volunteer research position in Joseph Vybiral's lab at McGill University ➤ Neural network classification with limited training data ➤ 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 Jilani, A., Hogan, F.R., **Morissette, C.**, Dudek, G., Jenkin, M. and Siddiqi, K. 2025. "Visual-Tactile Inference of 2.5D Object Shape from Marker Texture". In *IEEE Robotics and Automation Letters, presented at ICRA 2025*.
- 2025 Wen S., Meriaux E., Guzmán MS., **Morissette C.**, Si C., Baghi B., Dudek G., "Scalable Aerial GNSS Localization for Marine Robots". In *IEEE International Conference on Robotics and Automation (ICRA), Robots in the Wild Workshop 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 Affan, Hogan, F.R., **Morissette, C.**, Dudek, G., Jenkin, Michael and Siddiqi, Kaleem. "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
- 2021 –2022 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, L ^A T _E X

RESEARCH INTERESTS

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- 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 765 - Intelligent Robotics, McGill
COMP 550 - Natural Language Processing, McGill	COMP 417 - Robotics and Intelligent Systems, McGill
COMP 551 - Applied Machine Learning, McGill	COMP 424 - Artificial Intelligence, McGill
COMP 558 - Fundamentals of Computer Vision, McGill	IFT 6135B - Representation Learning, UdeM
Coursera - Neural Networks & Deep Learning, Coursera	

SELECT PROJECTS

MODALITY FUSION FOR VLA MODELS	2025
➤ 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  github.com/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.	
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.	
CONTEXTUAL CONTROL SUITE	2022
 github.com/SAIC-MONTREAL/contextual-dm-control	
➤ Built upon DeepMind control suite & allowed dynamics/rewards changes	

LANGUAGES

French	Native/First Language
English	Native/First Language

EXTRACURRICULAR ACTIVITIES

Jan. 2024	Volunteer, WOMEN IN AI & ROBOTICS, Montréal, Canada
Jun. 2022	➤ Core member of the Women in AI and Robotics (WAIR) group. ➤ Helped found the WAI Youth Group. ➤ Organized & Participated in Robotics Hackathons.
Feb. 2023	Session Chair, AAAI CONFERENCE ON ARTIFICIAL INTELLIGENCE, Washington DC, USA
	➤ Chaired two sessions on <i>ML : Deep Neural Architectures</i> during 2023 conference