

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
- Machine Learning in Financial Markets
- Wearable electronics
- AI-Driven Signal Processing

Publications

- IEEE Paper Rahimi H., **Rahdar A.**, Moradi 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

- Center for Remote Health Technologies and Systems **Quantum Optical Coherence Tomography (QOCT) for Multilayer Tissue Imaging**, *Research Assistant*, (Jan 2025 - current), Remote Texas A&M
- Under supervision of Dr. Tofighi Zavareh, Developed a Monte Carlo and Machine Learning-based framework for Quantum Optical Coherence Tomography (QOCT) to analyze multilayer biological tissues. Modeled photon-tissue interactions with a ballistic photon approach, integrating deep learning models for layer reconstruction. Designed a numerical simulation to extract phase shifts from quantum interference patterns, optimizing QOCT for high-resolution biomedical imaging.
- WEAVIC Lab **Sleep Apnea Detection Using a Wearable Device**, *Research Assistant*, (Feb2023 – Oct2023), Sharif University of Technology
- 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, Sharif University of Technology
- 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), Sharif University of Technology
- 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

- August 2024 - current **Software Developer**, *Nosa Company*, Iran
- Developed a cloud-based ERP application using Angular for the frontend and Delphi for the backend. Designed and implemented the user interface and backend integrations, enabling users to connect their accounting and banking systems to the platform. Developed features allowing users to manage projects remotely on any device, with an AI-driven workflow assistant that suggests tasks based on a trained model.
 - Led the migration of Nosa's legacy DotNetNuke system to WordPress, utilizing MySQL Workbench Wizard, SQL Server, and IIS to optimize data integration, enhance cross-platform compatibility, and improve system performance and scalability for large-scale applications. ([Github of Project](#))
- 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 - June 2024 **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 Securities*, 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

- Sep 2024 - current **AI-Enhanced Multi-Timeframe Trading Bot with RTM & Fundamental Integration**
- developing a high-performance Expert Advisor (EA) in Python, integrating RTM strategy and ML for enhanced trading. It operates asynchronously, trades across multiple timeframes, and uses MySQL for efficient data management. A key innovation is incorporating fundamental news as a directional bias while leveraging ML and RTM for technical analysis. With a modular architecture and a Tkinter-based interface, it aims to be an accessible tool for market newcomers. The project is continuously evolving, exceeding 3000 lines of optimized code, with a focus on speed, adaptability, and intelligent decision-making.
- 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](#)

Engineering Skills

Programming

• Proficient :

Python/ Angular / JavaScript / C++ / C / Matlab / SQL

• Experienced :

LaTeX/ PHP / MQL 4,5 / CSS / HTML

• Familiar :

Julia / 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.