

Mehdi Mehdikhani

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| RESEARCH INTERESTS | <ul style="list-style-type: none">○ Robotics, Autonomous Vehicles, Embedded Systems, Automation and Control, Computer Vision, Machine Learning, Artificial Intelligence, Human-Robot Interaction○ 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. Computer science methods (image processing, artificial intelligence, machine learning, algorithms), control theory and embedded systems are my tools to encounter robotics challenges. |
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| EDUCATION | <ul style="list-style-type: none">○ Isfahan University of Technology (IUT), B.Sc. in Computer Software Engineering, Isfahan, Iran. 2012 – 2017, Last two years GPA: 18.2/20
Thesis: Theoretical study and practical implementation of Simultaneous Localization and Mapping (SLAM) and map-based indoor navigation (Details), Score: 20/20, 2016○ 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 |
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| RESEARCH EXPERIENCE | <ul style="list-style-type: none">○ Research Assistant at Advanced Robotics and Mechatronics Laboratory (ARMLab), Department of Mechanical Engineering, IUT, 2015-2018.<ul style="list-style-type: none">• Design and construction of hardware and software for new robotic platforms.• Modification and maintenance of the available platforms.• Implementation and assessment of various SLAM and Navigation algorithms.• Help other students in their research and thesis.• Manage a rescue robot team, consist of nine people to create an autonomous rescue robot |
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| WORK EXPERIENCE | <ul style="list-style-type: none">○ C/C++ Programmer, Implementing various algorithms on STM32 discovery kit and AVR Microcontrollers, Organon Sanaat Sepahan Co. Isfahan, Iran, 2017-2018○ Robotics Engineer at dynamic and robotics center, Department of Mechanical Engineering, IUT, 2013-2014.<ul style="list-style-type: none">• Design and construction of a new hardware interface for a Stewart robot platform.• Help other students in implementing their codes on robots.• Implementation and test of various control algorithms. |
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| INTERNSHIP | PLC Programming and HMI design , Pipeline pressure control and automatic scheduling of working hours in a water pumping station. Organon Sanaat Sepahan Co. Isfahan, Iran, 2016. (Details) |
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| 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 conventional sensors. The most important feature of this device is the ability to connect to more peripherals by adding extension boards to it. (Patent acquired in Iran, Registration Number: 92172). 2016 – (Details) |
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| PUBLICATION | Mehdi Mehdikhani*, Mohammad Amin Fahami*. A Model-Free Approach to General Video Game Playing . 4 th IEEE International Conference on Knowledge-Based Engineering and Innovation (KBEI 2017).

In this paper, we tried to eliminate two significant problems in general video game playing, the assumption of availability of an exact model of the world and performing a search in an online way. We introduced an offline method for learning the model of the world. |
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PROJECTS	<ul style="list-style-type: none"> ○ High-precision polishing tool with the ability to control machining forces. The device can connect to a milling machine and control the force applied by its end effector. I redesigned and constructed the embedded system and control software of the device, and also I introduced an innovative approach to measure force feedback by creating a new force sensor. 2015. (Details) ○ DC Motor torque and speed control board, This device is able to control the speed and the torque of a DC motor. Furthermore, with the help of an encoder, we can calculate the speed and theta of the motor and reach a desired position or speed. 2017. (Details) ○ Time and date server by LPC1768 with the ability to send time and date on various connection protocols such as Ethernet, RS232, RS485, I2C and SPI. 2016. (Details) ○ Two-axis gimbal prototype, by using Dynamixel servo motors and Xsens IMU. 2014. (Details) ○ Thermal camera with the TPA81 infrared sensor. 2015. (Details)
HONORS AND AWARDS	<ul style="list-style-type: none"> ○ Ranked 4th (in the top 5%) among 73 electrical and computer engineering undergraduates, 2012 - 2017. ○ Merit-based Admission Offer to the M.Sc. program, at Isfahan University of Technology and Amirkabir University of Technology without participating in the Nationwide University Entrance Exam. Iran. (Declined - 2017) ○ Awarded a full scholarship by Open Source Robotics Foundation to participate in the ROSCon held in Vancouver, Canada, 2017. ○ 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 national entry exam of National Organization for the Development of Exceptional Talents (NODET), 2003 and 2006.
TECHNICAL SKILLS AND TOOLS	<ul style="list-style-type: none"> ○ Programming Languages: C++, Python, SQL, Lisp, AIML ○ Frameworks & Libraries: ROS, OpenCV, MoveIt, Boost, Qt ○ Hardware: AVR, ARM, Arduino, Raspberry Pi, Digital Logic ICs, Various Sensors and Modules ○ CAD Software: Altium Designer, LibreCAD, Proteus ○ Operation Systems: Linux Ubuntu, Microsoft Windows, FreeRTOS ○ Simulators: Gazebo, V-rep ○ Other: Git, CUDA, MATLAB and Simulink, LaTeX, Microsoft Office, Microsoft SQL Server, Microsoft Project, Agile Scrum
TECHNICAL PRESENTATIONS	<ul style="list-style-type: none"> ○ Real-time operation systems, IUT, Department of ECE, 2015 (Presentation file) ○ Robot Gestures Make Difficult Tasks Easier, , IUT, Department of ECE, 2015 ○ Software Engineering for embedded systems, IUT, Department of ECE, 2015 ○ Introduction to Reinforcement learning, IUT, Department of ECE, 2015 ○ Robotic Competitions, opportunities, and challenges, IUT, Department of Mechanical Engineering, 2014
TEACHING EXPERIENCE	<ul style="list-style-type: none"> ○ Teaching Assistant, Advanced Programming, IUT, Department of ECE - Fall 2014, Spring 2014 ○ Laboratory Instructor, Advanced Programming (C++), IUT, Department of ECE - Spring 2014, Fall 2015 ○ Workshop Instructor, PCB Design workshop, IUT, Department of Electrical and Computer Engineering – 2015 ○ Workshop Instructor, ROS & Gazebo workshop, IUT, Department of Mechanical Engineering – 2015, 2016 ○ Robotic Tutor, Robotics tutor in Professor Hessabi student research center, 2014. (details)

VOLUNTEER EXPERIENCES	<ul style="list-style-type: none">Member of Computer&IT engineering Student Scientific Association at the Department of Electrical and Computer Engineering for two consecutive years: 2014 and 2015.Free Discussion Moderator, Held and moderated Azerbaijani free discussion sessions for about one year at Isfahan University of Technology, 2013.			
LANGUAGE SKILLS	<ul style="list-style-type: none">English: Full Professional ProficiencyPersian: Native	<ul style="list-style-type: none">Azerbaijani: Native (Bilingual Proficiency)Turkish: Minimum Professional Proficiency		
RELATED ACADEMIC COURSES	<ul style="list-style-type: none">Engineering Mathematics 20/20Artificial Intelligence 17.5/20Design and Analysis of Algorithms 18.8/20Human Computer Interaction 19.4/20Embedded Systems Design 20/20Microprocessors 20/20	<ul style="list-style-type: none">Computer Networks 17.5/20Digital System Design 18.3/20IT Project Management 20/20E-Commerce 19.2/20Industrial Management & Economics 18.8/20		
UNOFFICIAL ATTENDANCE COURSES	<ul style="list-style-type: none">Signals and SystemsAutomatic ControlLinear Algebra	<ul style="list-style-type: none">Fundamentals of Image ProcessingMechanics of Robotic SystemsFundamentals of Management		
HOBBIES	Travelling, Swimming, Hiking, Public Speaking, Music			
REFERENCES	Available upon request.			