Armin Ghanbarzadeh

☐ (+98)903 8388 620 | ✉ ghanbarzadeh.armin@gmail.com | 🎓 Google Scholar | ⌗ GitHub | 🔗 LinkedIn
📍 Tehran, Iran

EDUCATION

M.Sc. in Mechatronics Engineering (1st GPA in program) *GPA: 19.29/20 (4/4)*
K.N. Toosi University of Technology, Tehran, Iran Oct 2020 − Oct 2023
Implementation of an intelligent control method for safe human and industrial robot collaboration
Supervisor: Dr. E. Najafi (email)

B.Sc. in Mechanical Engineering *GPA: 16.12/20 (3.23/4)*
K.N. Toosi University of Technology, Tehran, Iran Oct 2015 − Jan 2020
Design and simulation of a downhole tractor to transport various tools in horizontal wells
Supervisor: Dr. M. Ravandi

RESEARCH PROJECTS AND PUBLICATIONS

Journal Articles

2023 **A. Ghanbarzadeh** and E. Najafi, "Deep Reinforcement Learning Graphs: Feedback Motion Planning via Neural Lyapunov Verification," *Under Review*

2023 **A. Ghanbarzadeh** and E. Najafi, "Safe Physical Human-Robot Interaction through Variable Impedance Control based on ISO/TS 15066," *Under Review in IJIDeM*   (*arxiv preprint: arxiv.org/abs/2311.13814*)

Conference Proceedings

2023 A. Golshani, A. Kouhkord, **A. Ghanbarzadeh** and E. Najafi, "Design of a Genetic based Optimized Fuzzy Logic Controller for Enhanced Trajectory Tracking Accuracy of a 3P Robot," *2023 11th RSI International Conference on Robotics and Mechatronics (ICRoM)*, Tehran, Iran, Islamic Republic of, 2023

2022 R. B. Nejad, J. Khoramdel, **A. Ghanbarzadeh**, M. Sharbatdar and E. Najafi, "A Multiclass Retinal Diseases Classification Algorithm using Deep Learning Methods," *2022 10th RSI International Conference on Robotics and Mechatronics (ICRoM)*, Tehran, Iran, Islamic Republic of, 2022, pp. 365-370, doi: 10.1109/ICRoM57054.2022.10025206.

2022 A. Kouhkord, **A. Ghanbarzadeh**, P. Ebrahimi and E. Najafi, "Design of a Genetic based Optimized Fuzzy Logic Controller for Enhanced Trajectory Tracking Accuracy of a 3P Robot," *2022 10th RSI International Conference on Robotics and Mechatronics (ICRoM)*, Tehran, Iran, Islamic Republic of, 2022, pp. 497-502, doi: 10.1109/ICRoM57054.2022.10025249.

2021 A. Aeini, E. Droudian, **A. Ghanbarzadeh** and E. Najafi, "Design of an Intelligent Control System for Safe Collaboration between Human and a Robotic Manipulator," *2021 9th RSI International Conference on Robotics and Mechatronics (ICRoM)*, Tehran, Iran, Islamic Republic of, 2021, pp. 335-340, doi: 10.1109/ICRoM54204.2021.9663503.

2021 **A. Ghanbarzadeh** and E. Najafi, "Design of an Optimized Fuzzy Controller for a 3R Non-planar Robotic Manipulator," *2021 9th RSI International Conference on Robotics and Mechatronics (ICRoM)*, Tehran, Iran, Islamic Republic of, 2021, pp. 287-292, doi: 10.1109/ICRoM54204.2021.9663441.

Under Preparation

- **Dynamic obstacle avoidance for mobile robots using probabilistic deep recurrent neural networks**
  Armin Ghanbarzadeh, Esmaeil Najafi, Mohammad Shahbazi
  Propose an AI based method for obstacle avoidance in environments with many dynamic obstacles. This method proposes the utilization of deep neural networks featuring Long Short-Term Memory (LSTM) neurons for the purpose of forecasting the probability distribution function of the future positions of recognized obstacles using historical position data.

INDUSTRIAL EXPERIENCE

Faraz Novin Andish Arvand Co., Ahvaz, Iran *Jun 2019 − Jan 2021*
Technical Office Engineer

- Designed and implemented hydraulic circuits for Sucker-rod pump (SRP) brake system and Blowout preventer (BOP) valve actuators
- Developed parts, drawings, and assemblies for manufacturing a newly designed blowout preventer
- Member of sucker-rod pump surface unit design team
- Supervised the assembly process of sucker-rod pump surface units and composed technical reports of work progress

Software: Solidworks, Ansys Workbench

Rakhsha Koosha Sanat Co., Ahvaz, Iran
July 2019 − Sep 2021

Freelance Project

- Designed and Built a hydraulic test bench to conduct Seat Leakage and Hydrostatic tests of various industrial valves following standards ISA-75.19.01 and ANSI B16.37
- Developed a graphical application using MATLAB and Arduino to conduct the tests automatically

Software: Arduino, MATLAB

Azizi Famili Crane Suppliers Co., Tehran, Iran
Nov 2018 − Mar 2019

Freelance Project

- Developed an application to calculate the load on industrial mobile cranes based on sensors mounted in its hydraulic jacks
- Using machine learning models (nonlinear regression) in MATLAB to estimate sensor coefficients using data gathered from cranes
- Export models to microprocessor in C++

Software: MATLAB, C++

TEACHING ASSISTANCE

Graduate Courses

Machine Vision: Prepared analytical and computer homework, quizes and assisted in evaluating final exams. Under the supervision of Dr. H. Abrishami Moghaddam (Faculty of electrical engineering)

Artificial Intelligence and Expert Systems: Lectured on the topics Fuzzy logic (MATLAB), Artificial Neural Networks and Reinforcement learning (Python). Assisted with homework and final project evaluation. Under the supervision of Dr. E. Najafi (Faculty of mechatronics engineering)

Statics and Strength of Materials: Prerequisite course for mechatronics students coming from an electrical background. Under the supervision of Dr. E. Najafi (Faculty of mechatronics engineering)

Mechanical Engineering Design: Prerequisite course for mechatronics students coming from an electrical bachelors degree

Undergraduate Courses

Neural Networks: Lectured on the topics Linear regression, MLP, CNN, RNN and Object detection in Python. Assisted with homework and final project evaluation. Under the supervision of Dr. E. Najafi (Faculty of mechanical engineering)

TEST SCORES

TOEFL: 111/120 *Jan 2020*

Reading: 30/30, Listening: 30/30, Speaking: 27/30, Writing, 24/30

GRE: 319/340 *Jan 2020*

Quant: 166/170, Verbal: 153/170, Analytical Writing: 4/6

SKILLS

Programming: Python, MATLAB, Java, C++

Technologies: Arduino, MATLAB & Simulink, Raspberry Pi, Git, ROS, Solidworks, ANSYS Workbench

Applications: LaTeX, Adobe Photoshop, Adobe Illustrator, Microsoft Office, Prezi

Languages: Farsi (Native), English (Native, Lived in the UK for 7 years)

References

Dr. Esmaeil Najafi
Associate Professor in Cognition and AI
Saxion University of Applied Sciences
Enschede, Netherlands

✉ najafi.e@gmail.com
🎓 Google Scholar
in LinkedIn