
Aref Moqadam Mehr

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As of August 2016

EDUCATION

Qazvin Azad University (QIAU) - 2011-2016

Bachelor's Degree of Science in Software Engineering

- Ranked among top 6 in entrance exam in more than 500 participants.
- Project: Soccer Field Object Detection using Convolutional Neural Network

National Organization for Development of Exceptional Talents (NODET) - 2004-2011

High School - Diploma in Mathematics and Physics Discipline

- Admitted over thousand of applicants.
- GPA: 16.60/20

WORKING EXPERIENCES

Nao¹ Biped Lab.², QIAU - Team Leader

Since November 2015

- Managing team of 15 working on Nao biped robots in order to participate in RoboCup Competition.

Negar Affarin Barajin (NAB³), Tehran, Iran- Chief Technology Officer

Since October 2015

- Creating 3D model from 2D images/videos.
- Managing a team of 5 on development and maintenance of To3D.net website and engine.

QGrid Lab., QIAU - Development Team Member

2013 - 2015

- QGrid is a grid computing project based on BOINC⁴ platform and producing 10 TFlops computational power.
- Searching over 15 framework available for Grid and Cluster processing.
- Implementation of BOINC on about 100 computers to recycle the dead time of office computers.

Nao Biped Lab., QIAU - Computer Vision Team

Since November 2011

- Working in a team of 12 on biped robot vision in order to detect objects on a standard soccer field.

¹ Aldebaran Nao Robot : <http://www.aldebaran.com/en/humanoid-robot/nao-robot>

² <http://mrl-spl.ir/>

³ <http://to3d.net/>

⁴ Berkeley Open Infrastructure for Network Computing

SELECTED PROJECTS

Shifting Organizational Culture and a Democratic Adaptation of Agile Software Engineering Paradigms for Research - Mechatronics Research Laboratories⁵, QIAU -- 2016

- Adapting a combination of SCRUM and XP software development processes and team management systems for Research Labs and implementing it in Nao Biped Lab. which later followed by other MRL Labs.
- Designing a human resource management and recruiting framework for Nao Biped Lab.

To3D.Net - NAB, SRC.Systems -- 2015

- Implementing an automatic engine to create 3D models from sets of images/videos of an object at any scale using photogrammetry techniques.
- Developing a website for offering the mentioned service publicly.

Soccer Field Object Recognition - Nao biped Lab., QIAU -- 2015

- Detecting every object in a soccer field such as goal posts, field and lines, robots, and ball utilizing machine learning.
- Implementation of detection module for a VGA camera for real-time application in tight computation constraints.
- Designing a Convolutional Neural Network to recognize objects in a dynamic environment, independent from lighting.

Green SRC - SRC.Systems -- 2015

- This project makes buildings more intelligent so that they can interact more with the individuals and be more energy efficient.
- The system learns the human reactions, preferences and behavior and tries to manipulate environment parameters according to these information..

Overt Visual Attention Control in Soccer - Nao biped Lab., QIAU -- 2014

- Calculating of the best direction to look/go based on previous observations

Environment Modeling in a Soccer Game - Nao biped Lab., QIAU -- 2013

- Estimation, filtering and tracking position and prediction of detected objects.
- Constructing a model of the world by Bayesian approaches like particle filter.
- Track robot self location using particle filter algorithms.

Semi-Automatic Sensor Calibration - Nao biped Lab., QIAU -- 2012

- Calibration of camera and gyro sensor displacement using Gauss-Newton optimization method. Calibrations are used for determining the object's position.

HONORS AND AWARDS

Recipient of Scholarship from QIAU

Since 2011.

Technical Committee of RoboCup Iran Open

Since 2015

Make it up to Quarter Final in World RoboCup Championship

Standard Platform League, João Pessoa, 2014

⁵ <http://mrl.ir/>

3rd place of RoboCup German Open

Standard Platform League, Magdeburg, 2014.

1st place of RoboCup Iran Open

Standard Platform League, Tehran, 2012, 2013, 2014.

Participating to World RoboCup Championship

Standard Platform League, since 2012.

SELECTED PUBLICATION

- **Overt Visual Attention Control for Humanoid Robots**, (in preparation).
- **Aref Moqadam Mehr**, et al. **MRL-SPL 2016 Team Description Paper (TDP)**, RoboCup 2016 Leipzig, Germany.
- **Aref Moqadam Mehr**, Novin Shahroudi. **A Debugger Tool for Vision on Humanoid Framework**. Iran Open 2013 5th International Symposium - IEEE indexed. April - 2013
- Majid Lashgarian, Mohammad Shafiei R. N., Mohammad Ali Zakeri Harandi, **Aref Moqadam Mehr**, et al. , **MRL-SPL 2013 Team Description Paper (TDP)**, RoboCup 2013 Eindhoven, Netherlands.
- Ehsan Hashemi, Maani Ghaffari Jadidi, Mostafa Yaghobi, **Aref Moqadam Mehr**, et al. , **MRL-SPL Code Release and Team Report**

TALKS

An Efficient Graph-Based Image Segmentation

Qazvin Islamic Azad University - 2015

Scrum Software Engineering

Qazvin Islamic Azad University - 2014

Active Vision and Head motion

Iran Open Innovation Challenge - 2014

Object Oriented Analysis and Design

Qazvin Islamic Azad University - 2014

A Debugger Tool for Vision on Humanoid Framework

Iran Open Symposium - 2013

SKILLS

Natural Languages: Persian (Native), English(Very Fluent), Spanish (Beginner), German, Turkish

Social Skills: Human Resource Management, Executive Planning, Working with variant personalities, Interviewing applicants.

Methodologies: Machine Learning (SVM, NN, ConvNet, Bayesian Filters), Photogrammetry, Grid Based Searches, Swarm Optimization, Gradient Descent

Programming Languages: C/C++ (expert), MATLAB (expert), PHP, C#, Python, Shell Script, MySQL

Technologies & Libraries: V4L, V4L2, BOINC, OpenGL, OpenMVG, OpenCV, OpenMP, OpenCL

SDK/API: BOINC, Qt SDK, .Net, Android SDK

IDE/Applications: MATLAB, GDB, Subversion, Git, Eclipse, Qt Creator, Visual Studio, Vim, Android Studio

REFERENCES

Omid AmirGhiasvand, Managing Director of Research Centers, QIAU, amirghiasvand@qiau.ac.ir