

Mehdi Mehdikhani

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RESEARCH INTERESTS

- **Robotics, Image Processing, Artificial Intelligence, Machine Learning, Human-Robot Interaction, Mechatronics, Control Theory, Embedded Systems, Algorithms**
- As an individual with a great enthusiasm for robotics, I am interested in designing and enhancing technologies to create a positive impact on solving real-world problems. Consequently, computer science methods (image processing, artificial intelligence, machine learning, algorithms), control theory and embedded systems are my tools to encounter with robotics challenges.

EDUCATION

- **Isfahan University of Technology (IUT)**, B.Sc. in Computer Engineering (Software), Isfahan, Iran. 2012 – 2017
Overall GPA: 16.86/20
Last two years GPA : 18.2/20
Thesis: Theoretical study and practical implementation of Simultaneous Localization and Mapping (SLAM) and map-based indoor navigation, **Score: 20/20**, 2016
Supervisors: [Prof. Mehdi Keshmiri](#), [Dr. Nader Karimi](#)
- **Pre-University Diploma**, Physics and Mathematics, Isfahan, Iran, **GPA: 19.81/20**, 2011-2012
- **High School Diploma**, Physics and Mathematics, Isfahan, Iran, **GPA: 19.62/20**, 2008-2011

PROFESSIONAL EXPERIENCE

- **Research Assistant** at Advanced Robotics and Mechatronics Laboratory ([ARMLab](#)), Department of Mechanical Engineering, Isfahan University of Technology, Iran, 2014-Present.
- **Robotics Engineer** at dynamic and robotics center, Department of Mechanical Engineering, Isfahan University of Technology, Iran, 2013-2014.

PROJECTS

- **Design and construction of a differential drive mobile robot** with the ability to do simultaneous localization and mapping and map-based indoor navigation. Department of Mechanical Engineering, Department of Electrical and Computer Engineering, Isfahan University of Technology, Isfahan, Iran, 2016. (**B.Sc. Thesis**) - ([More details](#))
- **Design and construction of a high-precision polishing tool** with the ability to control machining forces. The tool can connect to a milling machine and control the force applied by its end effector. Designing and construction of embedded system and control software of the tool, with an innovative approach for force feedback. Department of Mechanical Engineering, Isfahan University of Technology, Iran, 2015. (**Industrial Project**) – ([More details](#))
- **HMI design and PLC programming** for pipelines pressure control and automatic scheduling of working hours in a water pumping station. Organon Sanaat Sepahan Co. Isfahan, Iran, 2016. (**Summer Internship** - Industrial Automation) – ([More details](#))
- **Managing a rescue team** consisting of nine main members. Design and construction of a remote-control belt-type mobile robot with a compatible configuration for rescue operations and a quad-rotor with the ability to do semi-autonomous flight and 3D SLAM. Department of Mechanical Engineering, Isfahan University of Technology, Iran, 2014 - 2016. (**Team Manager**) – ([More details](#))

PATENT

- **Expandable data acquisition and motor control device.** The device is an interface between a controller (PC, Microcontroller, PLC, ...) and various types of rotary encoders, motor drivers and typical sensors. Most important feature of this device is the ability to connect to more peripherals by adding extension boards to the device. (Patent acquired in Iran). 2016 – ([More details](#))

HONORS AND AWARDS

- **Ranked 4th** (in the top 5%) among 73 electrical and computer engineering undergraduates, 2012 - 2016.
- Recognized as **gifted and talented Student** and granted **Gifted Student Award**, Isfahan University of Technology, Iran, 2012.
- Ranked among the first 0.07% of more than 260,000 participants in the national entrance exam of universities, 2012.
- **Ranked 1st** in the [Kharazmi young competition](#) (The highest ranked scientific competition in Iran hold by top Iranian scientific organizations including “Science & Research Ministry, Education Ministry, Industrial Research Organization, Nation Organization for Development of Exceptional Talents), Robotic branch – 2011.
- Recognized as **gifted and talented student** in the nationwide entry exam of National Organization for the Development of Exceptional Talents ([NODET](#)), 2003 and 2006.

