Mohammad Mehdi Bahmani

curriculum vitæ

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Research Interests:	➢ **Design and Developing,** Automation and Robotics, Electric Vehicles, Robot Delivery, Air Taxi and Flying Cars, Mechatronics, Hardware Development, Renewable Energy	
Work Experience:	➢ **RoboSky Lab Ltd.**	Dec 2021 – Aug 2024
	• Address: Tehran, Iran.	
	• Position: Hardware Team Lead	
	• Responsibilities:	
	1. Manage and control activities in multi-functional areas.	
	2. Ensure appropriate operational planning is effectively executed to meet specifications	
	3. Engage in technical discussions with mechanical and firmware engineers	
	4. Manage the team and assist team members with their career planning and daily technical challenges	
	5. Keep up-to-date with the latest technologies and selecting the right components to solve given problems.	
	6. Collaborate with the team to identify the best technological solutions	
	7. Actively participate in planning meetings	
	8. Moving designs and optimizing BOMs from development to manufacturing	
	• Position: Electronic Specialist	Jan 2020 – Dec 2021
	• Responsibilities:	
	1. Designing various dc-dc converters in a wide range of power and switching frequencies.	
	2. Developing data logger systems to monitor system's vital stats, storing on a cool disk while sending them off on wireless link simultaneously.	
	3. Developing an android app to receive and save data logger data.	
	4. Designing high frequency PCBs featuring Raspberry Pi compute module and ARM co-processor	
	5. Designing evaluation PCBs for new electronics components and performing standard test procedures	
	6. Performing operational testing procedures for electronics systems	
	7. Setting up laboratory test equipment and composing test scenarios	
	8. Assembling data and assisting in the upkeep of documentation	
	• Position: Firmware Developer	Jul 2019 – Jan 2020
	• Responsibilities:	
	1. Making some tweaks and improvements on existing communications over CAN and making automatic filtering	
	2. Developing digital data logging system	
	3. Designing a new file transfer protocol over CAN to reprogram the main board using boot-loader system	
	4. Performing code reviews	
	5. Writing and maintaining firmware documentation	
	6. Testing firmware releases	
	7. Maintaining stable firmware	
	➢ **Rahnegar Hooshmand Iranian**	Sep 2017 – Jun 2019
	• Address: Tehran, Iran	
	• Position: Electronics Engineer	
	• Responsibilities:	
	1. Collaborated with a team in designing and programming a GPS-based positioning system with 3G network connectivity utilizing ARM micro	

controller. Developed OTA update infrastructure using FTP connection on the system.
   2. Designed and manufactured a small passive data logger system using SD card or Flash memory to store debug info of the system to use in debug process
   3. Developed a dynamic encryption algorithm on raw data to make TCP connections more secure
   4. Upgraded telemetry data protocol to use MQTT instead of TCP/IP to reduce server side process and increase efficiency also increasing compatibility with IoT platform
   5. Making a complete documentation of system and several user manuals for troubleshooting

➢ **Auto Mechanic Engineering Group (AMEG)**   Dec 2015 – Sep 2017
   • Address: Tehran, Iran
   • Position: Electronics Engineer
   • Responsibilities:
   1. Analogue design including power drivers and switching power supplies,
   2. Digital design including designing and manufacturing micro controller based intelligent systems including circuit design, programming, performing simulations and providing embedded PCB compatible with car ECU
   3. Design and manufacturing automobile suspension test stand and implementing a variety of sensors on it to monitor and test different parts
   4. Analogue design including power drivers and switching power supplies.

➢ **Iran Aircraft Manufacturing Industries Co.**   May 2014 – Oct 2014
   • Address: Shahinshahr, Iran
   • Position: Intern
   • Responsibilities:
   1. Collaborated with a team on developing a PLC-based control system and designing a desktop GUI for the controller.
   2. Design and manufacturing of a microcontroller based system for an educational projects with various communications including RS232 and CAN.

