Ashkan Rahdar
Electrical Engineer

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Education

2019-current	**Sharif University of Technology**, *Bs in Electrical Engineering*, Control system major, *GPA: 3.2 / 4.0* **(In-person GPA : 3.42/4)**
2018-2019	**Young Scholars Club**, *International Physics Olympiad Prepretion*, *ranked among the top 10 participants in the National Physics Olympiad. in 2018*, Gold medal
2016-2018	**Energy High-School**, *Mathematics Diploma*, *GPA: 19.44 / 20.0*

Research interests

- Cloud computing , Edge MLOps , On-Device ML
- AIoT , Bio-IoT
- Cyber-Security and privacy
- Signal processing and Fusion

Publications

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)
IEEE Paper	Rahimi H., Moradi A., **Rahdar A.**, Fotowat-Ahmady A., Akbari F., "Sleep Apnea Detection Using a Wearable Device", *IEEE Transactions on biomedical circuits and systems* (Under review)

Research Experience

SSEC Lab	**Implementation of Edge MLOps**, *Research Assistant*, (Feb 2023– current), 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 with a focus on semi-supervised techniques, enhancing its capabilities. My role included designing server-side components, UI/UX, edge client, and back-end.
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.
WEAVIC Lab	**Camera and Radar Fusion for object detection**, *Research Assistant*, (may 2023– current) Implemented CRF-Net to detect object 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 deploy 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 factories, Bank and Also, Smart houses. Additionally, I developed and implemented the main Linknet and Linkap smart application - *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 - May 2019	**Financial market analyst internship**, *Mofid Broker*, Tehran •*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 - current	**Expert Advisor designer and Algorithm trader**, *Forex, Cryptocurrency* 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.
Oct 2022 - ongoing	**V2ray VPN Implementation with Multiple Protocols**, *Hiddify* Implemented a robust V2Ray VPN on a VPS, utilizing advanced protocols such as TCP, UDP, and Reality, along with VLESS and VMess. Configured V2Ray clients on laptops and mobile devices, ensuring seamless and secure internet access in Iran.

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 Isalmic Republic restrictions)
2018	**Gold medal**, *Iran National Physics Olympiad*
2018	Member of **Iran's National Elites Foundation**
2016	**Second place**, *Chemicar, 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**

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Selected University Courses

ongoing   **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 / Matlab / CSS / HTML
- Experienced :

C / LaTeX/ SQL / MQL 4,5
- 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 2023   **Physics Mentor / Teacher** , *Rahe Roshd — Allameh Heli*
Passionate physics educator with 3 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 - Nov 2020   **Startup Endeavors**
- An online real estate platform in Iran with blockchain transactions

- A cryptocurrency brokerage with secure Iranian wallets and investment advice.

Both ideas stayed at the concept stage due to difficulties in obtaining funding for implementation.

May 2020 - Nov 2020   **Network Marketer**, *PMLM*
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.

References

Dr. Babak Khalaj, *Associate Professor of EE at Sharif*

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