Bita Alaee Majelan

alaee.bita98@gmail.com • +98 (937) 732-8666 • ResearchGate • LinkedIn • GitHub

EDUCATION

Qazvin Islamic Azad University, Qazvin, Iran

- **B.Sc., Robotics Engineering** 2016 – 2021
  - Overall GPA: 3.10/4
  - Thesis title: Biped Robot Model-Based Control
  - Supervisor: Dr.Ahmad Fakharian

RESEARCH EXPERIENCE

Mechatronics Research Laboratory, Humanoid Soccer League

- Team Leader of Electronic Group Nov 2018 – Nov 2019
  - Supervisor: Dr Mohammad Norouzi
  - Focus: Circuit Analysis, PCB Design, Embedded Systems control.
- Electronic Researcher Oct 2016 – Aug 2020
  - Dr Mohammad Norouzi

RESEARCH INTERESTS

- Embedded Systems Design
- Integrated Circuit Design
- Motor Control Systems and Design
- Platform Humanoid Robotics Design
- Simulation and Control Electronic Systems

PUBLICATIONS

CONFERENCES

2019

Mahmudi, H., Gholami, A., Delavaran, M.H., Khatibi, S., Bazargan, S., Moradi, M., Alaee, B., Rahmani, A., Firouzmandi Bandpey, K., Fallahzadeh, P., Teimouri, M. (2019). MRL Champion Team Paper in Humanoid TeenSize League of RoboCup 2019. In: Chalup S., Niemueller T., Suthakorn J., Williams MA. (eds) RoboCup 2019: Robot World Cup XXIII. RoboCup 2019. Lecture Notes in Computer Science, vol 11531. Springer, Cham

Mahmoudi, H., Fatehi, A., Gholami, A., Delavaran, M. H., Khatibi, S., Alaee, B., Tafazol, S., Abbasi, M., Yeghane Doust, M., Jafari, A., and Teimouri, M. (2019). MRL-HSL Team Description Paper for Humanoid KidSize League of RoboCup 2019. In Proceedings of the 22nd International RoboCup Symposium. Sydney, Australia.

2018

Teimouri, M., Fatehi, A., Mahmoudi, H., Khatibi, S., Mohafezatkar, A., Alaee, B., Tafazol, S., Bazargan, S.,Karimi, A.,and Rahmani A. (2018). MRL-HSL TeenSize Team Description Paper for Humanoid KidSize League of RoboCup 2018. In Proceedings of the 21st International RoboCup Symposium, Montreal, Canada.

PROJECTS

- **Test Wireless Communication Between servo motors**, MRL-HSL Laboratory 2020
  We decided to connect the data lines between the dynamic servo motors of our robots through an NRF24l01 module to compare the speed and accuracy of the transmitted data with the wired method.
- **Servo Motor Driver Circuit Design**, MRL-HSL Laboratory 2018-2020
  The goal of this project was to design a low cost and customized new servo motor for our Teen-size Robots actuators. In the first place, we learned what type of motor and gears we need. Next, we use Altium Designer software to design a prototype and we used an ARM STM32F103 as the main processing unit, combined with a MOSFET H-bridge and feedback sensors like current sensor and Encoder.
- **Implement PID Controller on Servo Motor**, MRL-HSL Laboratory 2019
  The feedback loop consists of sensors which enables the control algorithm to control motors position, speed and also torque. For this purpose, a closed loop system is designed using MATLAB with angle feedback from the encoder of the motor. This feedback has an important role in accuracy of the controller. With the comparison between the desired angle and feedback angle, the driver motor acts as a position controller.
- **Bulk-boost Converter Circuit Redesign**, MRL-HSL Laboratory 2019
  This project was for having efficient power in Robot's legs to have a stable kick even when battery power is reducing and also for extending battery life.
- **Imu Calibration**, MRL-HSL Laboratory 2018
  This project was for learning how to read the IMU sensor on our robot's controller board raw data's in 6 Axis(accelerometer and gyroscope) and extract them as Dynamixel standard packets.
- **Switch Battery Power Supply Circuit Design**, MRL-HSL Laboratory 2017
  This project was one of my first-year learning projects for improving my Altium skill and learn how to use power components like MOSFET.

