Curriculum Vitae

Abolfazl Mohammadijoo

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Date of Birth: 16 Sept 1984

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Academic Background

- ✓ **Iran University of Science and Technology,** Tehran, IRAN (3rd Best University of IRAN)
  M.S.c in Mechanical Engineering (Focused on Control & Robotic) , (Sept. 2007 – Aug. 2010)

- ✓ **Sharif University of Technology,** Tehran, Iran (**Best** Technological University in IRAN)
  B.S.c in Mechanical Engineering & Marine Engineering , (Sept. 2002 – Sept. 2007)

Current Occupation

I am freelance lecturer and Instructor for below topics in institutions and private companies: "Machine Learning", "Data Science", "DevOps", "Deep Learning" and "Artificial Intelligence" and its programming languages and libraries.

I also create programming video lectures in my online store (https://abolfazlm.com) and its preview versions is available at my YouTube channel:

https://youtube.com/@abolfazlmohammadijoo

Main Knowledges

- Robotic Engineering **(Including Mobile Robots, Mobile Manipulators, Cooperative Robots, Parallel Robots → Knowledge and Skill level: 5 0ut of 5)**
- Control Engineering **(Including Nonlinear Control Methods, Modern Control, Fuzzy Control, Optimal Control, Adaptive Control, Digital Control → Knowledge and Skill level: 5 0ut of 5)**
- Artificial Intelligence **(Including Machine Learning, Neural Networks, Deep Learning, Reinforcement Learning, Computer Vision, Natural Language Processing → Knowledge and Skill level: 5 0ut of 5)**

- Data Science **(Including Probability and Statistics → Knowledge and Skill level: 5 0ut of 5)**

PUBLICATION

1. "Trajectory Tracking of a 2-Link Mobile Manipulator Using Sliding Mode Control Method", World Academy of Science, Engineering and Technology, International Journal of Mechanical and Mechatronics Engineering, Vol:17, No:5, 2023
2. "Design and Hydrodynamic Modeling of Testbed SUT-1 Autonomous Underwater Vehicle", 10th IRAN National Marine Industries Conference, Abadan & Khoramshahr, IRAN, 28-30 Oct 2008 **(in Farsi Language)**
3. "Sliding Mode Control Implementation of SUT-1 Autonomous Underwater Vehicle", 11th IRAN National Marine Industries Conference, Kish Island, IRAN, 16-18 Nov 2009 **(in Farsi Language)**

My Engineering & Science Courses:

Moreover, than my **Bachelor** and **Master Degrees** in **Mechanical Engineering** and **Robotics Engineering**, I have knowledge in some other fields. I briefly mentioned the courses I learned through self-learning and online universities, in below. For more details, please take a look at: https://mohammadijoo.com/Courses

Control / Robotic Engineering

1- Advanced Robotics
2- Nonlinear System Analysis
3- Nonlinear Control
4- System Dynamics
5- Fuzzy Systems and Fuzzy Control
6- Modern Control
7- Digital Control
8- Robot Operating System (ROS)
9- Adaptive Control
10- Optimal Control

Artificial Intelligence:

1- Neural Networks
2- Machine Learning
3- Deep Learning

4- Computer Vision
5- Convolutional Neural Networks
6- Reinforcement Learning

Computer Engineering:

1- Automata
2- Data Structures
3- Discrete Mathematics and Discrete Structures
4- Algorithm Design
5- Introduction to Databases
6- Hardware Software Interface (Computer Organization)
7- Computer Networks 1
8- Computer Networks 2
9- Advanced Programming Languages
10- Microprocessor & Microcontrollers
11- Compiler Design
12- Introductory Computer Architecture
13- Advanced Computer Architecture
14- Operating Systems
15- Software Engineering 1
16- Software Engineering 2
17- Design and Implementation of Programming Languages
17- Assembly Programming Language

Electrical Engineering:

1- Basic Circuit Theory 1
2- Basic Circuit Theory 2
3- Logical Circuits
4- Engineering Statics and Probability
5- Signal and System Analysis
6- Engineering Electromagnetism
7- Linear Control Systems
8- Electronic 1
9- Electronic 2
10- Electrical Machine 1
11- Electrical Machine 2
12- Communication System 1 (Analog Communication)
13- Communication System 2 (Digital Communication)
14- Microprocessor & Microcontrollers

