Sahand Rezaei-Shoshtari
PhD Student

@ sahand.rezaei-shoshtari@mail.mcgill.ca
⎘ sahandrez.github.io
⎇ github.com/sahandrez
in linkedin.com/in/sahand-rezaei
⚲ Montreal, Canada

💼 EDUCATION

Present Sep. 2020	PhD, SCHOOL OF COMPUTER SCIENCE, MCGILL UNIVERSITY, Montreal, Canada **Supervisors :** David Meger, Doina Precup
Dec. 2019 Sep. 2017	Master of Engineering - Thesis, MCGILL UNIVERSITY, Montreal, Canada **Supervisors :** Inna Sharf, David Meger **CGPA :** 4.00/4.00 **Thesis :** Learning Manipulator Dynamics for Control and Interaction Inference
Sep. 2016 Sep. 2012	Bachelor of Mechanical Engineering, UNIVERSITY OF TEHRAN, Tehran, Iran **Supervisor :** Masoud Shariat Panahi **CGPA :** 3.98/4.00 **Thesis :** Online Path Planning for a Mobile Robot in Dynamic Environments using Reinforcement Learning

💼 WORK EXPERIENCE

Sep. 2020 Mar. 2020	Research Intern, SAMSUNG AI CENTRE, Montreal, Canada ❯ Multimodal generative models for visuotactile perception ❯ Deep reinforcement learning for 5G networks
Mar. 2020 Jan. 2020	AI Programmer, UBISOFT LA FORGE, Montreal, Canada ❯ Deep reinforcement learning for automated video game testing
Aug. 2019 Mar. 2019	Research Intern, SAMSUNG AI CENTRE, Montreal, Canada ❯ Object detection neural networks for human hand-wave motions ❯ Implemented the vision stack on-board of a mobile robot using Google Edge TPU
Apr. 2019 Sep. 2017	Teaching Assistant, MCGILL UNIVERSITY, Montreal, Canada ❯ **Courses :** System Dynamics and Control, Numerical Methods, Machine Element Design

🎓 PUBLICATIONS

2021	**Sahand Rezaei-Shoshtari**, Francois R. Hogan, Michael Jenkin, David Meger, and Gregory Dudek. "Learning Intuitive Physics with Multimodal Generative Models". In *Thirty-Fifth AAAI Conference on Artificial Intelligence*. AAAI, 2021.
2021	Francois R. Hogan, Michael Jenkin, **Sahand Rezaei-Shoshtari**, Yogesh Girdhar , David Meger, and Gregory Dudek. "Seeing Through your Skin : Recognizing Objects with a Novel Visuotactile Sensor". In *The IEEE Winter Conference on Applications of Computer Vision (WACV)*. CVF/IEEE, 2021.
2020	Maryam Molamohammadi, **Sahand Rezaei-Shoshtari**, and Nathaniel Quitoriano. "Jacobian of Conditional Generative Models for Sensitivity Analysis of Photovoltaic Device Processes". In *Machine Learning for Engineering Workshop at Neural Information Processing Systems Conference (NeurIPS)*. 2020.
2020	**Sahand Rezaei-Shoshtari**, David Meger, and Inna Sharf. "Learning the Latent Space of Robot Dynamics for Cutting Interaction Inference". In *2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, 2020.
2019	**Sahand Rezaei-Shoshtari**, David Meger, and Inna Sharf. "Cascaded Gaussian Processes for Data-efficient Robot Dynamics Learning". In *2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, 2019.

🎓 Certifications

Aug. 2019	Deep Learning and Reinforcement Learning Summer School in Edmonton, Canada

☰ Skills

Programming	Python, C++, C#, MATLAB, Simulink
Machine Learning Frameworks	PyTorch, TensorFlow, GPyTorch, GPFlow
Platforms	ROS, Docker
Robotic Software	Gazebo, MoveIt!, RViz, OpenCV, Bullet
Other Software	Unity 3D, SolidWorks, LaTeX, Microsoft Project

🖥 Select Projects

RLBase : Implementations of RL Algorithms   2020

🐙 github.com/sahandrez/rlbase   ↗ Blog Post

> Minimalistic Deep RL implementations as an educational resource.
> Fork of OpenAI Spinning Up with additional algorithms.

Learning Quadrotor Controls Using Data-Efficient Model-based Reinforcement Learning   2017

🐙 github.com/sahandrez/quad_pilco   ↗ Simulation Videos

> Implemented PILCO (Probabilistic Inference for Learning Control) on a quadrotor to learn the control policies under the loss of an actuator
> Successfully learned to hover with only three actuators

Motion Planning and Control Utilities for Kinova Jaco 2 Robot   2017-2018

🐙 github.com/sahandrez/jaco_control

> Worked on the full stack of Kinova Jaco 2 robot
> Implemented impedance control, feedforward torque control, and velocity control utilities
> Implemented motion planning utilities for joint space and Cartesian space planning

🎓 Honors and Awards

Nov. 2019	IROS Student and Developing Countries (SDC) Travel Award ($600), IEEE/RSJ IROS 2019
2017-2018	Grad Excellence Award ($5000) in Mechanical Engineering, McGill University
2015-2016	Faculty of Engineering Award, Ranked 2nd, University of Tehran
2014-2015	Faculty of Engineering Award, Ranked 3rd, University of Tehran
2012-2012	Nationwide University Entrance Exam, Ranked 19th, Iran

💼 Extracurricular Activities

Sep. 2019	Volunteer, 2019 Montreal AI Symposium in Montreal, Canada
May 2019	Volunteer, 2019 IEEE International Conference on Robotics and Automation (ICRA) in Montreal, Canada