

Ashkan Rahdar

Electrical Engineer

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Education

- 2019-2024 **Sharif University of Technology**, *Bs in Electrical Engineering*, Control system major
- 2018-2019 **Young Scholars Club**, *International Physics Olympiad Prepretion, ranked among the top 10 participants in the National Physics Olympiad. in 2018, Gold medal*

Research interests

- Healthcare devices
- Bio-IoT, AIoT
- Wearable electronics
- Signal processing and Fusion

Publications

- IEEE Paper Rahimi H., Moradi A., **Rahdar A.**, Fotowat-Ahmady A., Akbar F., "Sleep Apnea Detection Using a Wearable Device", *IEEE Transactions on biomedical circuits and systems* (Under review)
- IEEE conference Samadi N., **Rahdar A.**, Abedin E., Khalaj B., "Edge MLOps Framework Enabling On-device Training", *IEEE International Conference on Machine Learning for Communication and Networking* (Under review)

Research Experience

- WEAVIC Lab **Sleep Apnea Detection Using a Wearable Device**, *Research Assistant*, (Feb2023 – Oct2023)
Contributed to the signal processing of a wearable device, leveraging audio, accelerometer, gyro, PPG, and SpO2 data for sleep apnea detection. Achieved a 94% accelerometer reliability and 85% sound accuracy in apnea detection using the CFAR algorithm, with a 93.4% success rate in hypopnea and apnea detection through data fusion.
- SSEC Lab **Implementation of Edge MLOps**, *Research Assistant*, (Feb 2023– March 2024), B.Sc. Thesis
I led the development of 'Edge MLOps,' overseeing its architecture. This AIoT platform seamlessly integrates IoT data handling, training, deployment, and monitoring. Notably, we added on-device machine learning focusing on semi-supervised techniques, enhancing its capabilities. My role included designing server-side components (notably, implementing RabbitMQ queue protocol), UI/UX, edge client, and back-end.
- WEAVIC Lab **CRF-Net for object detection**, *Research Assistant*, (May 2023– Dec 2023)
Implemented CRF-Net to detect objects in self-driving cars through sensor data fusion. Implement and optimize a pre-trained deep learning model on NuScenes data, achieving 55% mAP for object detection in a mini dataset and deploying it on a server.

Industry Experience

- March 2022 - Nov 2022 **Back-end IoT engineer**, *Linkap*, Tehran
- *Implementing IoT in Tehran*: Implemented IoT technologies in various projects, focusing on temperature stabilization, security improvement, and energy optimization, such as Smart houses.
 - *IoT Smart-home Application*: Created a user-friendly IoT app for remote control of home devices, leveraging Zigbee for device connectivity and MQTT for efficient communication, ensuring secure and seamless home automation.
 - *LoRaWAN-Enabled IT Support for Gateways*: Leveraged LoRaWAN technology and Linux-based environments to troubleshoot and enhance gateways and hubs, ensuring seamless communication and optimal performance for end-users.
- May 2022 - current **Full stack software Engineer**, *Freelancer*, Iran
- *Website and application designer* : Have successfully designed websites and applications, leveraging my expertise to assist clients in achieving their project goals. One notable example is [\(link\)](#)

- Dec 2018 - **Financial market analyst internship**, *Mofid Securities*, Tehran
- May 2019 •*Internship* : During my internship at Mofid Broker as a Financial Market Analyst, I gained valuable experience in analyzing the stock market. Additionally, I served as a Financial Analyst for one month, contributing to the broker's financial analysis efforts.

Independent Projects

- Dec 2018 - **Expert Advisor designer and Algorithm trader**, *Forex, Cryptocurrency*
current Passionate about the integration of Mathematical Economics and AI trading (Expert Advisors) for over years, exploring various strategies such as RTM and ICT. Actively engaged in completing SGB and FTMO challenges.
- May 2022 **Smart Cane for Enhanced Independence**, *Spark contest*, Tehran
Collaboratively designed smart cane for the Spark contest. Empowers visually impaired individuals with autonomous navigation and enhanced independence, featuring obstacle detection, collision alerts, and basic communication capabilities
- 2017 - 2023 **Research on IYPT Problems**, *IYPT*
Researched IYPT problems, independently investigating the "Magnetic Train" in 2016 and "Newton's Cradle" in 2021. Later, mentored students on their research, guiding successful projects on "Wind Speed" in 2021 and "Pancake Rotation" in 2023.

