

Ahmad Amirivojdan

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Education

- ❖ **Master of Science** in Artificial Intelligence and Robotics, Islamic Azad University – Shahre-Qods Branch, Tehran, Iran, Sep. 2016– Sep. 2020. **GPA: 17.89/20**
Thesis Topic: *An image processing approach for detection of Saffron flower using histogram of oriented gradients features and support vector machine classifier*
Supervisor: Dr. Mahdi Mazinani
- ❖ **Bachelor of Science** in Computer Hardware Engineering, Islamic Azad University – Parand Branch, Tehran, Iran, Sep. 2010– Jan. 2016. **GPA: 14.95/20**
Thesis Topic: *Design and development of a software platform for a Soccer Robot*
Supervisor: Dr. Ali Khayati

Research Interests

- ❖ Deep Learning
- ❖ Image Processing
- ❖ Computer Vision
- ❖ Medical Image Analysis
- ❖ Applied Machine Learning
- ❖ Action Recognition

Publications

- ❖ A Fast and Accurate In-Field Vision System to Detect Saffron Flower under Diurnal Illumination Fluctuations (In prep)

HONORS & AWARDS

- ❖ **1st Place Award**, Soccer Robot **Teen-Size** League, IranOpen International Robotic Competition, Parand Robotic Research Center, Parand Islamic Azad University, 2013
- ❖ **3rd Place Award**, Soccer Robot **Teen-Size** League, **Robocup Brazil**, Parand Robotic Research Center, Parand Islamic Azad University, 2014. ([link](#))
- ❖ **1st Place Award**, Soccer Robot **Kid-Size** League, IranOpen International Robotic Competition, Parand Robotic Research Center, Parand Islamic Azad University, 2015
- ❖ **1st Place Award**, Soccer Robot **Teen-Size** League, IranOpen International Robotic Competition, Parand Robotic Research Center, Parand Islamic Azad University, 2015
- ❖ **1st Place Award**, Soccer Robot **Teen-Size** League, **Robocup China**, Parand Robotic Research Center, Parand Islamic Azad University, 2015. ([link](#))
- ❖ **2st Place Award**, Soccer Robot **Teen-Size** League, IranOpen International Robotic Competition, Parand Robotic Research Center, Parand Islamic Azad University, 2016
- ❖ **Awarded as an exceptionally talented student for 4 consecutive years (2011-2015)**, Islamic Azad University, Parand Branch
- ❖ **Awarded Scholarship from Young Researchers and Elite Club**, Islamic Azad University

Research Experiences

- ❖ **Parand Robotic Research Center, Islamic Azad University Parand Branch, Tehran, Iran.** (Jan 2012 – Apr 2016)
 - **Soccer Robot ([demo](#))**

I was appointed to design and implement a robot software, including motion engine, image processing, perception, and the robot's behavioral layer. This experience gradually made me adept in performance optimization, software design, and implementation coordination. Furthermore, it gave me the chance to improve my problem-solving ability and teamwork. My main contributions included:

 - Development of a software platform, specific to a Soccer Robots
 - Extensively designed and developed multi-threaded functionalities including walk engine, active balancing, image processing and perception, I/O, and behavior
 - Proactively identify bottlenecks and make efficiency enhancements to existing applications
 - Develop high accuracy Inertia Measurement Unit on an Atmega32 microcontroller
 - Collaborate with mechanical team members to implement the desired walking engine
 - Developed a fast ball detection and tracking method using EmguCv library
 - Developed Dynamixel communication protocol on a serial-based interface both on microcontroller using Ateml Studio and C, and the client interface using C# and .Net Framework

Teaching Experiences

- ❖ Teaching Assistant, Introduction to Programming, Fall 2012, Dr. Saeed Shiri Ghidary
- ❖ Teaching Assistant, Advanced Topics in Programming, Spring 2013, Dr. Saeed Shiri Ghidary
 - Reviewed lessons and answered students' questions and provided corrective feedback during regular office hours
 - Worked closely with the teacher to identify issues students are having and developed appropriate solutions
 - Assisted with classroom instruction and provided support and guidance to students