AWARDS

- 1st place of Humanoid Teen Size Robot League,RoboCup 2019 -Sydney,Australia. 2019
- 2nd place of Humanoid Kid Size Robot League,RoboCup 2018 - Montreal,Canada. 2018
- 2nd place of Humanoid Teen Size Robot League,RoboCup 2018 - Montreal,Canada. 2018
- 1st place of Humanoid Kid Size Robot League,RoboCup Asia Pacific 2018-Kish Island,Iran. 2018
- 1st place of Humanoid Teen Size Robot League,RoboCup Asia Pacific 2018-Kish Island,Iran. 2018
- 1st place of International Humanoid Kid Size Robot IranOpen Competitions -Tehran,Iran 2018
- 1st place of International Humanoid Teen Size Robot IranOpen Competitions -Tehran,Iran 2018
- 1st place of International Humanoid Kid Size Technical challenge,RoboCup 2017 -Nagoya, Japan. 2017
- 2nd place of International Humanoid Kid Size Robot IranOpen Competitions -Tehran,Iran 2017
- Research Scholarship in Humanoid robots Lab, MRL, Qazvin, Iran. 2017 – 2020
  Half-tuition scholarship for undergraduate studies.

TALKS & PRESENTATION

A Review On Vision-based Control Algorithms, Qazvin Islamic Azad University

- Presenter 2021
  - A presentation about how vision-based control algorithms work on robot motion. This lecture review both position-based and image-based methods for visual servo control, presenting the basic derivations and concepts and describing a few of the performance problems faced by each also MATLAB project about this topic. I got a complete score for the lecture in my course.

Introduction to Twin Rotor Systems, Qazvin Islamic Azad University

- Presenter 2021
  - This lecture was an introduction to Twin Rotor MIMO System kinematics, modeling, and simulation for my "Robotic Lab" course. Also, getting familiar with the basic mathematical model and simulate it with MATLAB/Simulink.

A Review On Servo Motor Design, Qazvin Islamic Azad University

- Speaker 2018
  - This presentation was review about designing a customize servo motor and choosing the most suitable type of gear for that, Also for convincing the team leaders to achieve the "Servo motor design" project.

LANGUAGES

- English: IELTS Test will be taken soon. (Upper-Intermediate)
- Persian: Native Language.
- Azeri: Second Language. (Fluent)

SKILLS

Social Skills
Strong teamwork, Quick learner and highly self-motivated, Executive Planning

Methodologies
Control System Design, Embedded System Design, Simulation Digital circuits, Humanoid Robotics

Programming Languages
Embedded C, MATLAB, Python(familiar)

Tools & Software
Altium Designe, MATLAB(Simulink), Proteus, Micro Vision Keil(ARM), CodeVision(AVR), Code Blocks, STM32cubeMX, Advanced Design System(ADS), Git, LaTeX

Embedded Systems/Platforms
Robotis BIOLOID

MEMBERSHIPS

- Mechatronic Research Laboratory (MRL) 2016 – 2020
- RoboCup Competition Humanoid League Referee Team 2018 – 2019
- Provincial High-school Volleyball Team 2013 – 2014

INTERESTS & HOBBIES

Volleyball, Traveling, Rock Music.

REFERENCES

- **Dr Mohammad Norouzi**
  Assistant Professor and Director at MRL(Mechatronics Research Laboratory)
  Qazvin Islamic Azad University, Qazvin
  norouzi@qiau.ac.ir
- **Dr Ahmad Fakharian**
  Associate Professor, IEEE Senior Member
  Qazvin Islamic Azad University, Qazvin
  ahmad.fakharian@qiau.ac.ir
- **Dr Amir Hossein Hassanabadi**
  Assistant Professor
  Qazvin Islamic Azad University, Qazvin
  a.hassanabadi@aut.ac.ir