

ARMIN ASHRAFI

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PROFILE

Machine Learning and Reinforcement Learning researcher pursuing a Master of Computing Science at the University of Alberta, specializing in Reinforcement Learning and Neurosymbolic AI. My research and development experience spans novel algorithm design in PyTorch and JAX, guided by a passion for understanding the foundations of continual lifelong learning

EDUCATION

Master of Computing Science <i>University of Alberta</i> <ul style="list-style-type: none">Cumulative GPA: A-	Expected Aug 2026 <i>Edmonton, AB</i>
Bachelor of Mathematics & Computing Science <i>Islamic Azad University</i> <ul style="list-style-type: none">Cumulative GPA: 3.72	Sep 2023 <i>Tehran, Iran</i>

RESEARCH & TEACHING EXPERIENCE

Research Assistant <i>RLAI, University of Alberta</i> <ul style="list-style-type: none">Conducting research under Prof. Adam White and Prof. Levi Lelis on Skill Acquisition and Experience ReplayWorking on research about skill Acquisition and Programmatic Search, and also improving experience replay in reinforcement learning.	Sep 2024 – Present <i>Edmonton, AB</i>
Teaching Assistant <i>University of Alberta, Dept. CS</i> <ul style="list-style-type: none">CMPUT 175 Introduction to the Foundations of Computation II (Prof. Euijin Choo)CMPUT 267 Machine Learning I (Prof. Dieter Buechler).CMPUT 466 Machine Learning Essentials (Prof. Nidhi Hegde)Delivered graduate-level lectures on the principles of ML and Statistical Learning for CMPUT 267Mentored students, graded assignments, and held office hours for graduate and undergraduate courses.	Sep 2024 – Present <i>Edmonton, AB</i>
Teaching Assistant <i>Islamic Azad University, Dept. CS</i> <ul style="list-style-type: none">CMPUT 175 Introduction to the Foundations of Computation II (Prof. Euijin Choo)CMPUT 267 Machine Learning I (Prof. Dieter Buechler).CMPUT 466 Machine Learning Essentials (Prof. Nidhi Hegde)Delivered graduate-level lectures on the principles of ML and Statistical Learning for CMPUT 267Mentored students, graded assignments, and held office hours for graduate and undergraduate courses.	Sep 2021 – June 2024 <i>Tehran, IRan</i>

TECHNICAL SKILLS

Languages	Python (Expert), Rust (Proficient), C++ (Familiar), C# (Familiar)
ML Expertise	PyTorch (Expert), JAX (Expert), TensorFlow (Proficient), Reinforcement Learning, Scikit-learn, Pandas, NumPy, OpenAI Gym
Theoretical Background	Real Analysis, Probability and Statistics, Differential Equations
Developer Tools	Git, L ^A T _E X, HTML/CSS, Dart and Flutter

PUBLICATIONS (WORK IN PROGRESS)

Coreset Replay: Improving Experience replay via Coreset Construction <i>Panahi P., & Ashrafi A., & Patterson A., & White A. & White M.</i>	2025 <i>Work in Progress, to be submitted to ICML 2026</i>
Learning Latent Policy Spaces with Variational Auto-encoders <i>Ashrafi A., & Lelis L. & White A.</i>	2022 <i>Work in Progress</i>

PROFESSIONAL AFFILIATIONS

Member, AI Career Accelerator Program (AICaps) <i>Alberta Machine Intelligence Institute (Amii)</i>	2024 – Present <i>Edmonton, AB</i>
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PRESENTATIONS & AWARDS

Top Student of the Year <i>Awarded the title of Top Student of The Year to academic excellence.</i>	2021
CS Student Committee member at IAU <i>A member of the CS Student committee responsible for student initiatives and scientific events</i>	2021

SELECTED PROJECTS

Supermasks for Option Discovery <i>Course Project, University of Alberta</i> <ul style="list-style-type: none">• Investigated the possibility of extracting options from pretrained neural policies.• Used Stochastic Gradient Descent and a new method of masking to efficiently extract masks over networks.• Tech: PyTorch, NumPy	2025
Inverse Reinforcement Learning <i>Passion Project, Myself</i> <ul style="list-style-type: none">• Explored different strategies for Inverse reinforcement learning, and reinforcement learning from human feedback• Implemented Adversarial Inverse Reinforcement Learning• Implemented Generative Adversarial Imitation Learning and tested it on Gridworld Environments• Tech: PyTorch, OpenAI Gym, NumPy.	2024
Time Discretization in Reinforcement Learning <i>Course Project, University of Alberta</i> <ul style="list-style-type: none">• Investigated the influence of time discretization values on the dynamics of learning of the PPO and A2C algorithms.• Reimplemented Classical Control environments, with different time discretization dynamics.• Tech: PyTorch, OpenAI Gym, NumPy, Stable Baselines 3	2024
Reinforcement Learning <i>Passion Project, Myself</i> <ul style="list-style-type: none">• Implemented DQN and PPO from first-principles and tested the algorithms on OpenAI Lunar Lander• Tech: PyTorch, OpenAI Gym, NumPy.	2024
Using Vision to Detect Words in Audio Scripts <i>Undergraduate Capstone Research Project</i> <ul style="list-style-type: none">• Trained a CNN model on a Spectrogram images of audio files for Word extraction.• Tech: Keras-Tensorflow, Numpy	2023
Transfer Learning of Vision Models for Ocular Disease Detection <i>Internship, Chashmyar Startup</i> <ul style="list-style-type: none">• Designed and implemented a modified transfer learning system used for the detection of ocular diseases, in particular Diagnosing Keratitis from Fundus Images.• Tech: Keras-Tensorflow, XGBoost	2023
Sentiment Analysis for Instructor Feedback <i>Course Project, Islamic Azad University</i> <ul style="list-style-type: none">• Extracted and Preprocessed a corpus of 12,000 user comments about instructor performance.• Employed Bag-of-Words for feature extraction and MLPs for Sentiment Analysis.	2021

RELEVANT COURSEWORK

Graduate (University of Alberta) <ul style="list-style-type: none">• Reinforcement Learning I (A-)• Intermediate Machine Learning (A-)• Neurosymbolic Programming (A-)	Undergraduate (Islamic Azad University) <ul style="list-style-type: none">• Theory of Computation (20/20)• Foundations of Machine Learning (18/20)• Probability and Statistics (18/20)
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REFERENCES

Adam White
Associate Professor
Dept. Computing Science
University of Alberta
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Levi Lelis
Assistant Professor
Dept. Computing Science
University of Alberta
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