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RESEARCH INTERESTS

Software Engineering	Cloud Computing, Distributed Computing, Software Analysis
Artificial Intelligence	Deep Learning, Reinforcement Learning
Human-Computer Interaction	VR/AR, Wearable and Haptic Technologies

EDUCATION

March 2020 Sep 2015	B.Sc., COMPUTER ENGINEERING Iran University of Science and Technology ‣ Ranked 3 rd among all Iranian universities. ^a ‣ Supervisor : Prof. Mohammad Reza Jahed-Motlagh. <small>^a. Based on The QS World University Rankings 2020</small>	GPA : 17.32/20 (3.72/4.0)
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PROFESSIONAL EXPERIENCE

Present May 2018	Software Engineer, INFORMATICS SERVICES CORPORATION (ISC), Tehran, Iran ‣ Development of core services of the Central Bank of Iran (CBI) . Member of Central Securities Depository (CSD) and Iranian Instant Payment (IIP) projects. ‣ Back-End development mainly via Spring Boot and Spring frameworks. Developed services based on microservice and monolithic architectures. ‣ Implemented microservice patterns including : Saga Transaction pattern, API Gateway using Zuul, Redis Sentinel for high-availability, and messaging/streaming using Apache Kafka and IBM MQ for the CSD project. ‣ Developed Socket.IO client based on Spring Boot for standard communication between customer banks and the central bank of Iran for the IIP project. ‣ Dashboard monitoring and management applications development via Angular framework. Developed a terminal for real-time communication between angular application and server's command line using WebSocket and Xterm.js for the IIP project. ‣ Containerized applications using Docker and used Jenkins for CI/CD .
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RESEARCH AND TEACHING EXPERIENCE

Feb 2020 June 2016	Research Assistant, BIO-INSPIRED SYSTEM DESIGN LAB Supervisor : Prof. Soroush Sadeghnejad Amirkabir University of Technology ‣ Research and Development on humanoid robots and Iranian standard-platform robot (KIARASH). ‣ Design and Implementation a method for predicting rolling ball's trajectory based on K-NN regression and Auto Regression for Robocup's roll and kick challenge in real and ROS simulator (Gazebo) environments. ‣ Developed Motion Editor application for monitoring Herkulex servo motors and motion generation based on pre-defined sequences using Python, PyQt, and Arduino . ‣ Developed Walk Tuner and Offset Tuner applications for walking calibration based on PyQt and Arduino . ‣ Modulation, development, and code migration to the ROS platform.
June 2014 Oct 2013	Research Assistant, ROBOTICS LAB Supervisor : Prof. Mohsen Bahrami Amirkabir University of Technology ‣ Research on Q-Learning method for humanoid robots ball catching approach. ‣ Implementation of stand-up motion for teen-size humanoid robot based on ROS platform.

Spring 2019	Teaching Assistant, OPERATING SYSTEMS COURSE Instructor : Prof. Reza Entezari	Iran University of Science and Technology
Spring 2016	Teaching Assistant, ADVANCED COMPUTER PROGRAMMING COURSE Instructor : Prof. Adel Rahmani	Iran University of Science and Technology
Fall 2016	Teaching Assistant, FOUNDATIONS OF COMPUTER AND PROGRAMMING COURSE Instructor : Prof. Adel Rahmani	Iran University of Science and Technology

PUBLICATIONS

- 2019 Y. Mirmohammad, Sh. Khorsandi, M. N. Shahsavari, B. Yazdankhoo, S. Sadeghnejad. **"Ball Path Prediction for Humanoid Robots : Combination of k-NN Regression and Autoregression Methods"**, The International Conference on Robotics and Mechatronics (ICROM), 2019, Tehran, Iran. ([PDF](#))
- 2017 S. Ramezani, A. Setayeshi, N. Pourmohammadi, A. Arvand, P. Yarahmadi, F. Fallah, Sh. Khorsandi, S. Sadeghnejad. **"AUTMan Humanoid Kid Size Team Description Paper"**. The International Robocup 2017 Humanoid Robot League, Nagoya, Japan. ([PDF](#))
- 2014 M. Tamiz, E. Bararian, T. A. Shangari, M. Karimi, et al. **"AUT-UofM Humanoid TeenSize Team Description Paper"**. The International Robocup 2014 Humanoid TeenSize Robot League, João Pessoa, Brazil. ([PDF](#))

