Matin Moezzi

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Education

2016 – 2021 **Bachelor of Computer Science—Minor in Mathematics, Amirkabir University of Technology**

Advanced Programming	18.5/20	Differential Equations	16.66/20
Artificial Intelligence	Pass/Fail	Numerical Linear Algebra	18.5/20
Neural Networks (Graduate level)	14/20	Data Mining	Pass/Fail
Stochastic Processes (I)	Pass/Fail	Probability (I)	18.4/20
Nonlinear Optimization	Pass/Fail	Linear Optimization	17.8/20
Computer Networks (with Lab.)	17.3/20	Operating Systems	19.5/20
Principles of Software Design	18/20	Compiler	19.5/20
Computer Simulation	20/20		

* *PASS/FAIL grading policy in Spring 2020 semester*

2012 – 2016 **Mathematics & Physics Diploma, Allame Tabatabae High School, Advanced Department**

Astronomy and Astrophysics Olympiad Student – GPA: 19.71/20

Research Experience

2021 **Data-Efficient Hierarchical Reinforcement Learning using Importance Sampling** [PDF][Code]

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

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

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.

2021 **Online Semi-supervised Multi-label Classification** [PDF]

Studied online multi-label classification methods in a semi-supervised setting that are robust to evolving the label space and real-time domains.

2021 **Deep Reinforcement Learning Methods for Safety Assurance in Autonomous Driving** [PDF]

Studied reinforcement learning (RL) methods namely, inverse RL and handcrafted rule-based modules to address the safety assurance problem in autonomous driving.

2020 **(I) Solving the System of ODEs of the Control Spread of Ebola Virus Epidemic using Deep Neural Networks** [Code]

Faculty of Mathematics and Computer Science
Under Supervision of Prof. M. Abbaszadeh (m.abbaszadeh@aut.ac.ir)

(II) Adding the L-BFGS Support for Training DNNs to the *NeuroDiffEq* package [Code]

2020 **Applying Deep Reinforcment Learning to Solve Control Problems Described by a System of Delay Differential Equations (DDEs)**

Computational Intelligence & High Dimensional Systems Lab.
Faculty of Electrical Engineering, Amirkabir University of Technology
Under Supervision of Prof. Mohammad B. Menhaj (menhaj@aut.ac.ir)

Skills

Mathematics: Probability Theory, Stochastic Processes, Optimization, Linear Algebra, Numerical Analysis

Statistics: Inferential Statistics (Parametric & Nonparametric), Bayesian Statistics

Artificial Intelligence: Evolutionary Methods, Knowledge Representation & Reasoning

Machine Learning: Regression, Classification, Ensemble Learning, Clustering, Kernel Methods

Deep Learning: ConvNets, Sequence Models & RNN, Regularization & Optimization Methods

Reinforcement Learning: SARSA & Q-Learning, Policy Gradient, Actor-Critic Algorithms

Deep Reinforcement Learning: DQN, A2C, A3C, DDPG, TD3, PPO

Natural Language Processing: Word Embeddings & CBOW, N-Gram Language Model, Siamese Network, LSTM, Viterbi Algorithm, Attention and Transformer Models

Software Programming: OOP, Microservices, SOLID Principles, SOAP & Restful Web Services

Computer Network: OSI Architecture, TCP/IP, SDN & NFV, Mininet Emulator

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

Libraries: Pandas, Scikit-learn, PyTorch, TensorFlow, Keras, OpenAI Gym, MuJoCo Engine, OpenMP

Tools & Frameworks: .Net/Asp.Net, Wireshark, Boson (Computer Network Simulator), LaTeX, Git

Others: GNU/Linux, Bash scripting, MySQL

Online & Extracurricular Courses

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

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]

Artificial Intelligence Nanodegree Peter Norvig & Sebastian Thrun, Udacity [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,
Amirkabir Artificial Intelligence Summer Summit 2020 [See the Certificate]

AI for Everyone, deeplearning.ai, Coursera [See the Certificate]

Deep Reinforcement Learning by Sergey Levine, CS 285 UC Berkeley, Youtube Lectures

Reinforcement Learning by David Silver, DeepMind & UCL, Youtube Lectures

Artificial Intelligence, Computer Engineering Dept., Sharif University of Technology

Data Networks, Electrical Engineering Dept. Sharif University of Technology

Data Science with Python Workshop, Computer Science Dept. Amirkabir University of Technology

Course Projects

Practical Reinforcement Learning Course by Coursera

- Taxi-v3 Env. using Q-Learning and Experience Replay
- Deep Kung-Fu with A2C Algorithm
- Atari Breakout Game using DQN
- Cartpole-v0 using REINFORCE Algorithm
- Cliff walking using SARSA Algorithm
- Cartpole-v0 using Deep Cross Entropy

Lunar Lander Problem with Deep RL Agent, Reinforcement Learning Specialization, Coursera

Machine Learning Algorithms in Scikit-learn library, Data Mining Course

Part of Speech Tagging with HMM, AI Nanodegree, Udacity

Air Cargo Planning Problem, AI Nanodegree, Udacity

Knights Isolation Game with Adversarial Search Algorithms, AI Nanodegree, Udacity

Othello, Tic-Tac-Toe & 8-Puzzle Adversarial Game Playing Agents, Artificial Intelligence Course

Readers-Writers & Dinning Philosophers Problem, Operating Systems Course

Distributed Calculator with Client-Server Architecture using TCP, Computer Networks Course

P2P File Transfer using UDP, Computer Networks Course

Linear Matrix Equation Solver in C, Numerical Linear Algebra Course

MySQL interface for Massive Datasets in C, Database Course

Teaching Experience

Operating Systems, Teaching Assistant, Faculty of Computer Science, Amirkabir University of Technology, Fall 2019, Spring 2020, Spring 2021
Under Supervision of Prof. Nourikhah

Computer Networks, Teaching Assistant, Faculty of Computer Engineering, Amirkabir University of Technology, Spring 2020
Under Supervision of Prof. Sabaei

Work Experience

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

Designed and Implemented enterprise SOAP & Restful Web Services
Developed Asp.Net Core Web Apps & Web APIs

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

Effectively refactored previous projects based on Design Patterns & SOLID principles
Developed Asp.Net web applications for the insurance management system
Developed front-end side of web applications with HTML, CSS & Javascript

Activities

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

Scores

Duolingo English Test: 125/160

GRE Test: Quantitative Reasoning: 165/170, Verbal Reasoning: 151/170, Analytical Writing: 3.0/6.0

References

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

Prof. Mehdi Ghatee, Associate Professor, Department of Mathematics & Computer Science, Amirkabir University of Technology (Tehran Polytechnic), Iran, ghatee@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

Prof. Adel Mohammadpour, Associate Professor, Department of Mathematics & Computer Science, Amirkabir University of Technology (Tehran Polytechnic), Iran, adel@aut.ac.ir

Prof. Hossein Nourikhah, Assistant Professor, Department of Mathematics & Computer Science, Amirkabir University of Technology (Tehran Polytechnic), Iran, nourikhah@aut.ac.ir

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