Roujin Mousavifard

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EDUCATION

University of Tehran (UT) — Tehran, Iran
M.Sc. in Mechatronics Engineering, — 2020-2023
Cumulative GPA: 18.43/20 via 29 credits (Thesis included)
- **Thesis**: Control of Quadrotor using a Novel Stochastic Model-Free Trajectory Tracking Controller for Position and a Deep Learning-Based Attitude Controller

Amirkabir University of Technology (Tehran Polytechnic) — Tehran, Iran
B.Sc. in Mechanical Engineering, Control — 2015-2020
Cumulative GPA for the last two years: 17.54/20
- **Thesis**: Design and Fabrication of a Portable Vibration Simulator

National Organization of Development for Exceptional Talents (NODET) — Tehran, Iran
Farzanegan High School, High School Diploma in Mathematics and Physics, — 2011-2015
High School Diploma Cumulative GPA: 19.60/20

RESEARCH INTERESTS

- Autonomous Systems and Robotics
- Advanced Control Systems
- Swarm Robotics
- Embedded Systems for Automation
- Human–Robot Interaction
- Motion Planning

PUBLICATIONS

Robot Trajectory Tracking using Combined Stochastic Model-Free Position and DDPG-based Attitude Control, **ISA Transactions**.	2024
Control of Robots Using Convex QP LMPC and Learning-Based Explicit-MPC, in **IEEE Transactions on Industrial Informatics**.	2024
Formation Control of Multi-robots Based on Deep Q-learning, 10th RSI International Conference on Robotics and Mechatronics (ICRoM)	2022
Formation Control of Multiple Robots Using LSTM-based Model Predictive Control, 10th RSI International Conference on Robotics and Mechatronics (ICRoM)	2022
Optimal design of functionally graded steels using multi-objective ant lion optimizer, The 27th Annual International Conference of Iranian Society of Mechanical Engineers (ISME)	2019
Optimal control of self-balancing robot in the presence of uncertainties based on interval analysis, The 27th Annual International Conference of Iranian Society of Mechanical Engineers (ISME)	2019

ACADEMIC EXPERIENCE

Research Assistant at Advanced Service Robots (ASR) Laboratory,   2022 - Present
Supervisor: Prof. Khalil Alipour, Prof. Bahram Tarvirdizadeh

Teaching Assistant, Advanced Automatic Control (Graduate Course),   2022 (Spring, Fall)
Prof. Khalil Alipour

Instructor, Mechatronics and Automation Laboratory,   Spring 2020
Prof. Farshad Barazande

Teaching Assistant, Mechatronics (Undergraduate Course),   Spring 2020
Prof. Farshad Barazande

Teaching Assistant, Strength of Materials Laboratory, Prof. Youness Alizade   2019

INDUSTRIAL EXPERIENCE

Elcarad Industry Company   Tehran, Iran
Head of Research and Development   2022-present
Responsibilities:

- Contributed to the design of **automation** and **Industry 4.0** condition monitoring systems to meet customer needs.

Future Green Micro Systems Company (RASA)   Tehran, Iran
Research and Development Engineer   2021-2022
Responsibilities:

- Developed prototypes by integrating **electronics**, **mechanics**, and **software technologies**.

HDL Company   Tehran, Iran
Technical Engineer Intern   Summer 2019
Responsibilities:

- Configured **smart home** modules to automate functionality.

Parskhodro Company   Tehran, Iran
Renault Industrial Line Control Intern   Summer 2018
Responsibilities:

- Control the sealer used in Renault-L90 car industrial line.

NOTABLE PROJECTS

Industrial Projects

Predictive Maintenance System   Elcarad Industry Company
Designed and fabricated a predictive maintenance system, integrating hardware and software, to monitor rotor vibrations, diagnose malfunctions, and predict failures for effective condition monitoring.

Modular Tracker Device   Elcarad Industry Company

Designed and prototyped a modular tracker device with an accompanying app that integrates into various gadgets, enhancing capabilities like blood pressure and temperature monitoring for elderly care.

RFID Reader and Tracking Module   Elcarad Industry Company

Developed and fabricated an RFID reader with tracking modules to improve the management of livestock, optimizing tracking and resource allocation.

Academic Projects

Robotic Arm for Multi-Tasking   Advanced Robotics Course

Designed, built, and controlled a robotic arm for trajectory tracking, object following, and color detection, with applications in automation and industrial processes.

Quality Control System Using Deep Learning   Artificial Intelligence Course

Developed a quality control system utilizing deep learning and neural networks for image processing, specifically applied to detect defects in water bottles during production.

SOFTWARE AND PROGRAMMING SKILLS

Programming Languages: MATLAB & Simulink, Python, C, C++, Java, ROS

Embedded Systems: PLC, Arduino, Raspberry Pi, ESP32

Mechanical Software: SOLIDWORKS, MSC ADAMS

Electronic Software: Altium Designer, Proteus Design Suite

Software Development: Android and Web Application Development, SQLite

HONORS & AWARDS

Ranked Top 3 among master of mechatronics engineering students at University of Tehran   2023

Full Tuition Waiver Scholarship awarded by Amirkabir University of Technology   2015-2020

Recipient of Exceptionally talented student Scholarship awarded as an Exceptionally Talented Student   2015

Ranked 508th among more than 250,000 participants in the Nation-Wide University Entrance Exam   2015

LANGUAGE PROFICIENCY

- English: IELTS (Total: 7.5/9)
  Reading: 8.5/9   Listening: 8.5/9   Writing: 6.5/9   Speaking: 6.5/9
- Deutch: Level A2