HONORS AND AWARDS

- 2018 **Technical Committee** Member of Humanoid Robots League, International AUTCup 2018, Tehran, Iran.
- 2017 **Ranked 3rd** in Humanoid TeenSize Soccer League as a member of AUTMan Team of Amirkabir University of Technology, International Robocup 2017, Nagoya, Japan.
- 2017 **Ranked 3rd** in Humanoid TeenSize Soccer League Technical Challenge as a member of AUTMan Team of Amirkabir University of Technology, International Robocup 2017, Nagoya, Japan.
- 2016 **Technical Committee** Member in Humanoid Robots League, International AUTCup 2016, Tehran, Iran.
- 2016 **Ranked 1st** in Humanoid Robots Olympics League as a member of AUTMan Team of Amirkabir University of Technology, International AUTCup 2016, Tehran, Iran.
- 2016 **Ranked 2nd** in Humanoid Robots Olympics League Technical Challenge as a member of AUTMan Team of Amirkabir University of Technology, International AUTCup 2016, Tehran, Iran.
- 2015 **Ranked the top 0.5%** among near 200,000 participants in the "National Universities Entrance Exam" in Mathematics & Physics (2015).
- 2014 **Ranked 1st** in Humanoid TeenSize Soccer League Technical Challenge as a member of AUT-UofM, Joint Team of Amirkabir University of Technology and University of Manitoba, International Robocup 2014, Joao Pessoa, Brazil.
- 2013 **Ranked 1st** in Humanoid Soccer League as a member of AUTMan Team of Amirkabir University of Technology, International AUTCup 2013, Tehran, Iran.
- 2012 **Ranked 2nd** in Urban Robots League as a member of High-Tech Team, International ARAIF 2012, Tehran, Iran.

SKILLS

Programming Language	Proficient in : Java, Python, C/C++, Typescript Familiar with : Go, Swift, Dart, Javascript
Machine Learning	Tensorflow, Keras, Scikit-Learn
Framework	Spring Boot (Java), Spring (Java), Django (Python), Beego (Go), Angular
DevOps	Docker, Kubernetes, Jenkins
Tools/Hardware	Apache Kafka, IBM MQ, Redis, Arduino
Robotics	Software Platform : ROS Robot Platform : NAO, TurtleBot
Operating System	macOS, Linux, Windows

LANGUAGES

English	IELTS Academic : 7.5 (Listening : 7.5, Reading : 9, Writing : 6.5, Speaking : 6.5) GRE : Quantitative (168), Analytical Writing (4.0)
Persian (Farsi)	Native

SELECTED INDUSTRIAL PROJECTS

CENTRAL SECURITIES DEPOSITORY (CSD) V2

MAY 2020 - PRESENT

A new version of Central Bank of Iran's CSD system. Implementing back-end services with Spring Boot framework. Designing and implementing a new management and monitoring dashboard with Angular framework. Monolithic architecture is used.

Java Typescript Spring Boot Angular Apache Kafka Docker

IRANIAN INSTANT PAYMENT (IIP)

AUGUST 2019 - PRESENT

IIP is Central Bank of Iran's newest inter-bank payment system. IIP services are available all-around-the clock and should result in the immediate or close to immediate crediting of the Beneficiary's account. Implemented based on the microservice architecture.

Java Typescript Spring Boot Spring Cloud Config Angular Xterm.js Socket.IO Secure-Shell Docker

CENTRAL SECURITIES DEPOSITORY (CSD) V1

AUGUST 2018 - AUGUST 2019

Central Bank of Iran's service for providing inter-bank security market and communication with Tehran Exchange Market. Implemented based on microservice architecture using Spring Boot framework.

Java Typescript Spring Boot Angular Apache Kafka IBM MQ Redis Docker Microservices

SELECTED ACADEMIC PROJECTS

2D PUZZLE GAME WITH HAND GESTURE RECOGNITION

FALL 2019

 github.com/abradat/coco-unity

A 2D puzzle game written in Unity. OpenCV framework is used for recognizing user's hand gesture and solving puzzles of the game.

C# Python OpenCV Unity

BALL TRAJECTORY PREDICTOR

SUMMER 2019 - FALL 2019

 github.com/abradat/ball-trajectory-predictor

Implemented the predictor based on the combination of k-NN Regression and Autoregression methods. Data is captured in real and simulator environments based on ROS platform and exported as CSV files.

Python Numpy ROS Gazebo

S&P STOCK INDEX PREDICTOR

FALL 2017

 github.com/abradat/stock-prediction  [Technical Report \(Persian\)](#)

Implemented the prediction of S&P index by feed forward neural networks based on the Tensorflow framework.

Python Tensorflow Numpy

BOXING WITH Q-LEARNING

FALL 2017

 github.com/abradat/boxing-qlearning

Implemented an agent learns how to box based on Reinforcement Learning. It is implemented in two phases. In the first phase, Naive Q-Learning is used. Then, the Deep-Q Network for improving the performance as the second phase.

Python Tnesorflow Q-Learning Deep Q Network Reinforcement Learning

*For a more comprehensive list of my projects please visit my [website](#) or [Github](#).

REFERENCES

Soroush Sadeghnejad

Assistant Professor

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