Julie Alhosh

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PROFESSIONAL PROFILE

- Extensive experience in robotics and machine learning (ML), specifically in reinforcement learning (RL)
- MSc student in computer science and a holder of a BSc in math and commuter science
- In-depth experience in continuous-time RL and distributional RL
- Highly competent in Python, C/C++, NumPy, PyTorch, TensorFlow, Hydra, Matplotlib, ROS
- Strong sense of responsibility and organization, attention to detail, and analytical ability (tema work, fast learner)
- English and French

EXPERIENCE

Reinforcement Learning Research

Research Assistant, Mobile Robotics Lab (MRL), McGill University   SEP 2021 – PRESENT

- Proved the convergence of the quantile imputation strategy
- Proved the convergence of the statistical HJB loss function introduced in a recent ICML paper
- Studied state-of-the-art Distributional RL methods: statistical functionals including quantiles, existence and convergence analysis, empirical performance
- Studied continuous-time RL: the approach of numerical approximation methods such as finite difference (FD) and finite element (FE) and convergence analysis
- Studied optimal control: Hamilton-Jacobi-Bellman (HJB) equation, its extension to stochastic problems, and stochastic partial differential equations
- Supervisor: Prof. David Meger

Mathematical Research

Research Assistant, McGill University   MAY – AUG 2020, 2021

- Proved that Kontsevich's flows on two-dimensional quasi-homogeneous Poisson structures are trivial
- Further developed the "starproduct" SageMath software package for calculations with Poisson brackets and their quantizations, by implementing the action of GRT on Poisson structures and calculated examples of Kontsevich's flows on two-dimensional Poisson structures
- Searched for examples where the action of the graded Grothendieck-Teichmuller group, GRT, on Poisson structures is (non)trivial, using computer algebra
- Supervisor: Prof. Brent Pym

TECHNICAL SKILLS

Programming Languages:	Python, C/C++, Java, OCaml
Libraries:	NumPy, PyTorch, TensorFlow, Hydra, Matplotlib, Mujoco
Software:	ROS, Gazebo, SageMath, LaTeX, MATLAB, Git

EDUCATION

MSc in Computer Science
Mobile Robotics Lab at McGill University, Montréal, QC

Sep 2022 – Apr 2024

- CGPA: **4.0**/4.0

BSc in Honours Mathematics and Computer Science
McGill University, Montréal, QC

Sep 2018 – Apr 2021

- First Class Honours and distinction
- CGPA: **3.87**/4.0

PROFESSIONAL ACTIVITIES

Field Trials, Workshops, and Professional Development
- NSERC Canadian Robotics Network (NCRN) Field Trials, Gull lake, ON, Canada — Jun 2023
- Barbados Marine Field Trials, Bellairs Research Institute, Holetown, Barbados — Feb 2023
- The Cornell, Maryland, Max Planck Pre-doctoral Research School (CMMRS), Max Planck Institute for Software Systems, Saarbrücken, Germany — Aug 2020
- CVR - VISTA Vision Science Summer School, Centre for Vision Research (CVR), York University, Toronto, ON, Canada — Jul 2020

Posters, Presentations, and Publications
- Poster: *"The Convergence of the Statistical HJB Loss for Policy Evaluation"* NSERC Canadian Robotics Network (NCRN) AGM, Toronto, ON, Canada — Jun 2023

Awards and Scholarships
- Excellence Bursary for Computer Science, awarded by the Ministère de l'Enseignement supérieur (MES) to graduates based on their CGPA — Jun 2021
- ISM Undergraduate Summer Scholarship — May 2021
- FRQNT Supplement to the NSERC USRA — Aug 2020
- NSERC Undergraduate Student Research Award (USRA) — May 2020
- Heather Munroe-Blum Leadership Award — Sep 2018

Teaching and Mentorship
- Artificial Intelligence (AI) Teaching Assistant, McGill University — Sep – Dec 2023
- Computational Perception Teaching Assistant, McGill University — Sep – Dec 2022
- Computer Science Tutor, McGill University — Sep 2019 – Jan 2021
- TEAM Mentor for COMP302, McGill University — Sep – Dec 2020