

Reza Arjmandi

Senior Software Engineer | Software Architect

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Turkey, Istanbul



A talented software engineer with a passion for innovation and a track record of success. With expertise in C++, Boost, Electron.js, Node.js, and TypeScript, I have a proven ability to refactor and re-architect legacy systems with modern, cutting-edge technology. My ability to implement automated build and deployment processes and work with TDD, ATDD, and BDD methodologies makes them an invaluable asset to any team.

Knowledge and Skills

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|---------------------------------|--|
| Programming Languages : | C++ (11, 14, 17 , 20), C , TypeScript , JavaScript, Python, Java, C# |
| Programming Paradigms : | OOP , Functional, Reactive , RFP |
| Databases : | MS SQL Server, MySQL, SQLite , MongoDB , PostgreSQL |
| API Development : | ExpressJS , NestJS , Django REST Framework, boost-beast , Restbed, Bottle |
| Message Brokers : | Kafka, RabbitMQ , Emqtt broker, Erlang/OTP |
| Caching Tools : | Redis , Memcached |
| Web Communication Protocols : | REST , SOAP, WebSocket , Event Source |
| Microservice Patterns : | CQRS + Event Sourcing, Saga, API Gateway |
| OS Level Programming Concepts : | Win32 , WinRT, POSIX , IO, threads, IPC, TCP/IP, sockets, Sync Primitives |
| GUI Development : | ElectronJS , Qt/QML Framework, WPF |
| C++ Development : | C++ STL , boost , node-addon-api |
| C++ Build Systems : | CMake , MSBuild , node-gyp , Qmake |
| Production Tools : | Wix Toolset , CPack, npm, Docker, Kubernetes, PM2 |
| Web Development : | React.js , Redux, Storybook, Material-UI |
| Computer Vision & Graphics : | OpenCV , image processing, OpenGL, VTK, GLSL |
| Version Control Systems : | Git , TFVC |
| Software Engineering : | Clean architecture , TDD , Object Oriented Analysis and Design |
| Test-driven Development : | gtest/gmock , boost test , turtle mock , JUnit, Enzyme |
| Error Reporting : | Sentry , google breakpoint/crashpad |
| Embedded Systems : | Raspberry Pi , ARM/AVR µController, ESP8266 |
| Domain Knowledge : | SaaS , IOT, Telecommunications, Medical devices, Biomedical technologies |

Work Experience

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| Present September 2021 | Insightful , Belgrade, Serbia <ul style="list-style-type: none">As a seasoned software developer, I've been spearheading the development of a native desktop application that functions seamlessly across Windows, Mac, and Linux platforms. With my extensive expertise in Electron.js, Node.js, TypeScript and node-addon-api.I've played a key role in the development of the Graphical User Interface (GUI) part of a native desktop application using Angular within the Electron.js framework.Heavily involved in reactive programming using RxJS. Implemented much of the application's logic using this powerful reactive programming library, resulting in an efficient and highly performant application.I've been an integral part of the development team responsible for creating a node.js addon that connects to the Electron.js and TypeScript parts of the application using the node.js C API and node-addon-api.To ensure the reliability of the application, I've implemented robust error reporting and crash reporting capabilities using Sentry and breakpad/crashpad.Additionally, I've collaborated in development of a Windows service and daemon for Mac and Linux platforms that provides monitoring, updating, and recovery functionalities for the main software.In addition to my core development work, I've participated in implementation of a back-end service using Express.js, Wix toolset, and PM2 to create and package software (msi file). <div><div>Electron.js</div><div>Node.js</div><div>Angular</div><div>TypeScript</div><div>Reactive programming</div><div>RxJS</div><div>JavaScript</div><div>Express.js</div><div>node-addon-api</div><div>node-gyp</div><div>npm</div><div>yarn</div><div>Sentry</div><div>crashpad</div><div>breakpad</div><div>async Programming</div><div>Win32</div><div>POSIX</div><div>C++/CLI</div><div>Wix toolset</div><div>.Net framework</div><div>WebSocket</div><div>Rest API</div></div> |
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September 2021
January 2019