Education:	**University of Tehran**, Tehran, Iran M.Sc. in Mechatronics Engineering **Thesis:** Design and manufacturing of a continuum manipulator for suitable interaction with dynamic environment **GPA:** 16.98	2014-2017
	University of Isfahan, Isfahan, Iran B.Sc. in Electrical Engineering (3rd rank graduate in the department) **Thesis:** Performance Evaluation and Analysis of IR-HARQ-based Error Recovery Techniques on The IEEE 802.11 Protocol **GPA:** 17.38	2010-2014
Language Proficiency:	➢ **Farsi: Native** ➢ **English: Working Proficiency** TOEFL iBT Score: (27-29-19-24) 99 ➢ **Deutsch: Intermediate**	Fall 2015
Projects Experiences:	➢ **Design and Simulation of an 8-bit CPU** Collaborated with a team on designing and simulation of an 8-bit CPU based on Von Neumann architecture consist of a set of arithmetic, logic, memory access and I/O instructions; provided with built-in memory and I/O blocks. I simulated the whole system in Proteus Design Suit and tested it using specific binary language designed for it.	Fall 2012
	➢ **Design and Implementation of an Accurate Step Motor Controller System** Implemented an ARM-based system with a matrix keypad as user input and a character LCD as output to drive a step motor in two modes of speed and state	Spring 2014

control. Getting current feedback to ensure smooth movement and avoiding stall.

	➢ **Development of a Wireless Communication System Using Bluetooth Module** Collaborated with a team on developing a wireless communication system for controlling a DC motor using wireless link over a Bluetooth module.	Spring 2014
	➢ **Design, Simulation and Implementation of a 3DoF Articulated Robotic Arm** Collaborated with a team on designing and implementation of the robotic arm and making Windows-based software with graphical interface for controlling the end-effector position.	Fall 2014
	➢ **Design and Simulation of a Multi-Layer Perceptron(MLP) Neural Network(NN) for Separating 4 Different Gas Types** Designed a MLP network trained with thermal data of 4 gases and then perform successful simulation of network separating them.	Fall 2014
	➢ **Design and Development of a Bio Inspired Steerable Robot Actuated by Shape Memory Alloy Springs** Collaborated with a classmate on developing a steerable robot platform using only SMA actuators with a high power to weight ratio able to transfer up to 5 times its weight.	Spring 2015
	➢ **Obstacle-Avoiding Mobile Robot** Developed an obstacle-avoiding robot equipped with ultrasonic sensors to detect and maneuver around obstacles in its path. This project demonstrated my proficiency in sensor integration and autonomous navigation algorithms.	Spring 2016
Skills:	➢ Skills: 1. Analog Design: amplifier, pulse generator and power electronic circuit design 2. Microcontroller-based systems: design, simulation and implementation 3. PCB Designing up to 8 layer stack up (Altium designer) 4. Problem-solving and ability to create new solutions 5. C# programming in Microsoft Visual Studio environment 6. C/C++ programming on ARM based processors utilizing STM32 CubeIDE, Keil uVision 7. Version Control Systems (Git, SVN) 8. Management and leadership	
Published Papers:	➢ A. Hadi, **Mohammad Mehdi Bahmani**, M. Davari "Developing a bio inspired steerable robot actuated by shape memory alloy springs," IEEE *Int. Conf. Robotics and Mechatronics*, Tehran, Iran, Oct. 2015	Fall 2015
Honor and Awards:	➢ Top 1% Iranian University Entrance Exam (Konkour) ➢ Best Artistic Achievement Award, issued by Biotechnology Committee of Iran Science and Technology Vice Presidency, awarded for "GeneCraft" a videogame designed and developed by our team for biotechnology committee game jam. ➢ Technical Achievement Nominee, issued by Biotechnology Committee of Iran Science and Technology Vice Presidency, awarded for "GeneCraft" a videogame designed and developed by our team for biotechnology committee game jam.	Sep 2010 Oct 2017 Oct 2017
Licenses and Certifications:	➢ Certificate of Completion – Java Course , issued by sololearn ➢ Certificate of Completion – SQL Fundamentals , issued by sololearn ➢ Certificate of Completion – C# Course , issued by sololearn	Jul 2019 May 2018 Sep 2016
Teaching Experiences:	➢ Teaching Assistant, Logical Circuits ➢ Teaching Assistant, Computer Architecture and Organization ➢ Teaching Assistant, Microprocessors ➢ Teaching Assistant, Mechatronics	Fall 2012 Fall 2013, Spring 2014 Fall 2013, Spring 2014 Fall 2015
Reference:	➢ Available upon request	