

# Alireza Kargar



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



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Alireza Kargar



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## RESEARCH INTEREST

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- Computer-aided design and manufacturing.
- Robotic and System Design.
- Service Robots.
- Human-Robot Interaction.
- Robotic rehabilitation.
- Social Robots.

## EDUCATION

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### 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

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### 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

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### 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.

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

## VOLUNTEER EXPERIENCE .....

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

## TEST SCORE

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

## ACADEMIC PROJECTS

<b>Prosthetic Hand:</b> Developing design and implementation of a prosthetic hand powered by a series of elastic actuators controlled by Electromyography (EMG) signals.	<b>2023</b>
<b>HSRD:</b> Developing design and implementation of a Hand spasticity rehabilitation device for post-stroke recovery.	<b>2021-2022</b>
<b>BAMS.V1:</b> 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.	<b>2016</b>
<b>B-bot:</b> 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.	<b>2016</b>

## WORKSHOPS & SEMINAR

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

## SKILLS

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

## REFERENCES

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

- Email: [moradih@ut.ac.ir](mailto:moradih@ut.ac.ir)

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

- Email: [ksetareh@ut.ac.ir](mailto:ksetareh@ut.ac.ir)

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

- Email: [rezvan.nasiri@ut.ac.ir](mailto:rezvan.nasiri@ut.ac.ir)