TECHNICAL SKILLS

- **Programming Languages:** [Python](#), [C++](#), [C#](#), Java, JavaScript, SQL, Lisp, AIML, Processing
- **Frameworks & Libraries:** [ROS](#), [OpenCV](#), PCL, Boost, Qt
- **Hardware:** [AVR](#), ARM, [Arduino](#), [Raspberry Pi](#), Siemens PLCs and HMIs, Various sensors and modules
- **CAD Softwares:** [Altium Designer](#), LibreCAD, AutoCAD Electrical, [Proteus](#), Eagle, Axure RP
- **Development Tools & IDEs:** [Visual Studio](#), Qt Creator, Atmel Studio, Keil µVision, Code Vision AVR, IntelliJ IDEA, PyCharm
- **Operation Systems:** [Linux Ubuntu](#), Microsoft Windows
- **Simulators:** [Gazebo](#), V-rep
- **Other:** Microsoft Office ([Word](#), Excel, [PowerPoint](#)), Agile methodology, CUDA [L^AT_EX](#), Multi-Threading, [MATLAB](#) and Simulink, Network Programming, Computer Networks, Unity game engine, [Microsoft SQL Server](#), Microsoft Project, Blender, MeshLab, Bizagi BPMS, Photoshop

TEACHING EXPERIENCES

- **Teaching Assistant**, Advanced Programming, Isfahan University of Technology, Department of Electrical and Computer Engineering – Fall 2014, Spring 2014
- **Laboratory Instructor**, Advanced Programming (C++), Isfahan University of Technology, Department of Electrical and Computer Engineering - Spring 2014, Fall 2015
- **Workshop Instructor**, ROS & Gazebo workshop, Isfahan University of Technology, Department of Mechanical Engineering - 2015
- **Workshop Instructor**, PCB Design workshop, Isfahan University of Technology, Department of Electrical and Computer Engineering – 2015
- **Free Discussion Moderator**, Held and moderated Turkish free discussion sessions, Isfahan University of Technology, 2013
- **Robotic Tutor**, Robotics and electronics tutor in Professor Hessabi student research center, 2011. ([More details](#))

LANGUAGE SKILLS

- **English:** Full Professional Proficiency
- **Persian:** Native
- **Azerbaijani:** Native (Bilingual Proficiency)
- **Turkish:** Minimum Professional Proficiency

**RELATED
ACADEMIC
COURSES**

- | | | | |
|-------------------------------------|---------|-------------------------------------|---------|
| ○ Engineering Mathematics | 20/20 | ○ Computer Networks | 17.5/20 |
| ○ Artificial Intelligence | 17.5/20 | ○ Digital System Design | 18.3/20 |
| ○ Design and Analysis of Algorithms | 18.8/20 | ○ IT Project Management | 20/20 |
| ○ Human Computer Interaction | 19.4/20 | ○ E-Commerce | 19.2/20 |
| ○ Embedded Systems Design | 20/20 | ○ Industrial Management & Economics | 18.8/20 |
| ○ Microprocessors | 20/20 | | |

**UNOFFICIAL
ATTENDANCE
COURSES**

- | | |
|-----------------------|------------------------------------|
| ○ Signals and Systems | ○ Fundamentals of Image Processing |
| ○ Automatic Control | ○ Mechanics of Robotic Systems |
| ○ Linear Algebra | ○ Probabilistic Robotics |

**TECHNICAL
PRESENTATIONS**

- **Real-time operation systems**, Isfahan University of Technology, Department of Electrical and Computer Engineering, 2015
- **Robot Gestures Make Difficult Tasks Easier**, (Human Computer Interaction), Isfahan University of Technology, Department of Electrical and Computer Engineering, 2015,
- **Software Engineering for embedded systems**, Isfahan University of Technology, Department of Electrical and Computer Engineering, 2015
- **Robotic Competitions, opportunities and challenges**, Isfahan University of Technology, Department of Mechanical Engineering, 2014
- **Introduction to Reinforcement learning**, (Special Topics in Computer), Isfahan University of Technology, Department of Electrical and Computer Engineering, 2015

HOBBIES

- Travelling, Swimming, Hiking, Public Speaking, Music