

# SOHEIL KHATIBI

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## EDUCATION

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**BSc in Computer Software Engineering** 2016 - Expected 2020

Department of Computer Engineering, Qazvin Azad University, Qazvin, Iran

- Project title: Using teammates' observations in decision-making process for a humanoid soccer robot.  
Grade: 20/20  
Supervisor: Dr. Majid Gholipour
- GPA : 17.76/20 [3.71/4] (ranked first in my graduating class)
- Best Undergraduate Researchers Scholarship. (during the whole BSc)
- Win 15% tuition fee discount Scholarship toward best student. (in 4 semesters during BSc)

**Pre-University in Mathematics and Physics** 2015 - 2016

Sampad Qazvin (NODET), Qazvin, Iran

- Sampad Qazvin is the branch Pre-University of the NODET (National Organization for Development of Exceptional Talents)
- Admittance is only possible by NODET's entrance exam

**High School Diploma in Mathematics and Physics** 2012 - 2015

Sampad Qazvin (NODET), Qazvin, Iran

- Sampad Qazvin is the branch highschool of the NODET (National Organization for Development of Exceptional Talents)
- Admittance is only possible by NODET's entrance exam

## AWARDS & HONORS

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**MRL-HSL, RoboCup Asia Pacific 2019 - Moscow, Russia.** Nov 2019

- 2<sup>nd</sup> place of International Humanoid Kid Size Robot League

**MRL-HSL, RoboCup 2019 - Sydney, Australia.** July 2019

- 1<sup>st</sup> place of International Humanoid Teen Size Robot League
- 1<sup>st</sup> place of International Humanoid Teen Size Drop-In Challenge
- 2<sup>nd</sup> place of International Humanoid Teen Size Technical Challenge
- 3<sup>rd</sup> place of International Humanoid Teen Size Best Humanoid Robots

**MRL-HSL, RoboCup Asia Pacific 2018 - Kish Island, Iran.** Dec 2018

- 1<sup>st</sup> place of International Humanoid Kid Size Robot League
- 1<sup>st</sup> place of International Humanoid Kid Size Technical Challenge
- 1<sup>st</sup> place of International Humanoid Teen Size Robot League
- 1<sup>st</sup> place of International Humanoid Teen Size Technical Challenge

**MRL-HSL, RoboCup 2018 - Montreal, Canada.** Jun 2018

- 2<sup>nd</sup> place of International Humanoid Kid Size Robot League
- 3<sup>rd</sup> place of International Humanoid Kid Size Drop-In Challenge
- 2<sup>nd</sup> place of International Humanoid Teen Size Robot League
- 3<sup>rd</sup> place of International Humanoid Teen Size Technical Challenge

- 1<sup>st</sup> place of International Humanoid Teen Size Drop-In Challenge

#### **MRL-HSL, IranOpen Competitions - Tehran, Iran.**

Mar 2018

- 1<sup>st</sup> place of International Humanoid Kid Size Robot
- 1<sup>st</sup> place of International Humanoid Teen Size Robot

#### **MRL-HSL, RoboCup Asia Pacific 2017 - Bangkok, Thailand.**

Dec 2017

- 1<sup>st</sup> place of International Humanoid Kid Size Robot League
- 1<sup>st</sup> place of International Humanoid Kid Size Technical Challenge
- 1<sup>st</sup> place of International Humanoid Kid Size Drop-In Challenge

#### **MRL-HSL Kid size team, RoboCup 2017 - Nagoya, Japan.**

Jul 2017

- 1<sup>st</sup> place of International Humanoid Kid Size Technical challenge

#### **MRL-HSL Kid size team, IranOpen Competitions - Tehran, Iran.**

Mar 2017

- 2<sup>nd</sup> place of International Humanoid Kid Size Robot

### **RESEARCH INTERESTS**

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- **Reinforcement Learning**
- **Artificial Intelligence**
- **Robotics**
- **Machine Learning**

