Amirhossein Rajabpour

✉ arajabpo@ualberta.ca   ⌂ Amirhossein-Rajabpour   in amirhossein-rajabpour
✉ rajabpouramirhosein@gmail.com   🏠 amirhossein-rajabpour.github.io

Headline

Bridging ML research and engineering • Machine Learning, RL, Generalization

Education

University of Alberta   Edmonton, Canada
M.Sc. of Computing Science   2023 – 2025
Supervisors: Levi Lelis & Sandra Zilles, GPA: 3.8
Amirkabir University of Technology (Tehran Polytechnic)   Tehran, Iran
B.Sc. of Computer Engineering   2018 – 2023
Major in Artificial Intelligence, Minor in Computer Networks, GPA: 3.96/4

Publications

Common Benchmarks Undervalue the Generalization Power of Programmatic Policies.
Amirhossein Rajabpour, Kiarash Aghakasiri, Sandra Zilles, Levi Lelis. **NeurIPS** Track
Position (under review), 2025. [PDF][Code]

Technical Skills

Programming Languages: Python, C, Java, Kotlin, Octave
Artificial Intelligence: Tensorflow, Pytorch, Keras, Scikit learn, Fastai
Database Systems: MySQL, PostgreSQL, MongoDB
Web Development: Django, Flask, HTML, CSS
OS: Windows, Linux (Ubuntu), MacOS
Miscellaneous: Git, OpenCV, Docker, Jira, Selenium, Xampp

Professional and Research Experience

Research Assistant | University of Alberta   May 2024 – July 2025
- Demonstrated that neural policies (reinforcement learning agents) can match or outperform programmatic policies on generalization tasks on key benchmarks
- Outperformed prior baselines by redesigning training pipelines and simplifying architectures
- Proposed new benchmarks to show strengths of programmatic policies like memory-based reasoning
- Built pipelines for training and evaluation using Python, **Bash**, **PyTorch**, **TensorFlow**
- Used **Large Language Models** to generate and assess interpretable policies where RL underperforms
- Work under review at NeurIPS Track Position 2025, [Preprint][Code]

Technical Advisement - Project Validation | Alberta Machine Intelligence Institute (Amii)
Sep – Oct 2024
Conducted 1-month project on advanced AI/ML methods to enhance real-time intrusion detection and anomaly detection in high-speed network storage infrastructures. Focused on improving threat detection accuracy and scalability in multi-cloud environments.
Machine Learning Engineer | R&D Dept. of Crouse PJS Co.   Oct 2021 – Jan 2022
Designed a light model for industrial deployment using classical ML algorithms to detect malfunctioning LEDs by localizing them (OpenCV), clustering light pixels with fuzzy C-means, extracting luminance and wavelength, and applying regression models for light properties.

DevOps Engineer Intern | **Graph Co.**   Nov 2020 – Apr 2021
Gained hands-on experience with Docker and cloud-native tools

ADDITIONAL
RESEARCH PROJECTS

Individual Study Course Project | **University of Alberta**   Jan 2023 – Apr 2024
Worked on various ways—Implemented hill-climbing search, hill-climbing with exploration, and genetic algorithm—to improve the work UNVEILING OPTIONS WITH NEURAL DECOMPOSITION. Supervised by Levi Lelis.

Reinforcement Learning 1 Course Project | **University of Alberta**   Sep – Dec 2023
Compared generalization power of an expert agent that concentrates resources on a single task with a generalist agent that splits them across tasks, evaluating PPO, DQN, and APPO across various environments, MiniGrid scenarios, and budgets [Project Report].

Bachelors Thesis | **Amirkabir University**   Mar – May 2023
Face aging platform using generative models e.g. CycleGAN and reversible models. Supervised by Mohammad Rahmati. [link]

Research Assistant | **Amirkabir University**   Feb – Jun 2022
Supervised by Hamed Farbeh. Working on portfolio asset allocation using reinforcement learning and graph neural networks. I was responsible for implementing a graph convolutional network from a time series dataset.

TEACHING
ASSISTANT

University of Alberta
CMPUT 366 | Search & Planning in AI | Instructor: Levi Lelis   Fall 2024, Winter 2025
CMPUT 291 | Intro to File and Database Management | Instructors: Davood Rafiei, Arash Dargahi Nobari   Fall 2023, Winter 2024
Amirkabir University of Technology
Principles of AI | Instructor: Mahdi Javanmardi   Fall 2022
Cloud Computing | Instructor: S.Ahmad Javadi   Fall 2022
Internet of Things | Instructor: Siavash Khorsandi   Fall 2022
Algorithm Design | Instructors: A. Bagheri, S. Shirali-Shahreza
                                    Winter 2022, Fall-Winter 2021

HONORS AND
AWARDS

Master's Admissions: Fully funded admission to UofA CS, ECE and Radiology & Diagnostic Imaging programs and University of Western Ontario CS program   2023
Bachelor's Scholarship: Awarded a 4-year scholarship from Amirkabir University of Technology   2019-2023
University Entrance Exam: Achieved top 1% place among more than 140,000 applicants of the Nationwide Mathematics University Entrance Exam   2018

GRAD COURSES

– Reinforcement Learning 1 (Marlos Machado) – Machine Learning (Lili Mou)
– Modelling Strategic Behavior (James Wright) – Reinforcement Learning 2 (Rich Sutton)

LANGUAGE SKILLS

Persian: Native
English: TOEFL iBT: 109 (R: 26, L: 28, S: 26, W: 29)
German: Professional Working Proficiency (B2)