Language Proficiency

- ❖ TOEFL iBT: **105** (Reading 30, Listening 30, Speaking 21, Writing 24)
- ❖ GRE: Scheduled for **Dec 08, 2020**

Certifications

- ❖ [Introduction to Deep Learning, Kaggle](#)
- ❖ [Machine Learning ,Andrew Ng, Stanford University, Coursera](#)
- ❖ [Agile Software Development, ETH Zurich, edX](#)
- ❖ [Introduction to Programming Using Python, Kaggle](#)
- ❖ [How to Write and Publish a Scientific Paper, Ecole Polytechnique,Coursera](#)
- ❖ [Introduction to Machine Learning, Kaggle](#)
- ❖ 3rd International Spring School for Soccer Robots 2014, Tehran, Iran
- ❖ ASP.NET Core – Advanced, Microsoft Virtual Academy, Dec 2018
- ❖ Certificate of Participation in ARAIF2012 Soccer Robots league, Tehran, Iran

Professional Experiences

❖ **Freelance Software Developer, Tehran, Iran.** (Apr 2014 – Present)

Designed and developed several website and desktop projects with hundred percent customer satisfaction.

- Work closely with other developers to design and develop quality APIs using Microsoft .Net 4.5
- Framework, ASP.Net MVC, C#, Entity Framework
- Develop, maintain and support web application projects in one or more applications using Angular, Bootstrap, JavaScript, CSS, HTML
- Provide accurate estimates and timings to project managers
- Developed authentication scheme using JSON Web Token technology
- Offer suggestions to improve processes and evaluate alternative technologies to help completing tasks on time
- Optimized web APIs to transfer minimal data needed and improved performance
- Apply continuous improvement to ensure best possible performance, quality and responsiveness
- Design and development of data layer using Entity Framework Code First
- Implemented image compression to improve user experience
- Implemented file uploading functionality using Microsoft Azure Storage Service
- Work with business team to design and develop universal weighting system for waste management department based on .Net Framework and Sql Server.
- Propose and develop innovative solutions with a view to automate the processes as much as possible
- Share knowledge and provide technical assistance to other team members within areas of expertise
- Developing data layer using Entity Framework Code First
- Synchronize each station database with the main server using Microsoft Sync Framework
- Extract accurate reports using LINQ queries and generate report by Stimul report

Key Technologies: C#, .Net, Entity Framework, Stimul Report, LINQ, Sync Framework, Visual Studio 2012, ASP.Net MVC, Azure, SQL Server 2014, JWT, Angular, Bootstrap, JavaScript, query, CSS, HTML, Visual Studio 2015

Open Source Projects

❖ [Saffron Detect](#)

A Fast and Accurate In-Field Vision System to Detect Saffron Flower under Diurnal Illumination Fluctuations

❖ [Dynamixel Communication Protocol](#)

Dynamixel communication protocol and firmware implementation on Atmega32 microcontroller.

❖ [AIL.NET - Artificial Intelligence Laboratory](#)

A bunch of tiny projects launched to clarify a concept including different interpolations methods, RANSAC line detection, Ramer Douglas Peucker line simplification, several clustering approaches, etc.

❖ [Pro-Imu](#)

Open Source IMU module containing hardware schematics and design, Atmega32 firmware, C# class libraries, configurator software and 3D simulator which is completely compatible with Dynamixel communication protocol. Mahony & Madgwick algorithm is used as sensor fusion filter.

Skills & Expertise

- ❖ Languages: C/C++, C#, Python
- ❖ Frameworks & Libs: .Net, Scikit-Learn, PyTorch, Keras, OpenCV
- ❖ Hardware: AVR Family, Raspberry Pi, Arduino, Altium Designer, Proteus
- ❖ Tools: Git, LaTeX, Octave

References

- ❖ Available Upon Request