### **PUBLICATIONS**

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- **Soheil Khatibi**, Meisam Teimouri, and Mahdi Rezaei. “Real-time Active Vision for a Humanoid Soccer Robot Using Deep Reinforcement Learning”. In: *Proceedings of 13th International Conference on Agents and Artificial Intelligence (ICAART 2021)*. 2021 [Link](#)
- Hamed Mahmudi, Amir Gholami, Mohammad Hossein Delavaran, Saeid Bazargan, **Soheil Khatibi**, Milad Moradi, Abolfazl Ashayeri, Arash Rahmani, Mohammad Soroush Mehrtash, Kazem Firouzmandi Bandpey, Peyman Fallahzadeh, and Meisam Teimouri. “MRL kid-size humanoid robots software description paper 2020”. In: *Proceedings of the 23rd International RoboCup Symposium*. Bordeaux, France, 2020 [Link](#)
- Hamed Mahmudi, Amir Gholami, Mohammad Hossein Delavaran, Saeid Bazargan, **Soheil Khatibi**, Milad Moradi, Abolfazl Ashayeri, Arash Rahmani, Mohammad Soroush Mehrtash, Maryam Abbasi, and Peyman Fallahzadeh. “MRL Team Extended Abstract for Humanoid KidSize League of RoboCup 2020”. In: *Proceedings of the 23rd International RoboCup Symposium*. Bordeaux, France, 2020 [Link](#)
- Hamed Mahmudi, Amir Gholami, Mohammad Hossein Delavaran, **Soheil Khatibi**, Saeid Bazargan, Milad Moradi, Bita Alaei, Arash Rahmani, Kazem Firouzmandi Bandpey, Peyman Fallahzadeh, et al. “MRL Champion Team Paper in Humanoid TeenSize League of RoboCup 2019”. In: *Robot World Cup*. Springer. 2019, pp. 553–564 [Link](#)
- Hamed Mahmoudi, Alireza Fatehi, Amir Gholami, Mohammad Hossein Delavaran, **Soheil Khatibi**, Bita Alaei, Saeed Tafazol, Maryam Abbasi, Mona Yeghane Doust, Asal Jafari, et al. “MRL Team Description Paper for Humanoid KidSize League of RoboCup 2019”. In: *Proceedings of the 22nd International RoboCup Symposium*. Sydney, Australia, 2019 [Link](#)
- Meisam Teimouri, Alireza Fatehi, Hamed Mahmoudi, **Soheil Khatibi**, Alireza Mohafezatkar, Bita Alaei, Saeed Tafazol, Saeed Bazargan, Alireza Karimi, and Mohammad Rahmani. “MRL Team Description Paper for Humanoid TeenSize League of RoboCup 2018”. In: *Proceedings of the 21st International RoboCup Symposium*. Montreal, Canada, 2018 [Link](#)

## ACADEMIC PROJECTS

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**Design & set up a ROS-based System Architecture for a Humanoid Robot.** In this project we aim to design a system in which our humanoid robot software and hardware modules can operate in an efficient way using ROS. (Robot Operating System) 2020

**Online Walking & Kicking Policies for a Humanoid Robot Using Deep Reinforcement Learning.** In this project we aim to train policies for kicking and walking using policy gradients methods. (especially Proximal Policy Optimization algorithm) 2020

**Online & Continuous Active Vision Head Control for a Humanoid Robot Using Deep Reinforcement Learning.** This project is to continue [this paper](#)'s research and aims to control the robots head in a cluttered and dynamic environment with cutting edge Deep Reinforcement Learning. 2020

**Real-time Active Vision for a Humanoid Soccer Robot Using Deep Reinforcement Learning.** Design an active vision system for a humanoid soccer robot using DDQN + PER. The project led to a paper which can be found [here](#). 2020

**MRL Humanoid Robot Simulation.** In this project I simulated the humanoid robot in a soccer field using Webots simulator. 2019

**Implementation of Self-localization model using Unscented Kalman Filter.** In this project I implemented the self-localization system of MRL humanoid robot in c++ using Unscented Kalman Filter. Note that it was previously implemented in Lua Script language and my job was to revise and transform it to c++. 2019

**Ball Modeling.** Develop a ball modeling and tracking system for a humanoid soccer robot using a linear Kalman Filter implemented in c++ using armadillo library. 2019

