

Ossama Ahmed

❖ <http://ossamaahmed.github.io/>

❖ <http://github.com/ossamaAhmed>

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Education

ETH Zürich

MSc. Robotics, Systems & Control

Sep. 2018 - Sept. 2020

Zürich, Switzerland

McGill University

BEng. Software Engineering

Sep. 2013 - Dec. 2016

Montreal, QC

Skills

- **Languages and Frameworks:** C++, Python, C, Java, Tensorflow, PyTorch, Mujoco, Bullet and ROS
- **Relevant Coursework:** Advanced Machine Learning, Deep Learning, Machine Perception, Vision for Robotics, Model Predictive Control, Causality, Bayesian Statistics, System Identification, Autonomous Mobile Robots, Linear Systems Theory

Industry Experience

Nvidia

Senior Robotics Research Engineer

June. 2021 - Present

Montreal, QC

- Contributing to the research and development of Isaac Sim – Nvidia’s Robot Learning and Simulation platform.
- Tools used: Python, C++, PyTorch and Warp

DeepLite.ai

Applied Research Scientist - Consultant

June. 2018 - Sep. 2018

Montreal, QC

- Engineered a neural network optimizer that improves speed, size and efficiency for on-device inference of neural networks.
- Improved the compression rate of neural networks by up to 15X using reinforcement learning.
- Tools used: Python, Tensorflow and PyTorch

Qualcomm

Machine Learning Software Engineer

June. 2017 - June. 2018

Toronto, ON

- Designed and developed a tool that parses and optimizes Tensorflow graphs for faster runtime of neural networks on Snapdragon mobile devices - using CPU, DSP or GPU.
- Implemented inference algorithms and GPU kernels for the different layers needed to support SOTA perception models.
- Tools used: C++, Python, Tensorflow, Caffe, Caffe2 and OpenCL

Research Experience

Montreal Institute for Learning Algorithms (MILA)

Visiting student Researcher - Prof. Yoshua Bengio

Oct. 2020 – Mar. 2021

Montreal, QC

- Research on motion planning using model-based learning methods.
- Tools used: Python and PyTorch

Max Planck Institute for Intelligent Systems

Visiting student Researcher - Prof. Bernhard Schölkopf

Feb. 2020 - Sept. 2020

Tubingen, Germany

- Developed CausalWorld, a novel robotics manipulation library for generalization in reinforcement learning.
- Collaborated with a team of engineers and researchers to launch the Real Robot Challenge - as part of the open dynamic robot initiative - where participants can use a farm of real robot manipulators as a cluster computing service.
- This work was covered by multiple news articles including IEEE Spectrum and Digital Trends.
- Tools used: C++, Python, Tensorflow, ROS and Bullet

Learning and Adaptive Systems Lab, ETH Zurich

Master’s student Researcher - Prof. Andreas Krause

Oct. 2019 - Feb. 2020

Zurich, Switzerland

- Implemented and benchmarked a model predictive controller(MPC) that uses a bayesian network to plan under uncertainty.
- Released blackbox_mpc library for MPC with sampling-based optimizers to enable fast prototyping of new optimizers.
- Tools used: Python, Tensorflow and Mujoco

Robotic Systems Lab, ETH Zurich

Master’s student Researcher - Prof. Marco Hutter

Feb. 2019 - July. 2019

Zurich, Switzerland

- Designed a legged locomotion controller for ANYmal robot that uses imitation learning to imitate different walking gaits.
- Successfully developed a simulated environment of the ANYmal robot using Mujoco physics engine for training controllers.
- Tools used: C++, Python, Tensorflow, ROS and Mujoco

Reliable Silicon Systems Lab, McGill University

Research Assistant - Prof. Brett Meyer

May. 2016 - May. 2017

Montreal, QC

- Developed a neural architecture search engine that design quantized models for FPGAs.
- Tools used: Python, Tensorflow and Theano

Publications and Posters – ([link](#))

- "CausalWorld: A Robotic Manipulation Benchmark for Causal Structure and Transfer Learning" ICLR 2021
 - "Neural Networks Designing Neural Networks", Hardware and Algorithms for Learning On-a-chip (HALO) 2016
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Notable Projects – (full portfolio at [link](#))

- Online Adaptation using Graph Neural Networks in Model-Based Reinforcement Learning
- Deep 3D Human Pose Estimation
 - Sparse Monocular Visual Odometry Pipeline
- Local Exploration Based on Truncated Signed Distance Field Map using Reinforcement Learning