

Alireza Kargar



<https://alireza-kargar.github.io/>



alir3zakargar@gmail.com



Alireza Kargar



+98 9357664326

RESEARCH INTEREST

- Computer-aided Design & Manufacturing.
- Robotics & System Design.
- Service Robots.
- Human-Robot Interaction.
- Rehabilitation Robotics.
- Social Robots.

EDUCATION

M.Sc. in Mechatronics Engineering

2017–2021

University of Tehran

Tehran-Iran

- Thesis: Design and prototype a robot for cleaning glass façade buildings.
- Supervisor: Dr. Manouchehr (Hadi) Moradi Sabzevar.
- Overall GPA: 16.07/20.

B.Sc. in Mechanical Engineering

2013-2017

Islamic Azad University, West Tehran Branch

Tehran-Iran

- Thesis: Vehicle's mini wind turbine.
- Supervisor: Dr. Hamed Moayeri Kashani.
- Overall GPA: 15.81/20.

PUBLICATION

CONFERENCE PAPER.....

Mehralizadeh B, Soleiman P, Nikkhoo S, Rahimi M, Kargar A, Masoumi F, Moradi H. [Multi-Modal ASD Screening System: A Preliminary Study](#). In 2023 11th RSI International Conference on Robotics and Mechatronics (ICRoM) 2023 Dec 19 (pp. 228-234). IEEE.

EXPERIENCE

RESEARCH EXPERIENCE

Graduate Research Assistant

2021-Present

Advanced Robotics & Intelligent Systems Lab.

Supervisor: Manouchehr (Hadi) Moradi Sabzevar

- **BAMS.V2:** Designed and developed a holonomic drive social robot platform to interact with children for education and entertainment purposes.
- **NeuroLight:** Designed and Implemented a cyber-physical system comprised of programmable wireless light modules to improve athletes' speed and agility.

Research Assistant

2017-2021

Advanced Robotics & Intelligent Systems Lab.

Supervisor: Manouchehr (Hadi) Moradi Sabzevar

- **Design and prototyping of a robot for cleaning glass facade buildings:** Designed, prototyped, and controlled a compliant robotic system with significant irregularities on the building surface for cleaning or maintenance tasks.
- **Elbow rehabilitation robotic system:** Redesigned and prototyped an active series elastic mechanism for elbow rehabilitation.
- **Multi-modal ASD screening system:** Designed, manufactured, and tested the required tools and equipment.