Honors & Awards

- 2023 Was selected in top 15% of the senior projects done in the academic year 2022/2023 ([link](#))
- 2023 Member of **PYPT** secretariat
- 2021 Member of coaching Iran's **IYPT** team.
- 2020 **Silver medal**, *PYPT*
- 2019 Member of Iran's national team for **IPHO** (Unable to attend due to Islamic Republic restrictions)
- 2018 **Gold medal**, *Iran National Physics Olympiad*
- 2018 Member of **Iran's National Elites Foundation**
- 2016 **Second place**, *Chemical, Beheshti University*

Additional Courses and Certifications

Courses:

- 2022 **LPIC**, *Jadi*, [Link](#)
- 2022 **Machine Learning**, *Jadi*
- 2022 **Advance Nodejs and API**, *NeonLearn*
- 2021 **RTM**, *+40 hours online course about price action technical analysis*
- 2020 **introduction to Blockchain and cryptocurrency based on Princeton**, *Jadi*
- 2020 **Digital Skills: User Experience**, *Future Learn*
- 2020 **Marketing plan and strategies**, [Aya business school](#)
- 2019 **Brand concepts and strategies**, [Aya business school](#)

Certificate:

- 2019 **Fundamentals of C/CPP/Python/JavaScript programming and algorithmic thinking**, *Quera*, [A+ Certificate](#)

Selected University Courses

- 18.8/20 **Vision and Machine Learning Laboratory**, *Shairf University*
- 15.2/20 **Convex optimization**, *Shairf University*
- 18.3/20 **Object oriented programming course**, *Shairf University*, Java
- 18.6/20 **Control Digital Laboratory course**, *Shairf University*, Matlab & Simulink
Designed a controller for Aircraft
- 19.9/20 **Python Programming Laboratory course**, *Shairf University*, Python
Implementing Python
- 19.6/20 **Linear control systems Laboratory course**, *linear control systems course*, Matlab & Simulink
Control servo motor and Water tank systems
- 17.0/20 **Introduction to digital economy**, *Shairf University*
Analyzing and evaluating digital business models of large companies in the country, including discussions with prominent entrepreneurs on enhancing these models.

Engineering Skills

Programming

- Proficient :
JavaScript / C++ / Python / C / Matlab
- Experienced :
L^AT_EX / SQL / MQL 4,5 / CSS / HTML
- Familiar :
Julia / PHP / React

Libraries &

Frameworks *jQuery / TensorFlow / Node.js / Keras / PyTorch / Scikit-learn*

IoT Tools *MQTT and Mosquitto / Zigbee / LoRaWAN*

Extracurricular Activities

- 2018-April **Physics Mentor / Teacher** , *Rahe Roshd — Allameh Heli*
2023 Passionate physics educator with three years' experience teaching Physics Olympiad at prestigious schools, mentoring 20+ students. Attained 2 Gold and 2 Silver medals during 2-year PYPT teaching at Rahe Roshd High School.
- May 2019 - **Startup Endeavors**
Nov 2020
 - An online real estate platform in Iran with blockchain transactions and VR clustering
 - A platform for traders to communicate, learn about financial markets, prevent scams, earn certificates, sell and design AI trading bots, and access tools for intelligent trading.Both ideas stayed at the concept stage due to difficulties in obtaining funding for implementation.
- May 2020 - **Network Marketer**, *PMLM*
Nov 2020 Cultivated leadership skills and embraced challenges as a Network Marketer at PMLM. Achieved Gold position in 2 months and esteemed Pearl position in 4 months, leading a successful team through effective sales strategies.