

# Sina Shiri

Python Developer & Embedded Systems Engineer

Tabriz, Iran | [info@sina-shiri.com](mailto:info@sina-shiri.com) | [sina-shiri.com](http://sina-shiri.com)

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## Professional profile

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Python developer and electronics graduate building software that connects devices, data and people. Work at IstaSanat since 2017 spans industrial monitoring, Raspberry Pi applications, desktop interfaces and computer vision. Also freelancing in hardware security research, with a focus on Python and embedded engineering roles.

## Technical expertise

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**Python software engineering:** Operator interfaces, client/server applications, event handling and data workflows.

**Embedded systems:** Hardware/software integration, embedded Linux, standalone and networked operation, RFID and camera interfaces.

**Vision and FPGA:** C++ vision prototyping, object detection and tracking; experience with Zynq, Vivado, Verilog and VHDL.

**Electronics and tools:** PCB development, sensor acquisition, Altium Designer and MATLAB.

## Professional experience

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### Python Programmer & Hardware Designer

2017–Present

*IstaSanat Engineering Company*

- Developed Python software and hardware for industrial control and monitoring applications.
- Integrated operator interfaces, device inputs and data logging in networked and standalone systems.

### Freelance Python Developer & Hardware Designer

Current

Working independently in hardware security research, alongside a background in Python development and embedded hardware integration.

## Selected engineering projects

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### Industrial Alarm Monitoring System

Embedded / industrial software

Python, Raspberry Pi, industrial monitoring, system integration

- Developed a monitoring application for a system with 40 alarm inputs and custom AC/DC input electronics.
- Implemented local and network operation, configurable alarm labels and modes, operator controls and event recording.
- Connected hardware inputs to an HDMI operator interface and a local-network web view.

## QR Scanning Appliance

Embedded / computer vision

Embedded Linux, camera integration, production workflows

- Programmed a scanning interface that retrieves part information from a local server and supports operator access to part build sheets.
- Integrated camera input, scan controls and the desktop interface; collaborated with the project's hardware designer.

## Fire & Smoke Detection Prototype

Embedded / computer vision

Computer vision, neural-network prototyping, embedded camera integration

- Explored image-processing and neural-network approaches to visual fire and smoke detection.
- Worked on dataset preparation, embedded camera integration and a monitoring interface with event handling and status display.

## RFID Attendance & Networked Polling

Embedded / data acquisition

Python, RFID integration, offline operation, client/server systems

- Built attendance workflows with offline operation, a real-time clock and USB-based employee-data updates and event export.
- Programmed client/server polling software with Raspberry Pi clients, central reporting and local storage during network interruptions.

## Education

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### B.Sc. Electrical Engineering - Electronic Technology

2013–2016

Mohajer Technical University of Isfahan, Iran

**GPA: 18.65/20**

*Thesis:* Detecting and Tracking Special Moving Objects in Public Environments on the ZYNQ platform.

### Associate Degree in Electrical Engineering

2011–2013

Tabriz Technical and Vocational University, Iran

**GPA: 17.85/20**

*Thesis:* Data Graph of Industrial Sensors in Noisy Environments without Distance Limit.

## Technical writing

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Co-author with **H. Aalamshahi** of Persian-language Raspberry Pi technical books:

- *Full Reference of Raspberry Pi*, Volumes 1 and 2 (2017).
- *Full Reference of Raspberry Pi*, second edition (2018).

## Honors & distinctions

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- **2016 – AUTCUP, third place:** Tele-Operated Deminer, team Red 2; Amirkabir University of Technology, Tehran.
- **2016 – AUTCUP, MAV participation:** Aras Robotics team; documented by the competition certificate.
- **2009–2010 – Provincial electronics recognition:** Recognised in the Scientific-Practical Competition and selected for the national stage.

## Languages

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Azerbaijani: native | Persian: bilingual

Turkish: full professional proficiency | English: professional proficiency

Language levels are self-assessed.