Research Assistant	2015-2017
<i>College of Engineering, Islamic Azad University, West Tehran Branch</i>	
Supervisor: Dr. Hamed Moayeri Kashani.	
<ul style="list-style-type: none"> • Vehicle's mini wind turbine: Developed and prototyped a mini wind turbine for vehicles based on the concept of vertical-axis wind turbines. • Automatic parasol: Conception and prototyping of an automatic parasol for urban open spaces to protect people from sunlight or rain. • Automatic canopy: Created and prototyped a lightweight and inexpensive automatic canopy. 	
TEACHING & MENTORING EXPERIENCE	
Lecturer	2021- 2023
<i>School of Electrical and Computer Engineering, University of Tehran.</i>	
<ul style="list-style-type: none"> • General Workshop course: CAD/CAM, SOLIDWORKS, Simplify3D. 	
Instructor	2021-2022
<i>Scientific Association of Chemical and Polymer Engineering.</i>	
<ul style="list-style-type: none"> • Course: Computer-aided Design, SOLIDWORKS. 	
Teaching Assistant	2020-2021
<i>School of Electrical and Computer Engineering, University of Tehran.</i>	
<ul style="list-style-type: none"> • General Workshop course Chief-TA: CAD/CAM, SOLIDWORKS, Simplify3D. 	
Teacher Assistant	2019-2020
<i>School of Electrical and Computer Engineering, University of Tehran..</i>	
<ul style="list-style-type: none"> • Advance Robotics course TA: Project design and grading. 	
Mentor	2018-2020
<i>Advanced Robotics & Intelligent Systems Lab, University of Tehran.</i>	
<ul style="list-style-type: none"> • Trained new members in the introduction of Arduino and MATLAB. 	
Teacher Assistant	2015-2016
<i>College of Engineering, Islamic Azad University, West Tehran Branch.</i>	
<ul style="list-style-type: none"> • Statics course TA: Supervisor of student Homework • programming Mentor: MATLAB & Simulink 	
WORK EXPERIENCE.....	
Freelancer	2016-Present
<i>Self-Employment</i>	
Design and Implementation of Mechatronic systems and Mechanical goods.	
Mechatronics Engineer	2022
<i>Tehran Platform Co.</i>	
<ul style="list-style-type: none"> • XY plotter: Design and develop a 2D plotter for drawing Architectural plans on a painting canvas. 	
Mechatronics Engineer	2018
<i>Tehran Platform Co.</i>	
<ul style="list-style-type: none"> • WELLOGRAPH - painter robot: Redesign and Optimize the painting module of a holonomic drive mobile robot. 	
Research and Development team member	2017-2018
<i>Hamyar Mechanic Kousha Co.</i>	
<ul style="list-style-type: none"> • Designed and produced rehabilitation and easy-access facilities. 	
Internship	2015
<i>Mehrsa Sanat Hooshmand</i>	
<ul style="list-style-type: none"> • Designed and Manufactured Hydraulic scrap car press baler (Compactor Machine) 	

VOLUNTEER EXPERIENCE

Introduce technology-based ASD systems for children with Autism.	Oct.2018
<i>Tehran Annual Digital Art Exhibition.</i>	
Introduce the novel research achievements of Azad University engineering students.	Dec.2016
<i>Research Week Exhibition.</i>	

TEST SCORE

TOEFL	Overall Score: 107 (Listening:30, Reading:29, speaking:22, writing:26)
GRE General	Overall Score: 328 (Quantitative:170, Verbal:158, Analytical Writing:5)

ACADEMIC PROJECTS

Prosthetic Hand: Developing design and implementation of a prosthetic hand powered by a series of elastic actuators controlled by Electromyography (EMG) signals.	2023
HSRD: Developing design and implementation of a Hand spasticity rehabilitation device for post-stroke recovery.	2021-2022
BAMS.V1: Interactive social robot: Design and Develop an open-source interactive social robot head with sound-based localization and hand-tracking ability with the help of an IR sensors Array.	2016
B-bot: Designed and Implemented a differential drive Mobile Robot that follows the path drawn by the user on the computer precisely on the ground with a particular scale.	2016

WORKSHOPS & SEMINAR

Industrial automation expert training course	2018
Mechatronics and Robotics course (Advanced)	2018
Mechatronics and Robotics course (Introductory)	2017
MATLAB and Simulink for Mechanical Engineers	2017
Mechanical design using CATIA software.	2017
GD&T Geometric Tolerancing	2017

SKILLS

CAD/CAM/CAE	SOLIDWORKS, CATIA, MSC Adams, ABAQUS, 3D Printing Software
Programming	Python, MATLAB, C/ C++ (Arduino), Ladder (PLC), ROS, Git
Professional skills	Pneumatic & Hydraulic Systems
Soft Skills	Critical thinking, R&D team leadership, Systematic thinking
Language skill	English(Proficient), Farsi(Native)

REFERENCES

Dr. Manouchehr (Hadi) Moradi Sabzevar, Professor, University of Tehran, Tehran, Iran.

- Email: moradih@ut.ac.ir

Dr. Seyed Kamaledin Setarehdan, Professor, University of Tehran, Tehran, Iran.

- Email: ksetareh@ut.ac.ir

Dr. Rezvan Nasiri, Assistant Professor, University of Tehran, Tehran, Iran.

- Email: rezvan.nasiri@ut.ac.ir