Ali Ahmadi Esfidi

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Fields of Interest

- Reinforcement Learning
- Machine Learning
- Computational Biology
- Deep Learning
- Web Development
- Algorithm Design

Education

BS **Amirkabir University of Technology**, Computer Science — Sept 2022 - Jun 2026

- GPA: 18.83/20.0
- **Relevant Coursework:** Protein & Nucleic Sequence Analysis (20/20), Fundmental of Bioinformatics (18.5/20), Artificial Inteligence & Workshop (20/20), Data Structures & Algorithms (20/20), Advanced Programming & Workshop (20/20), Theory of Computation (19/20), Graph Theory (20/20)

Certificates

Scrum Foundations Course, Ultima Training Tech Co. — Dec 2024

- Instructor: Josef Balahan

New Methods Of Cancer Treatment, Biocan — Feb 2025

- Head Of Webinar: Prof. Hamidieh

Introduction to Bioinformatics, Biocan — Feb 2025 – Jul 2025

- Scientific Chair: Dr. K. Kavousi

Experience

Research Assistant, High Performance Networks Lab — Tehran University, Sept 2024 – Present

- Supervisor: Dr. Khonsari

Research Assistant, NORC Lab — Amirkabir University, Mar 2025 – Present

- Supervisor: Dr. Ghatee

Teaching Assistant, Quantum Information Processing — Tehran University, Sept 2025 – Present

- Instructor: Dr. Khonsari

Teaching Assistant, Introduction To Logic — Amirkabir University, Sept 2025 – Present

- Instructor: Dr. Didehvar

Teaching Assistant, Theory Of Computation — Amirkabir University, Sept 2024 – Jan 2025

- Instructor: Dr. Didehvar

Teaching Assistant, Artificial Inteligence & Workshop — Amirkabir University, Sept 2024 – Jan 2025

- Instructor: Dr. Ghatee, Dr. Yousefimehr

Publications

Irrigation Optimization in Agricultural Fields Using DRL Approaches — Feb 2025

Parsa Heidari, ***Ali Ahmadi Esfidi***, Ali Mehrvarz, Elaheh Khodaei, Ahmad Khonsari

10.1109/CSICC65765.2025.10967419

Projects

Halley Project: Bridge Damage Diagnosis App Mar 2025 – Present

- Industrial project launched by the NORC Lab, focused on developing an application for diagnosing bridge damage.
- Worked as a ReactJS and Express.js developer and contributed to the design and implementation of computer vision models for damage detection.

Irrigation Optimization using DRL Algorithms Feb 2025 – Present

- Collaborated on implementing DRL algorithms (DDPG, PPO, A2C, D3QN) to optimize irrigation policies for tomato cultivation in Marvdasht, Iran.
- Designed a custom Gym-like environment, integrated DSSAT-generated datasets, and conducted comparative analysis between discrete- and continuous-action RL models.

RNA Pairing Pattern Recognition Model Repository Link

- Builds upon the KH-99 model and introduces a novel Gap-Bracket CYK parsing algorithm to improve prediction accuracy, especially for complex motifs like pseudoknots.
- Preliminary version presented at the CBRC Journal Club.

Gold-Binding Peptides Classifier Repository Link

- Developed, evaluated, and interpreted machine learning models for classifying gold-binding peptides.

Image Labeling Studio Repository Link

- Cross-platform desktop application built with Electron and TailwindCSS for efficient image management, annotation, cropping, and segmentation, targeting machine learning datasets.

Orthogonal Gradient Descent for Continual Learning Repository Link

- Implemented and analyzed Orthogonal Gradient Descent (OGD) to mitigate catastrophic forgetting in deep neural networks during continual learning scenarios.

My Planner: Full-Stack Productivity Tool Repository Link

- Full-stack productivity tool for organizing daily tasks, reminders, and expenses, built with React (component-based) frontend and Express.js/MongoDB backend.

Technologies

Languages: JavaScript, TypeScript, Python, C/C++, Java, C#, SQL

Technologies: NodeJS, ReactJS, PyTorch, BioPython, Git, Docker