15- Digital Systems 1
16- Wireless Telecommunication Systems
17- Coding Theory

Physics:

1- General Physics 3
2- General Physics 4 (Modern Physics)
3- Mathematical Physics 1
4- Thermodynamics and Statistical Physics 1
5- Thermodynamics and Statistical Physics 2
6- Analytical Mechanics 1
7- Analytical Mechanics 2
8- Electromagnetism 1
9- Electromagnetism 2
10- Quantum Mechanics 1
11- Quantum Mechanics 2

Chemistry:

1- General Chemistry 1
2- General Chemistry 2

Mathematics:

1- Introduction to Mathematical Analysis
2- Probability 1
3- Linear Algebra

Metaheuristics Optimization Algorithms:

1- Genetic Algorithm
2- Invasive Weed Optimization (IWO)
3- Imperialist Competitive Algorithm (ICA)

Embedded Systems:

1- AVR Microcontrollers
2- Arduino Boards
3- Raspberry Pi

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Programming & Software Development Knowledge

- **Data Science:** Full Stack **R** Developer, Scientific Computing and Data Science (NumPy, SciPy, Matplotlib, Pandas) **(R / Pandas level: Expert → 5 0ut of 5)**
- **Machine Learning Frameworks:** Scikit-Learn, R programming **(Machine Learning level: Full Stack Engineer → 5 0ut of 5)**
- **C# Package:** OOP, Windows Form, WPF, WCF, ADO.Net, Entity Framework **(C# level: Expert → 4 0ut of 5)**
- **C++ Package:** OOP, GUI with C++ Qt, Image Processing with OpenCV, Deep Learning with Caffe **(C, C++ level: Expert → 4 0ut of 5)**
- **Python Package:** OOP, GUI (TKinter, PyQt, GTK, WxPython), Working with database (MySQL, Access, Sqlite3), PyGame **(Python level: Full Stack Developer → 5 0ut of 5)**
- **Java Package:** OOP, GUI with JavaFX, Database with Hibernate and Oracle Databases **(Java level: Expert → 4 0ut of 5)**
- **Deep Learning Frameworks:** TensorFlow, PyTorch, Caffe 2, Theano **(Deep Learning level: Full Stack Engineer → 5 0ut of 5)**
- **Image Processing and Computer Vision Frameworks:** OpenCV (python, C++, Java) and Deep Learning Frameworks with TensorFlow and PyTorch **(Computer Vision level: Full Stack Engineer → 5 0ut of 5)**
- **Natural Language Processing:** NLP framework of Python **(NLP level: Expert → 4 0ut of 5)**
- **Other Programming Languages:** Ruby (OOP) / Rust / GoLang / Scala (OOP) / Julia / Perl / Assembly / Objective-C **(Other Programming Languages level: Advanced → 4 0ut of 5)**
- **Databases Package:** **RDMS** (MySQL, SQL Server, SQLite) / **NoSQL** (Json, XML, Xpath, Apache Cassandra, MongoDB) **(Database level: Expert → 4 0ut of 5)**
- **Cloud Computing Services:** Microsoft Azure, Amazon Web Services (AWS) **(Cloud Computing Services level: Expert → 4 0ut of 5)**
- **DevOps:** Git, Docker, Kubernetes, Maven, Jenkins, Ansible, Robot Framework, Selenium **(DevOps level: Advanced → 4 0ut of 5)**
- **Big Data:** Apache Hadoop, Apache Hive, Apache Pig, Impala, HBase, Apache Kafka

(Big Data level: Advanced → 3 0ut of 5)

General Software Knowledge

- **Engineering:** Solidworks, SolidCAM, COMSOL, Matlab, Simulink, Mathematica, LaTeX, Proteus, CodeVision AVR, Arduino IDE
- **Industrial Automation:** FluidSim, LabView, SIMATIC STEP 7 (PLC)

Professional & Industrial Working Experiences

Freelance Software/Web Developer, ML/AI Lecturer, Data Scientist

Tehran, IRAN (July 2013 – Now)

