AMIN SOLEIMANI ABYANEH

Email: amin.abyaneh@mail.mcgill.ca **Location:** Montreal, Canada **Mobile:** +1-(438)-5402240

OVERVIEW

As a Ph.D. candidate at McGill University and Mila, I explore key challenges at the intersection of robotics and AI. My research focuses on **reliable policy learning for robotic systems**, drawing from robotics simulation and control, reinforcement and imitation learning, and generative policy modeling to develop intelligent systems that operate safely and reliably in the physical world.

EDUCATION

McGill University - Mila *Canada, 09/21 – 12/26 (expected, flexible)*
Ph.D. candidate in electrical and computer engineering, focused on robot learning — GPA: 4/4

Sharif University of Technology *Iran, 09/15 – 02/20*
Bachelor of science in electrical engineering, focused on digital systems — GPA: 3.7/4
Minor program in computer science, focused on machine learning— GPA: 3.8/4

EXPERIENCE

Researcher, McGill University, Mila - Quebec AI Institute *Canada, 09/21 – present*
Tackling the challenge of learning robot policies that are both effective and provably safe in real-world environments. Developed methods that combine reinforcement and imitation learning with fundamental control-theoretic certificates to design policies with formal safety and stability guarantees.

Visiting Fellow, École Polytechnique Fédérale de Lausanne (EPFL) *Switzerland, 04/24 – 10/24*
Addressed the challenge of out-of-sample error accumulation in imitation learning. Developed a framework using neural ordinary differential equations combined with contraction theory to ensure robust imitation and enhanced out-of-sample recovery.

MITACS Research Intern, Sycodal Electronics Inc. *Canada, 11/23 – 11/24*
Safe and robust reinforcement learning for industrial manipulation tasks. Designed customized simulation environments in Isaac Sim and applied domain randomization to train robust policies in Isaac Lab. The resulting approach enabled adaptable manipulation in realistic industrial settings.

Researcher, Max-Planck Institute for Intelligent Systems *Germany, 7/19–10/19, 1/21–2/22*
Developed an agent-based probabilistic simulation engine to model epidemic outbreak patterns and assess the effectiveness of various control policies. Learning to control a tri-finger manipulator platform through model-free reinforcement learning to enable object manipulation from vision feedback.

Software Developer at Fanap Co. *Iran, 04/18 – 07/19*
Developing secure payment applications in C/C++ deployed on Linux-Arm based embedded systems that are actively being used by around half a million customers countrywide.

Student Researcher at Artificial Creatures Lab *Iran, 07/18 – 12/19*
Addressing the problem of finding diseased plants in vertical farming through ResNet-based vision architectures and acting according to a fuzzy control systems.

SELECTED PUBLICATIONS

Abyaneh A, et al. Contractive diffusion policies: Robust action diffusion for stochastic policy learning.
International Conference on Learning Representations (ICLR), 2026.

Abyaneh A, et al. Contractive dynamical imitation policies for efficient out-of-sample recovery.
International Conference on Learning Representations (ICLR), 2025.

Abyaneh A, et al. Globally stable neural imitation policies.
International Conference on Robotics and Automation (ICRA), 2024.

Abyaneh A and Lin HC. Learning Lyapunov-stable polynomial dynamical systems through imitation.
7th Annual Conference on Robot Learning (CoRL), 2023.

TECHNICAL SKILLS

Programming Languages	Python, C/C++, Java, familiar with R, Julia, and Bash.
Machine Learning & AI	Reinforcement & Imitation Learning, Representation Learning, Vision Transformers, Large Language Models, Diffusion Models, Energy-Based Models, Neural ODEs and SDEs, Statistical Learning.
Robotics & Control	Robot Learning, Model-based Control, Kinematics and Dynamics, System Identification, Motion Planning, Dexterous Manipulation, Domain Randomization, Data-Driven Control, Distributed Systems.
Robots & Simulation	ROS, PyBullet, Gazebo, Rviz, Isaac Sim, Isaac Lab, MuJoCo. Kinova (Link6, Jaco2, Gen3), Franka (Panda), Anybotics (ANYmal C), Genesis Sim, Digit Tactile Sensor, Robotiq and Franka Grippers.

CURRENT PROJECTS

Learning to Recover with Pretrained World Models *10/25-present*
Investigating the applications of pretrained Dreamer-style world models, with massive randomized training in simulation, in learning robust recovery behavior for robot learning.

Multi-Modal Vision-Language-Action (VLA) Models *09/24 - present*
Grounding pretrained tactile representations in VLA models for enhanced performance in dexterous manipulation.

RECENT AWARDS

Fonds de recherche du Québec (FRQ) *Canada, 04/24*
4-year fellowship awarded to distinguished PhD candidates in Quebec.

NCCR Automation Fellowship *Switzerland, 01/24*
Awarded by the Swiss National Centers of Competence in Research to selected international researchers.

MITACS Accelerate Fellowship *Canada, 09/23*
Awarded by MITACS Canada to conduct high-caliber research with an industrial partner.

Thomas and Penelope Deirdre Szirtes Fellowships in Engineering (SFE) *Canada, 09/22*
Awarded by the Faculty of Engineering on the basis of academic merit to graduate students.

TEACHING ASSISTANT

McGill: Applied Robotics (Head TA), Intelligent Robotics (Head TA), Linear Systems, Foundation Models in Robotics (Head TA)

CONFERENCE REVIEWER

International Conference on Learning Representations (ICLR) *10/24, 09/25*

Conference on Robot Learning (CoRL) 2024, IEEE Robotics and Automation Letters (RAL) *06/24*

IEEE International Conference on Robotics and Automation (ICRA) *09/23, 09/24, 09/25*