**Team Ball Search.** This project was aimed to design a system for searching the ball in a humanoid soccer robot team. The project was inspired by [this paper](#). 2018

**Developing Game Strategies for soccer-playing robots.** This project was aimed to develop defensive and offensive strategies for a humanoid soccer robot team with the maximum of 4 players. 2018

## PROFESSIONAL EXPERIENCE

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**Team Leader of Software Group, MRL Humanoid Robots Lab** Jul 2020 - present

**Team Leader of Behavior Subgroup, MRL Humanoid Robots Lab** Jul 2018 - present

**Software developer, MRL Humanoid Robots Lab** Jul 2016 - present

## EXTRA-CURRICULAR ACTIVITIES AND PRESENTATIONS

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- **Presenter, Real-time Active Vision for a Humanoid Soccer Robot Using Deep Reinforcement Learning** Feb 2021  
Oral Presentation of the conference paper with the same title in ICAART conference. (The paper was accepted for a 20-minute oral presentation)
- **Presenter, Introduction to morphological Image Processing, Qazvin Azad University** Apr 2020  
Course title: Computer Vision, under the supervision of Dr. Amir Masud Eftekhari-Moghadam
- **Presenter, Applications of Reinforcement Learning in Robotics, Qazvin Azad University** Jan 2019  
Course title: Technical Presentation & Research methods, under the supervision of Dr. Amir Masud Eftekhari-Moghadam
- **Presenter, Introduction to convolutional neural networks, Qazvin Azad University** Sep 2018  
Course title: Artificial Intelligence & robotics, under the supervision of Dr. Babak Karasfi

- **Presenter, Methods for Unsupervised Learning(K-Means & E-M algorithms), Qazvin Azad University** Apr 2018  
Course title: English Language for students of Computer Engineering, under the supervision of Dr. Mahdi Rezaei

## RELEVANT SKILLS

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- **Programming Languages:** Python, C/C++, Java, Lua, MatLab.
- **Other:** Tensorflow, NumPy, SciPy, Scikit-learn, Pandas, OpenCV, Keras, PyTorch, ROS, Webots Simulator, PyBullet(familiar), L<sup>A</sup>T<sub>E</sub>X.

## CERTIFICATES

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- **Certificate of Deep Reinforcement Learning in Loop Academy** Oct 2019
- **Certificate of Tensorflow & Pytorch from Part college** Sep 2018
- **Deep Learning Summer School 2018 in Univrsity of Tehran** Aug 2018

## MEMBERSHIPS

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- **Institute for Systems and Technologies of Information, Control and Communication (INSTICC)** Nov 2020 - present
- **Young Researchers and Elite Club** Jul 2017 - present
- **Mechatronic Research Laboratory (MRL)** Oct 2016 - present
- **National Organization for Development of Exceptional Talents (Nodet)** Sep 2012 - Sep 2016

## LANGUAGES

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- **Persian (Mother tongue)**
- **English (IELTS to be taken soon)**

## REFERENCES

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- **Dr. Mahdi Rezaei**, Institute for Transport Studies, University of Leeds, Leeds, UK. E-mail: [M.Rezaei@leeds.ac.uk](mailto:M.Rezaei@leeds.ac.uk)
- **Dr. Mohammad Norouzi**, Faculty of Electrical, Computer and IT Engineering, Mechatronic Research Laboratory, QIAU (Mechatronics Research Laboratory Director). E-mail: [norouzi@qiau.ac.ir](mailto:norouzi@qiau.ac.ir)
- **Dr. Majid Gholipour**, Faculty of Electrical, Computer and IT Engineering, Mechatronic Research Laboratory, QIAU (BCs Project Supervisor). E-mail: [gholipour@qiau.ac.ir](mailto:gholipour@qiau.ac.ir)
- **Dr. Babak Karasfi**, Faculty of Electrical, Computer and IT Engineering, Mechatronic Research Laboratory, QIAU. E-mail: [karasfi@qiau.ac.ir](mailto:karasfi@qiau.ac.ir)