Mahyar Riazati

mhyrzt@gmail.com | LinkedIn | GitHub | Portfolio | Google Scholar | Tehran, Iran

Education

Tehran University — Tehran, Iran

M.Sc. in Electrical Engineering - Telecommunication Systems; ***GPA: 3.5/4.00*** — *Sep 2022 – Jan 2024*

Thesis: Under the supervision of Dr.Majid Nili Ahmad Abadi

Islamic Azad University - South Tehran Branch — Tehran, Iran

B.Sc. in Electrical and Telecommunication Engineering; ***GPA: 3.103/4.00*** — *Sep 2017 – Jan 2022*

Undergrad Project: Face Landmark Detection for Android Devices Under the supervision of Dr.Sedigheh Ghofrani

Skills

AI: scikit-learn, numpy, pandas, PyTorch, OpenCV, Image Processing, Fuzzy Logic, Reinforcement Learning

EE: Altium Designer, Arduino, AVR, ESP32, MATLAB, Simulink, DSP

SE: FP, OOP, TDD, C/C++, Python, Java, Android

DB: PostgreSQL, MySQL, MongoDB, MinioDB

Tools: git, GNUMake, CMake, Docker, Unity

Back-End: Flask, Django + DRF, Node.JS, express, php

Front-End: HTML, CSS, SCSS, JS, TS, React/Next, Cypress, React Testing Library

Work Experience

Quera — Tehran, Iran

Bootcamp Mentor and Instructor — *Jul 2022 – Nov 2022, Full-time*

- Assisted in planning, course component selection, and problem design for data science Bootcamp.
- Instructor of Numpy, Pandas, SQL, Fundamental Concepts of Supervised and Unsupervised Learning and Artificial Neural Networks.
- Responsible for Planning, course component selection, and problem design for a front-end development Bootcamp.
- Taught WebAPIs, WebSockets, and React Router.

Front-End College Section Chief — *Dec 2021 – Nov 2022, Full-Time*

- Maintained Two major courses on front-end development & React.js with more than 3000 participants.
- Revised technical contents of the course and the problems given to the participants based on the up-to-date needs of the tech industry, resulting in a 50% increase in the NPS score of the front-end college.

Programming Contest Designer — *Sep 2021 – Nov 2022, Full-Time*

- Responsible for planning and designing a programming recruitment contest on React.js for Mofid Securities for more than 1500 participants.
- Advisor and technical assistant of DigiKala programming contests.
- Developed an online judgment system for mobile app developments with React Native.

Research Experience

Cognitive Systems Lab at Tehran University — Tehran, Iran

Research Assistant — *May 2023 – Present, Full-time*

- Developing Bunch of stuffs

Artificial Creatures Lab at Sharif University of Technology — Tehran, Iran

Research Assistant — *Mar 2022 – Present, Part-time*

- Collaborated within a dynamic research team led by Dr.Saeed Bagheri Shouraki to develop innovative algorithms aimed at expediting and enhancing the stability of training processes. Transformed the initial goal of finding a method into developing a sophisticated algorithm for transferring learned insights from one problem to another. Leveraged sidechannels data from expert agents to optimize and augment the efficiency of knowledge transfer mechanisms.

- Organized the code written by the research group members and the results of experiments into a repository.
- Developed various modules for Reinforcement Learning applications such as DQN to make the codebase more uniform and reliable.
- Discovered a new method inspired by Ink Drop Spread (IDS) from fuzzy logic that led to a 50 percent optimization in the training process and increased the stability of the Q-Learning process.
- Developed a customizable environment with Unity Engine and MLAgents.
- Developed a pipeline with a simple and user-friendly interface to run the experiments faster and easier. (GitHub)

Publications

- A. Ghandi, S. B. Shouraki, I. Gholampour, A. Kamranian, and **M. Riazati**, "Ex-RL: Experience-based reinforcement learning," *Information Sciences*, vol. 689, p. 121479, 2025, doi: 10.1016/j.ins.2024.121479.
- A. Ghandi, S. B. Shouraki and **M. Riazati**, "Deep ExRL: Experience-Driven Deep Reinforcement Learning in Control Problems," *2024 12th Iran Workshop on Communication and Information Theory (IWCIT)*, Tehran, Iran, Islamic Republic of, 2024, pp. 1-6, doi: 10.1109/IWCIT62550.2024.10552959.

