Sadra **Khanjari**

Electrical Engineer · Sofware Engineer

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Summary

I'm an Electrical Engineer with a strong self-taught background in software development, eager to work in machine learning, data science, full-stack development, and robotics. I possess strong problem-solving skills, a fast-learning mindset, and valuable teamwork experience from my role as the Lead AI and Robotics Instructor. I've also developed solid programming expertise through contributing to open-source projects. With knowledge of Python, C++, C, HTML, CSS, and JavaScript, I'm excited to join a team where I can apply my skills and continue learning from others.

Education

SUT(Sharif Universisty of Technology)

Tehran, Iran

B.S. in Electrical Engineering and Engineering — *2021 -*

- Teaching Assistant - Object Oriented Programming - Dr Bijan Vosoughi Vahdat
- Teaching Assistant - Computer Design - Dr Mohamad Reza Movahedin
- Teaching Assistant - Logic Circuits - Dr Mahdi Shabany
- Teaching Assistant - Parallel Programming - Dr Matin Hashemi

Work Experience

AERT Research Team

Tehran , Iran

Lead AI and Robotics Instructor — *July. 2021 - June. 2024*

- Leading the AI and robotics department.
- Teaching AI algorithms and programming using Soccer Simulation 2D.

Nimad Cloud Processing

Tehran, Iran

IT Specialist — *August . 2023 - February . 2024*

- Managed the company's cloud infrastructure.
- Provided technical support to the team.
- Confifured and maintained the company's servers.
- Developed and implemented Ansible scripts to automate the configuration of cloud servers based on customer orders.
- Set up and configured company computers, including Windows installation and software setup for optimal performance and security.

IranOpen Robotics Competition

Tehran, Iran

Technical Committee Member — *May.2022 - Present*

- Contributed to the development of a workshop.rcss.ir aimed at helping individuals in Iran learn about soccer simulation 2D leauge of robocup.
- Assisted in organizing the 2D Soccer Simulation League Competition.
- Created instructional videos and written materials to enhance the learning experience for students in soccer simulation.
- Assisted in creating the StarterAgent2D-V2 base, serving as a foundational base for students to participate in the 2D Soccer Simulation League.

Academic and Independent Work

Tehran,Iran

Software Developer (Self-Taught) — *2021 - Present*

- Assisted in developing the CLSFramework, a framework for 2D soccer simulation that enables participants to compete in the league using programming languages other than C++
- Developed a Java-based social media application similar to Twitter as an object-oriented programming project for students.
- Developed an oscilloscope simulation function as a project for an electrical circuits course aimed at enhancing student understanding.
- Collaborated on the PCGPT project, which integrates Procedural Content Generation Reinforcement Learning (PCGRL) and Discrete Transformers to enhance automated content generation in games, allowing for dynamic and unique gameplay experiences.
- Designed and implemented a calculator using Assembly language on a PIC32 microcontroller as part of a Computer & Microprocessor Architecture project.
- Developed a signal processing system on the Zynq 7000 platform. Various waveforms were generated in the Programmable Logic (PL) section. On the PL side, the signals were unscrambled analyzed using FFT, and displayed on a screen via HDMI, showing both the signal and its frequency spectrum.

Honors & Awards

International

2024	**2nd Place**, Robocup - Soccer Simulation2D League	*Eindhoven, Netherland*
2024	**1st Place**, IranOpen Robocup - Soccer Simulation2D League	*Tehran, Iran*
2023	**1st Place**, IranOpen Robocup - Soccer Simulation2D League	*Tehran, Iran*
2022	**3rd Place**, Robocup - Soccer Simulation2D League - Cooperation Challenge	*Bangkok, Thailand*
2021	**Ranked 92nd**, out of +165,000 undergraduate applicants in the National Universities Entrance Exams	*Tehran, Iran*
2019	**3rd Place**, One Idea One world - Biomedical Engineering leauge	*Tehran, Iran*

Publications

Observation Denoising in CYRUS Soccer Simulation 2D Team For RoboCup 2024

Nader Zare, Aref Sayareh, Sadra Khanjari, Arad Firouzkouhi

- Abstract : In the Soccer Simulation 2D environment, accurate observation is crucial for effective decision making. However, challenges such as partial observation and noisy data can hinder performance. To address these issues, we propose a denoising algorithm that leverages predictive modeling and intersection analysis to enhance the accuracy of observations. Our approach aims to mitigate the impact of noise and partial data, leading to improved gameplay performance. This paper presents the framework, implementation, and preliminary results of our algorithm, demonstrating its potential in refining observations in Soccer Simulation 2D. Cyrus 2D Team is using a combination of Helios, Gliders, and Cyrus base codes.

PYRUS 2023 Team Description Paper

Reza Aghayari, Sadra Khanjari

- Abstract : The RoboCup competition is a global event in which teams compete in various robotic challenges, with the ultimate goal of creating autonomous robots that can play soccer against each other. One of these challenges is the Soccer Simulation 2D game, where teams develop algorithms to control virtual soccer players in a simulated twodimensional environment. Our team's work focuses on developing advanced algorithms for marking, blocking, shooting, dribbling, and other soccer-related behaviors that work collaboratively to create effective team strategies and tactics for winning matches in the Soccer Simulation 2D game. We have conducted rigorous testing and experimentation to optimize our algorithms, improving our team's performance and increasing our chances of success in the competition. Our research in this area has the potential to advance the development of autonomous robotic systems and intelligent machines capable of performing complex tasks.

Tehran2D Team Description Paper

Sadra Khanjari

- Abstract : Soccer Simulation 2D is one of the most popular and participated leagues of RoboCup, A yearly competition where soccer is used as a subject for research and challenge. In this paper we will show the research and developments of Tehran2D, by implementing a block algorithm and researching what other teams have been working on.

Skills

Programming Languages:	Python, C++, C, CUDA, Java, CSS, HTML, Javascript , Verilog , Assembely
Data Base	MySQL
Machine Learning Frameworks	Keras, Tesnorflow, Stable Baselines3, Pandas, Numpy
OS	Ubuntu, Windoes
Technologies and Frameworks	Django, Git, GitLAB, Docker, Svelte, RabbitMQ, Ansible, Arduino, Raspberry pi
Integrated development environment (IDE)	VSCode, Pycharm, CLion, Qt Creator, MATLAB