ERFAN RASTI

COMMUNICATION ENGINEER

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HIGHLIGHTS

- **Communication Engineer:** 2+ years of professional experience in developing, simulating, and deploying wireless communication networks.
- **Machine Learning and Deep Learning Researcher:** 3+ years of research and experience in ML, DL, and reinforcement learning (RL).
- **Digital Image and Signal Processing Researcher:** 2+ years of research in digital image processing using DL.
- **Educator:** 2+ years of teaching experience in Computational Intelligence, DSP, and Communication Systems.
- **Programmer:** 4+ years of programming experience in Python, MATLAB, Linux, Git, and more.

RESEARCH INTERESTS

- Wireless Communications
- Computer Vision
- Reinforcement Learning
- Digital Signal Processing
- Deep Learning

EDUCATION

B.Sc. of Electrical Engineering

Amirkabir University of Technology
2019-2024

- GPA: 3.7/4
- Major: Electrical Engineering (Communication Engineering)
- Minor: Computer Science
- Thesis:
  - Self-Organizing Network Coordination using Deep Reinforcement Learning
  - A User-Centric Energy-Saving Method for Dynamic 5G Heterogeneous Networks Using Deep Reinforcement Learning
  - Supervisor: Professor Abbas Mohammadi

PUBLICATIONS

- M.A. Arami, **E. Rasti**, and A. Mohammadi, "A User-Centric Energy-Saving Method for Dynamic 5G Heterogeneous Networks Using Deep Reinforcement Learning," **IEEE Transaction on Mobile Computing**, 2025 - *Corresponding author:* ***Erfan Rasti*** - *Equal Contribution* (Published)
- **E. Rasti**, M.A. Arami, A. Mohammadi, "Energy-Saving for User-Centric Dynamic 5G HetNets Using DRL Method", **IEEE 16th International Conference on Information and Knowledge Technology (IKT) 2025** (Under Review)
- E. Rasti, M. Arami, A. Mohammadi, "Self-Organizing Network Coordination CRE, MRO, and eICIC Parameters Optimization: Deep Reinforcement Learning Framework for Heterogeneous Networks" (In progress)

TEACHING EXPERIENCE

- **Instructor,** Digital Signal Processing Laboratory - Fall 2023, Spring 2025 — *Amirkabir University of Technology*
  - Supervisor: Dr. Hamzeh Beyranvand
- Teaching Assistant, Introduction to Computational Intelligence – Fall 2023, Fall 2024
  - Supervisor: Dr. Farzaneh Abdollahi
- Teaching Assistant, Analog Communication Systems (Applicable MATLAB) - Fall 2022
  - Supervisor: Dr. Hamzeh Beyranvand

WORK EXPERIENCE

Wireless Communication Engineer

AUT-Wireless Research Lab.
Dec 2022 - Present

2+ years in development and deployment of 4G, 5G, and Cell-Free Massive MIMO networks.

- Supervisor: Professor Abbas Mohammadi

Computer Vision Engineer

AUT Internship
Jun 2022 - Jan 2023

Medical Image Processing using Deep Learning

- MRI and CT scan Image clustering and recommending
- Supervisor: Dr. Hamzeh Beyranvand

PROJECTS

Amirkabir University of Technology

Communication Networks

- Access Point Selection techniques in Cell-Free Massive MIMO Networks — Aug 2024 - Oct 2024
- Access Point Location Determination in Cell-Free Massive MIMO Networks — Jul 2024 - Sep 2024
- Reconfigurable Intelligent Surface Assisted Multiuser MISO Systems Exploiting Deep Reinforcement Learning — Apr 2024 - Jul 2024
- A User-Centric Energy-Saving Method for Dynamic 5G Heterogeneous Networks Using Deep Reinforcement Learning — Dec 2023 - Aug 2024
- Self-Organizing Network Coordination using Deep Reinforcement Learning — Jan 2023 - Apr 2024

Computer Vision

- MRI and CT-Scan Image Classification and Clustering using Deep Learning — Jun 2022 - Feb 2023
- Ecotourism Recommender System Based on Machine Learning - Advisor — Dec 2023 - Jan 2025
- Face Recognition on MS-CELEB Dataset
- Face Detection using OpenCV

Arch Linux System Configuration for Research and Development

- Highly Customizable Linux environment Based on Hyprland
- Detailed Documentations for Linux Setup

SELECTED COURSES

Amirkabir University of Technology

Communications

- Mobile Communications — Score: A+
- Digital Signal Processing Laboratory — Score: A+
- Communication Systems — Score: A
- Computer Networks — Score: A+
- Signals & Systems — Score: A+

Machine Learning

- Data Mining — Score: A+
- Introduction to Machine Learning — Score: A+
- Introduction to Computational Intelligence — Score: A+
- **Self-studied Books:**
  - **Deep Learning** with Python by François Chollet
  - **Deep Reinforcement Learning** in Action by Alexander Zai and Brandon Brown
  - **Hands-On Machine Learning** with Scikit-Learn and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems by Geron Aurelien
  - Introduction to Machine Learning with Python by Andreas C. Müller, Sarah Guido

SKILLS

- **Programming/Scripting:** Python, MATLAB, Linux Bash Script (Ubuntu, Arch Linux, Debian), C, C++, LaTeX, PowerShell, VHDL
- **Frameworks:** PyTorch, Tensorflow, OpenAI Gym, Scikit-Learn
- **IDEs/Tools:** VS Code, MATLAB, Neovim, tmux, PyCharm, Advanced Design System, Proteus (PDS), CodeVisionAVR, Altium Designer, Xilinx ISE, Vivado

HONORS AND AWARDS

- Ranked **15th** Electrical Engineering, among **more than 120** students, Amirkabir University of Technology, Tehran, Iran
- Ranked **81st** among over **15,000** participants in the unversity master's entrance exam, 2024
- Ranked **631st** among over **270,000** participants in the university bachelor's entrance exam, 2019
- Participated in RoboCup IRAN OPEN 2016 Competitions April 6-8 Tehran, Iran
  - League: Junior Soccer Open
  - **8th place** among 50 participants
  - Team: Robo RS

LANGUAGE SKILLS

- English: Native
  - TOEFL: Scheduled for 19 November
- Persian: Native

REFERENCES

- Prof. Abbas Mohammadi
  - Supervisor (abm125@aut.ac.ir)
- Dr. Farzaneh Abdollahi
  - Computational Intelligence Lab. Supervisor (f_abdollahi@aut.ac.ir)
- Dr. Hamzeh Beyranvand
  - Internship and DSP Lab. Supervisor (beyranvand@aut.ac.ir)