Matin Moezzi

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Education

Master of Applied Science, Industrial Engineering, University of Toronto **2022 – Present**

MIE1628: Cloud-Based Data Analytics	**CSC2506: Probabilistic Learning & Reasoning**	A+
CSC2626: Imitation Learning for Robotics	**MIE1615: Markov Decision Processes**	A

Bachelor of Computer Science—Minor in Mathematics, Faculty of Mathematics & Computer Science, Amirkabir University of Technology (Tehran Polytechnic) – Selected Courses GPA: 4.0/4.0 **2016 – 2021**

Research Experience

Sim-to-Real Transfer Reinforcement Learning using Nvidia Isaac Sim **Jan 2022 – Present**

Developing a set of RL algorithms aiming to address the dynamic mismatch between the simulation and real-world environments when transferring the learned policy in the simulation to the real robotic system using Nvidia Isaac Sim — Dynamic Optimization & Operations Management Lab – University of Toronto
Under Supervision of **Prof. Chi-Guhn Lee**

Mitacs Accelerate Internship Program **May 2022 – Aug 2022**

(1) Implemented a simulation environment for a 6 DOF robotic arm in Nvidia Create and Isaac Sim (2) Implemented and run model-based and model-free continuous RL algorithms (e.g., SAC, PPO, TRPO) in Isaac Sim and real-world environment using RL codebases like "*stable-baselines3*" (3) hyper-parameters tuning of the RL model, and (4) implementing object detection models like YOLOv5 on the robot using Tensorflow Lite

Data-Efficient Hierarchical Deep Q-Network using Importance Sampling [PDF][Code] **Oct 2020 – Nov 2021**

Developed an approach to improve data-efficiency of the hierarchical deep Q-network algorithm (h-DQN) using the importance sampling method

An Uncertainty-Aware Pseudo-Label Selection Framework using Regularized Conformal Prediction [PDF][Code] **Sep 2020 – Jun 2021**

Employing uncertainty sets yielded by the conformal regularization algorithm in the uncertainty-aware pseudo-label selection framework to fix the poor calibration neural networks, reducing noisy training data

Solving the System of ODEs of the Control Spread of Ebola Virus Epidemic using Deep Neural Networks [Code] **Sep 2019 – Aug 2021**

(1) Implemented a second-order optimization method, L-BFGS, to address the convergence issue. (2) Implemented regularization and initialization methods and adjusted hyper-parameters and network architecture to mitigate the overfitting and generalization problems
Under Supervision of **Prof. Mostafa Abbaszadeh** & **Prof. Mohammad B. Menhaj**

Adding L-BFGS Support for Training Deep Neural Nets to *NeuroDiffEq* package [Code] **Sep 2019 – Aug 2021**

Teaching Experience

MIE1615: Markov Decision Processes, Teaching Assistant, University of Toronto, Fall 2022

APS1080: An Introduction to Reinforcement Learning, Teaching Assistant, University of Toronto, Fall 2022

MIE236: Probability, Teaching Assistant, Mechanical and Industrial Engineering Department, University of Toronto, Fall 2022

CSC369: Operating Systems, Teaching Assistant, Computer Science Department, University of Toronto, Fall 2022

Neural Networks (Graduate Level), Teaching Assistant, Faculty of Electrical Engineering, Amirkabir University of Technology, Spring 2021

Numerical Linear Algebra, Teaching Assistant, Faculty of Mathematics & Computer Science, Amirkabir University of Technology, Spring 2020

Work Experience

Software Developer, iTours Online Travel Agency Co., Tehran, Iran **2018 – 2019**

(1) Implemented enterprise B2B Restful Web Services with microservice architecture (2) Developed Asp.Net Core Web Apps & Web APIs (3) Project planning and management under the Scrum principles

Web Developer, Parsian Insurance Co., Tehran, Iran **2017 – 2018**

(1) Effectively refactored previous projects based on Design Patterns & SOLID principles (2) Successfully Developed an Asp.Net web application for the insurance management system

Online Degrees & Courses

Artificial Intelligence Nanodegree Peter Norvig & Sebastian Thrun, Udacity [See the Certificate]

Reinforcement Learning Specialization, University of Alberta, Coursera [See the Certificate]

Practical Reinforcement Learning (with honors), HSE, Coursera [See the Certificate]

Deep Learning Specialization, Andrew Ng, deeplearning.ai, Coursera [See the Certificate]

Cutting-Edge AI: Deep Reinforcement Learning in Python, Udemy [See the Certificate]

Natural Language Processing Specialization, deeplearning.ai, Coursera [See the Certificate]

TensorFlow Developer Specialization, deeplearning.ai, Coursera [See the Certificate]

Machine Learning, Andrew Ng, Stanford University, Coursera [See the Certificate]

Network Function Virtualization, Georgia Institute of Technology, Coursera [See the Certificate]

Software Defined Networking, The University of Chicago, Coursera [See the Certificate]

Generative Adversarial Networks Workshop, [See the Certificate]

Skills

Software Programming: .Net/ Asp.Net, Microservices, SOLID Principles, SOAP & Restful Web Services

Computer Network: TCP/IP, SDN & NFV, Mininet Emulator, Wireshark, Boson

Programming Languages: C/C++, Python, MATLAB, R, Java, C#, SQL, Javascript

Libraries: Pandas, Seaborn, Scikit-learn, PyTorch, TensorFlow, Keras, OpenAI Gym, Nvidia IsaacSim

Others: Linux Server Administration, Bash Scripting, MySQL, LaTeX, Git, Raspberry Pi, ROS

Activities

Editorial Board Member of Student Scientific Journal, Mathematics & Computer Science Faculty
Amirkabir University of Technology, 2020 - 2022

References

Prof. Chi-Guhn Lee, Full Professor, Department of Mechanical and Industrial Engineering, University of Toronto cglee@mie.utoronto.ca

Prof. Mohammad B. Menhaj, Full Professor, Department of Electrical Engineering, Amirkabir University of Technology (Tehran Polytechnic), Iran, menhaj@aut.ac.ir

Prof. Mostafa Abbaszadeh, Assistant Professor, Department of Mathematics & Computer Science, Amirkabir University of Technology (Tehran Polytechnic), Iran, m.abbaszadeh@aut.ac.ir