FARAZ ERTEBAT, Tehran, Iran

- As a part of a dynamic team in a telecommunication company, I was responsible for **modernizing their legacy system** using cutting-edge technologies and practices.
- Through **TDD**, I refactored and **re-architected** the Network IO layer and **concurrency model**, and implemented new signal processing algorithms using **C++17/20** and **Boost.asio** library. This gave me a deep understanding of **asynchronous programming**, patterns, and concurrency models.
- In addition, I had the opportunity to reimplement a legacy Windows desktop application in a modern web application using **React.js** and **Redux** architecture, which communicated with a C++ server application through WebSocket. This helped to streamline the workflow and make the application more efficient and user-friendly.
- Another exciting part of my work was migrating the **MSBuild** system under **CMake** build system and implementing **automated build**, **continuous integration**, automated software packaging, and deployment through **Microsoft Azure**.
- I also used **ATDD**, **TDD**, and **BDD** in the development process and re-engineered and re-architected the legacy system including the concurrency model and Network IO through TDD.
- Overall, I worked with a wide range of technologies and tools, including **CMake**, **GTest** and Gmock framework, SQL Server, STL Library, **Boost.asio** library, C++ coroutine, **Javascript**, and more. It was an exciting and rewarding experience to be a part of such a forward-thinking team and work on cutting-edge projects in the telecommunication industry.

asynchronous Programming re-architecting legacy systems CMake Boost.asio C++ coroutine ATDD BDD
C++17/20 React.js C++ Restbed Jest Enzyme.js Storybook gtest gmock

2019
January 2016

Parseh Intelligent Surgical Systems Co., Tehran, Iran

- I led the migration of Microsoft SQL Server projects under **SQLite**, focused on **unit tests** in the development process using **TDD** and test harness enclosure
- Participated in the development of **automated build**, **continuous integration**, **automated software packaging**, and **deployment**
- Involved in the **re-engineering** and **re-architecting** of the existing system using **TDD**.
- Throughout my work, I utilized a variety of tools and technologies such as **C++ 11/14**, STL Library, **Boost** Library, **turtle mock**, WPF, C#, C++/CLI, OpenGL, **SQLite**, libzip, visualization toolkit, MS Team Foundation, MS Visual Studio, **Clean Architecture**, and **SCRUM**.
- Overall, this experience helped me to develop valuable skills in software development, **TDD**, **automated build**, and deployment. Furthermore, I worked collaboratively with a diverse team to develop a complex medical equipment system, and contributed to the development of innovative medical technologies.

C++11/14 STL Boost turtle mock Re-engineering re-architecting TDD WPF C# C++/CLI OpenGL SQLite
libzip Visualization Toolkit MS Team Foundation MS Visual Studio Clean Architecture Collaboration and teamwork
SCRUM

December 2016
January 2015

Institute for Advanced Medical Technologies, University of Tehran, Iran

- I had the opportunity to work on an exciting project in collaboration with the **Image Guide Surgery Group** (IGSG) laboratory.
- I led the development and implementation of a low latency, **real-time image processing** software that involved real-time image acquisition from a Bronchoscopy device parallel with data acquisition from an EM tracker.
- The software also included **real-time visualization** and data persistence functionalities.
- In this role, I worked extensively with **C++11**, the **STL** library, **threads**, **MFC** framework, and **OpenCV** for **image processing**, and applied the **Model-View-Controller** (MVC) architecture pattern to ensure clean and maintainable code.
- Through this experience, I gained valuable skills in software development, real-time image processing, and software architecture design, and collaborated closely with medical professionals to develop a solution that addressed their unique needs.
- Overall, my experience in this role allowed me to contribute to the development of cutting-edge medical technologies while honing my technical and problem-solving skills.

Real-time image processing C++11 STL threads MFC framework OpenCV Image Processing
Software Development MVC Architecture XML Aurora EM tracker

February 2015

Raspberry Pi Teacher and Technology Instructor, Shahed University, Iran

*As a Raspberry Pi teacher at the University, I had the opportunity to share my expertise in various technologies, including **Python**, **Linux**, **bottle web framework**, **OpenCV**, and **IOT**. In addition to teaching **Raspberry Pi**, I also taught other technologies such as **ARM/AVR Controller** and **ESP8266**.*

Through my teaching experience, I gained valuable skills in curriculum design, lesson planning, and classroom management, while also improving my communication and interpersonal skills. Overall, my experience as a Raspberry Pi teacher allowed me to develop a strong foundation in technology education and helped me to become an effective and knowledgeable instructor.

Technology instruction

Curriculum design

Classroom Management

Communication

Interpersonal Skills

Raspberry Pi

Linux

Python

bottle web framework

OpenCV

IOT

Languages

Farsi ● ● ● ● ●
English ● ● ● ● ○
Serbian ● ○ ○ ○ ○

Accomplishment

- > National Programming Competition
- > 1st place winner
- > 2012

Education

2013 BSc in Biomedical Engineering - Shahed University, Tehran, Iran