Mohammad Vatandoost Silab   Software Engineer

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Date of birth: 19/08/1995   Location: Tehran, Iran

Summary

I have more than 6 years of experience in Embedded, Desktop, and Back-End Software development for small and medium enterprises. I participate in all phases of the software development life cycle. I mainly work with C/C++, Qt framework, Golang, and Python. Most of my working experience is in a team, I enjoy helping my team to solve problems. You can find my cover letter at this link and Qt sample project at this link.

Experience

Software Engineer   Fanap-infra.ir
Aug 2020 – present

Fannap-infra is developing multiple Software projects. I am working in Behnama projects team. Behnama is a distributed video surveillance software (like Genetec) that run in more than 300 Pasrgad bank department. It is built on micro-service architecture.

- Architecting streaming services(RTSP, Analyzer, Recording and WebRTC services) by using GRPC, Go, C++, Python and Kafka
- Stream Enrichment: Push Analyzer service output as Metadata to Kafka
- Writing a WebRTC player backend for playing live and records. It receives commands and sends records list and metadata by WebRTC data channel – Go
- Developing Recording service for recording and playback streams - Go
- Using GRPC for communication between services – Go, C++ and Python
- Receiving RTSP(IP Camera stream) by FFmpeg library – C/C++
- Developing Transcoding service for converting and exporting media by FFmpeg – C/C++
- Creating recording file structure for minimizing head movement of HDD – Go
- Adding motion detection (by OpenCV) to analyzer service – Python
- Dockerise Stream and RTSP services
- Adding functional and integration tests by Postman

Software Engineer   3ddreams.ir
Dec 2019 – Jul 2020 (8 months)

3DDreams build the industry 3D printer Devices. I developed server and client software for the device. The server software is running in a raspberry pi inside the device and the client software is a cross platform app that run in a desktop computer.

- Building a CRUD for data by using QAbstractListModel and SQLite – C++
- Convert SLC file to SVG, and render it in real-time for showing in UV projector
- Adding unit test by GTest and GMock to client and server projects – C++
- Implementing UI of the client application by QML

- Socket programming and using Protobuf for messages structure – C++
- Using Serial Port for Communication with actuator – C++.
- Using signal-slot pattern for multi-threading communication – C++
- Using Jenkins for CI/CD

Embedded Software Engineer   raiwan.ir
Nov 2017 – OCT 2019 (2 years)

Raiwan works on designing and building IoT and industrial manufacturing and laboratory devices. I developed software for industrial devices. I designed and implemented algorithms for different use cases, such as: Oil industry, IoT, Polymer industry and civil industry.

- Receiving data from Socket at rate 96 MBit, then simultaneously Decode, Decrypt(Cryptopp library) and Mux(ffmpeg library) H.264 and audio(PCM to AAC) frames to MP4 – C/C++
- Writing a Linux USB Driver – C
- Developing software for earthquake detection - collect multiple accelerator sensors data, filter (Butterworth) data, apply FFT on data, and detect earthquake (The algorithm be designed by a professor, I implemented it) – C++
- Working with RS485 mode bus protocol in industrial devices – C++
- Developing Android app that connect to modules by BLE and OTG, It receives files and send user commands - Java
- Writing bitcoin mining farm monitoring software - Node js and C

FreeLancer
Feb 2016 – Sep 2017 (1 year and 8 months)

I worked with multiple startups to build theirs MVP products.

- Receiving sensors data in real time from serial port and plot them by QtChart – C++
- PID controller design for controlling temperature
- Preprocessing data by FFT and filters like Butterworth and averaging data chunk.
- Converting Matlab code of costumers to C++ code.
- Using UART and I2C protocol in Orange pi and Raspberry pi.
- Designing relational data base.
- Crawling websites with Selenium – Java
- Building Nurse pager with ESP8266 (Arduino firmware)

Student Researcher   KNTU Aras robotic Lab
Nov 2014 – Jan 2016 (1 year and 3 months)

KNTU Aras robotic Lab research on UGV and MAV. I designed and programmed robot's embedded system.

- ARM Microcontroller(Stm32 series) and AVR programming (Used I2C, UART, SPI, PWM, USB and ADC peripherals).
- PCB Designing of Embedded systems.
- Working with Different sensors and Electronics modules.

Education

- University of Tehran, MS, Computer Software Engineering,   (2019 - 2021) (GPA: 3.5/4)
- K. N. Toosi University of Technology , BS, Electronic Engineering, (2013 - 2018) (GPA: 3.3/4)

AWARDS

- AUT cup 2016
  Our Team achieved the second place in Rescue robots competition.
- IRAN Open 2015 robotic competition
  Our Team achieved the first place in finding land mine robots competition.
- Chess Competition
  I achieved the first place in chess competition between high schools students

Teaching

- Teaching Embedded software development course in Robotic lab of K. N. Toosi University of Technology
- Teacher assistant of Computer Network and Performance Evaluation of Computer Systems courses

Skills

- **Languages**: C, C++, Golang, Python, Bash, javascript and Java
- **Tools and Frameworks**: Qt, QML, CMake, Message Queue(Kafka), Jenkins, Git, Docker, Matlab, GNS3, Keil and STM32Cube
- **Protocols**: GRPC, RTSP, WebRTC, Protobuf, Onvif, TCP, UDP, RS485 mode bus, RS232, I2C, UART and SPI
- **DataBases**: Sqlite, Influxdb, PostgresSQL and MongoDB
- **Tests**: Unit tests, Functional tests, Integration tests, GTest and GMock
- **Devices**: Raspberry pi, Orange pi, Nano pi, STM32(ARM Cortex-M), Odroid and ESP8266
- **Other**: OOP, Functional Programming, Multithreading, FFmpeg, Linux, Linux Module, MP4, development, Pair programming, STL, Arduino, Agile (including Scrum/Kanban), REST, H264 and Jira

Language

- Persian (Native)
- English (Full professional proficiency)
- Azerbaijani (Full professional proficiency)