Projects

Koch Snowflake | *GitHub* | *Website*
- Developed an interactive web application using React and TypeScript for generating Koch snowflakes, a visually intricate fractal pattern.
- Implemented a dynamic user interface allowing real-time adjustments to parameters such as iteration levels and line lengths, providing an engaging user experience.
- Translated the recursive Koch snowflake algorithm into efficient TypeScript code, striking a balance between performance and readability.

Elementary Cellular Automaton | *GitHub* | *Website*
- A React.js Project enabling the generation of Elementary Cellular Automataton with various rules and sizes.

ALOHASIM | *GitHub*
- Conducted a comprehensive simulation of the ALOHA Protocol as a key component of a Telecommunication Undergraduate course project.
- Implemented a dynamic visualization of node interactions using the pygame framework, providing a clear and engaging representation of the protocol's functioning.

DLIB Android Face Landmark Detection | *GitHub*
- Spearheaded my final undergraduate project under the guidance of Dr. Sedigheh Ghofrani, dedicated to implementing face landmark detection on Android devices.
- Leveraged Java to craft the user interface and implement critical functionalities.
- Employed the OpenCV Java Library for proficient image processing and editing.
- Seamlessly integrated the dlib library, crafted in C++, by harnessing the NDK within the Java framework. Utilized C++ and CMake to enable 68-point face landmark detection on Android devices.

Unity MountainCar 2D | *GitHub*
- Developed Unity Mountain Car 2D as part of my research assistant role in Artificial Creature Labs.
- Crafting a 2D version of the Mountain Car problem within the Unity framework.
- Utilizing Unity ML-Agents Toolkit to enable reinforcement learning in the 2D environment.
- Providing flexibility by allowing adjustments to the position of the goal, adding height offsets, changing gravity, and fine-tuning car properties such as mass and force.

PrecoderNet | *GitHub*
- Implemented "PrecoderNet: Hybrid Beamforming for Millimeter Wave Systems with Deep Reinforcement Learning" paper using a DDPG model.

Simple Multi Agent Deep Reinforcement Learning Chess | *GitHub*
- Developed a chess environment using Pygame for a fun holiday project.
- Applied the Proximal Policy Optimization (PPO) algorithm to solve the chess environment, excluding en passant and castling moves.
- Trained two agents with separate neural networks, engaging in self-play to enhance their gameplay.
- Trained a single agent with a singular neural network, capable of playing both white and black pieces through joint training.

Relevant Coursework

M.Sc. coursework: Stochastic Processes, Advance Digital Signal Processing, Convex Optimization, Machine Learning, Reinforcement Learning, Foundational Models in NLP, Advance Telecommunication Theory

B.Sc. coursework: Electrical Circuits I-II, Probability Theory, Electronics I-II, Signals and Systems, Digital System Design I-II, Electromagnetic, Fields & Waves, Microwave, Antenna, Linear Control, Principals of Communication Systems, Digital Signal Processing, Digital Communications, Telecommunication Networks

Certificates

Reinforcement Learning Specialization *Jun 2021*
Coursera – University of Alberta

Generative Adversarial Networks Specialization *Jun 2021*
Coursera – DeepLearning.ai

Mathematics for Machine Learning: Linear Algebra *Apr 2021*
Coursera – Imperial College London

Deep Learning Specialization *Mar 2021*
Coursera – DeepLearning.ai

Proffessional Project-Oriented Course in Backend Development with Django *Oct 2020*
Quera

Advance Algorithmic Thinking and Data structure *Oct 2020*
Quera

Project-Oriented Course in Web Development with PHP *May 2020*
Quera

Advance Python Programming and Object-Oriented Thinking Course *May 2020*
Quera

References

References available upon request.