

Erfan Khadem

 erfan-khadem |  +98 921 575 8679 |  erfankhademerkh@gmail.com |  erfan-khadem-ab7809250 |

An Undergraduate EE Student Looking for Research Opportunities

Education



Bachelors of Science in Electrical Engineering

Sharif University of Technology

2022 - 2026

Tehran, Iran

- Optional Courses: Operating Systems Lab | Networks Lab | Cryptography | Compressed Sensing | Graphical Models
- GPA: 18.60 / 20, Top 12%
- GPA of EE Courses: 19.15 / 20, Top 8%



Highschool Diploma in Physics and Mathematics

Dastgheib 1 Highschool of Shiraz

2019 - 2022

Shiraz, Iran

- GPA: 19.75 / 20

Professional Experience



Embedded Hardware and Backend Developer

Home Automation Project at National Elites Foundation

2023

Tehran, Iran

- Worked alongside a team of computer security experts, electrical engineers and developers to build home automation appliances and smart gateways using TI's Zigbee chips and Espressif System's ESP32 and ESP8266 microcontroller series
- Technologies:
 - FreeRTOS
 - Websocket
 - Nodejs
 - Embedded Linux
 - Svelte



Fullstack Developer and Systems Administrator

Abarkelas

2022 - 2023

Tehran, Iran

- Fix bugs and improve UX at our frontend using SSR and Vue.js
- Improve monitoring and alerting for our backend systems
- Implement self-healing procedures for our backend systems
- A/B test new features to guide our product development process
- Technologies:
 - Django REST Framework
 - Vue.js
 - Docker
 - Postgres + Redis
 - Grafana + Prometheus



Fullstack Developer and Systems Administrator

Niroutrans Co.

2020 - 2022

Shiraz, Iran

- Development of an advanced monitoring system for Niroutrans' solar power plant, the biggest roof-mounted solar power plant in Iran
- Design and implement online product documentation center
- Technologies:
 - Microsoft SQL Server + Redis
 - Bootstrap 4 & 5
 - Modbus TCP
 - Protobuf
 - Nginx

Projects & Associations

Breathing Rate Detection Using WiFi Channel State Information

In the Process of Publication

2024
Demo Available on Request

- Breathing rate detection using a common off the shelf intel network card.
- Achieves an accuracy of more than 98 % even in highly congested areas.
- Runs transparently and does not disrupt the normal user activity.

Linear OptoCoupler

Electronics Lab Project

2024

- A highly linear, optically isolated analog voltage isolator using HCNR201.
- Achieves a maximum signal bandwidth of more than 1 MHz.
- Less than -70 dB THD at 1 KHz and full swing.
- PCB was designed using KiCAD.

RP2040 based Intel 8080 emulator

[erfan-khadem/rpi8080](#)

2024
[Github](#)

- Implemented a full-fledged Intel 8080 emulator on the Raspberry Pi Foundation's RP2040.
- The project has been used since Spring 2024 in the computer architecture laboratory for educational purposes.
- On-chip debugger, virtual input and output ports and accompanying PC software for ease of use.

Advanced Algorithms in Rust

[TheAlgorithms/Rust](#)

2022
[Github](#)

- Implemented advanced graph algorithms such as centroid decomposition and max-flow.
- Implemented various cryptographic algorithms including Salsa20 and HMAC.
- Improved and optimized the implementation of various algorithms like SHA256 and DSU.
- Many other big and small improvements and implementation.

SSH Anti-Censorship Tool

[SSH-liberty-bridge](#)

2023
[Github](#)

- Implemented in go with the user management component written in python.
- Has been used successfully for bypassing GFW restrictions in Iran and bringing internet freedom to the citizens.
- Integrated in Hiddify's excellent GFW bypass solution.

Certificates

- 2021
- Scientific Computing with Python, Free Code Camp
- 2021
- Javascript Algorithms and Data Structures, Free Code Camp

[view](#)
[view](#)

Skills

Languages	English Persian
Tech Stack	JS (Svelte/Vue.js) Python (Pandas/Numpy/Scipy/Django) Rust Go C/C++ (HW/FreeRTOS/Linux)
Hobbies	Chess Bicycle Electronics Mathematics