My Projects:

1- Software Developer & "AI / ML / Data Science" Engineer (From Aug 2014 - Recent)

Key Responsibilities:

- **Participating in about 100 "Data Science" / "Machine Learning" / "Deep Learning" projects (including graduate students projects of universities around the world)**
- Teaching "Machine Learning", "Deep Learning", "Computer Vision", "NLP", "Neural Net" and "Data Science", for institutions and organizations and grad students
- Teaching Python (introductory, OOP, PyQt, Tkinter, WxPython, PyGTK and etc) for individuals, institutions and organizations (+ some intermediate level projects)
- Teaching ".Net framework" for institutions and organizations and tutoring Programming Languages like C, C++, C#, Java and JavaScript (+ some intermediate level projects)
- Designing a control software for laboratory AUV via C#
- Designing an Managing software for an Educational Institution in Tehran via C++ Qt

2- Frontend-Backend Developer (From Feb 2015 - Recent)

Key Responsibilities:

- Teaching "Web Development Package" including HTML, CSS, Bootstrap, JavaScript, JQuery, Ajax, MySql, PHP, Laravel, WordPress, Node.Js, and MongoDB for institutions and organizations and Individuals
- Web Design, SEO Services and E-Commerce Solutions for Companies and individuals based on freelancing contracts
- My Website Development Examples:
  https://mohammadijoo.com
  https://mohammadijoo.com/blog

https://abolfazlm.com
https://programmer-club.ir
https://devops-learn.ir
https://pythonclub.ir
https://aspclub.ir
https://django3.ir
https://tutorial-shop.ir

3- Research engineer of "Control of a mobile manipulator via Neural Network and Machine Vision Project" (6 Months)

Key Responsibilities:

- CAD Design of mobile manipulator via SolidWorks
- Control Design with Matlab & Simulink (Neural Network toolbox)
- Software Development for communication and image processing with on-board cameras with C# and Python

Freelance Researcher (Buffalo, NY & Los Angeles, CA) USA , (Sept 2011 – May 2013)

Research Topics:

- Participating in Some small Projects in below fields:
- CAD Design with SolidWorks and SolidCAM / Artificial Intelligence and Control System Design / Autonomous Underwater Robots, parallel robots and cooperative robots / AVR Microcontrollers

Research Assistant, Project Manager at Marine Research Center of Sharif University of Technology Tehran, Iran (2007-2010)

Key Responsibilities:

- CAD Design and Manufacturing of an Autonomous Underwater Vehicle (AUV)
- Software development for sensors data acquisition and remotely control of underwater robot using Matlab GUI & C#
- Nonlinear Controller design for AUV & Hydrodynamic modelling and CFD simulation of AUV
- Project Manager of 1st National Unmanned Remote Control Boats Competition

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LANGUAGE PROFICIENCY:

1- **Persian (Farsi):** Native

2- **English:** Like Bilingual

3- **French & German & Arabic:** Basic

CERTIFICATIONS:

No	*Certification Title*	*Certificatory Institution*	*Date*
1	PROJECT MANAGEMENT (based on PMBOK 2004)	Sharif University of Technology Alumni Association	Dec 2008
2	MODERN INDUSTRIAL PNEUMATICS	FESTO	Aug 2016
3	ADVANCED PNEUMATICS	FESTO	Sept 2016
4	MODERN INDUSTRIAL HYDRAULICS	FESTO	Sept 2016
5	MASTERING MOBILE HYDRAULICS	FESTO	Sept 2016
6	PROPORTIONAL HYDRAULICS	FESTO	Oct 2016
7	MAINTENANCE AND TROUBLES SHOOTING OF HYDRAULICS SYSTEM	FESTO	Oct 2016
8	PRINCIPLES OF INDUSTRIAL MEASUREMENT AND INSTRUMENTATION	FESTO	Oct 2016
9	BASIC PRINCIPLES OF SENSOR TECHNOLOGY FOR PROFESSIONAL TRAINING	FESTO	Oct 2016
10	BASIC PROGRAMMING OF PLCs	FESTO	Sept 2016