HOSEIN TALAYI

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Employment History

2022-Now   **XTraka PTY LTD**   Sydney, Australia (Remote)
Senior Embedded Developer, Senior Product Designer
Design an asset tracking 5G (+LTE/NB-IoT) capable device with LoRa, WIFI, Bluetooth 5 connectivity with support for connection to equipment CAN bus and many other features.
Develope embedded FreeRTOS based firmware for the device

2021-2022   **Leica Biosystems**   Melbourne, Australia
Senior Software Engineer
Software development for cancer diagnostic medical devices and implementing cybersecurity measures into the existing solution

2016-2020   **Golden Sky Data Processing Co, LTD**   Tehran, Iran
Founder and CEO
My company is specialized in making:
- Satellite simulation platforms including hardware in the loop support
- Communication devices, modem and test equipments
- Standalone, embedded and mobile applications
- IoT and sensor-network platforms

2014-2020   **Belfycards Co, LTD**   Tehran, Iran
Co-founder and CTO
A FinTech startup serving small to mid businesses in field of loyalty program and payment

2017-2019   **Amirkabir University of Technology's Space Research Center**   Tehran, Iran
Freelance
Software development for various subsystems:
- Satellite Onboard Computer
- Ground Station Software
- Communication Subsystem

2017-2019   **ARSAM HVAC Co.**   Tehran, Iran
Freelance
Software developer for mobile and web

2016-2018   **FDEshragh, Telecommunication Equipment Company**   Tehran, Iran
Freelance, Head of Software Development and System Engineering
Built various SDR based modems

2010-2017	**Amirkabir University of Technology's Space Research Center**	Tehran, Iran

Senior Software Engineer, Part-time

Head of software developer of various subsystems:
- Ground Station Software
- Communication Subsystem

2014-2016, 2010-2012	**Iranian Research Organization for Science and Technology**	Tehran, Iran

Freelance

Development of various Simulation Platforms for SDR based Global Navigation Satellite Systems (GNSS)

Skills and Expertise

17 Years **Programming**

Fully expert in the following programming languages

C/C++, C#, Java, VB/VB.net, Python, Swift, Objective C, Go, Ruby, Perl, Php, Asp.net

10 Years **Reverse Engineering and Software Security**

Fully expert in reverse engineering of standalone, embedded and mobile apps

Reverse engineering and software security analysis for vulnerabilities in:
- Standalone Windows, Unix and Mac OS X applications
- Embedded firmware in various architectures (ARM, x86, PowerPC, AVR, DSP, etc)
- Mobile apps for iOS and Android

Standalone and embedded software development and testing in various security and quality standards
- AUTOSAR, MISRA and JSF (Static Code Analysis)
- Compliance with Software Quality Standards (ISO 26262, DO 178B/C, IEC 61508, and EN 50128)
- Software Quality and Security Tests (Static Analysis, Unit Testing, Coverage & Traceability, Functional and Integration Testing)

9 Years **Software Defined Radio**

Expert in SDR software and hardware
- Developed many applications using different SDR platforms like USRP, NI-RFSG, Keysight Signal Generators, etc
- SDR implementation using GNU-Radio, MATLAB and mainly developed SDR applications without any framework
- SDR implementation in both standalone and embedded targets

8 Years	**Technologies**
	Expert in following technologies
	Virtualization (Docker, VMWare ESXi, Kubernetes), DevOps, Elasticsearch, Unity, CUDA and OpenCL

12 Years	**Embedded Developer**
	Expert in following programming languages and technologies
	FPGA and SoC software development using VHDL, Verilog and System C ARM and various microcontrollers and dsp architectures (PowerPC, x86, AVR, PIC, TI DSP C6000 and C66x, TI Sitara and Hercules, etc)

8 Years	**Full Stack Web and App Developer**
	Full stack developer using following technologies
	Php, Laravel, Symphony, MySQL, Asp.net Core, React, React-Native, Java, Objective C, Swift

4 Years	**Electronic PCB Design**
	Schematics and PCB design
	Expert in designing electronic products and solutions using Altium Designer from system design, schematics to PCB and layout including RF and high speed interfaces

2 Years	**Medical Device Regulations and Safety Standards**
	Medical Device Development Standards
	Fully familiar with different regulations and standards regarding medical device developments including documentations and records for Australia, Europe and US FDA

Notable Projects

2019-now	**RF Signal Record and Playback System**	My Own Company
	An embedded project using FPGA and ARM and RF ICs to record and playback RF signals from 40 MHz to 6 GHz with 56 MHz real-time bandwidth	

2022-now	**5G Capable Asset Tracking**	XTraka PTY LTD
	An asset tracking 5G (+LTE/NB-IoT) capable device with LoRa, WIFI, Bluetooth 5 connectivity with support for connection to equipment CAN bus and many other features.	

2014-now	**Belfycards.com**	Belfycards
	Development of belfycards.com website with PHP/Laravel	

2014-now	**Belfy Mobile Apps**	Belfycards

Belfy Mobile Apps — Belfycards
Development of multiple apps for android and iOS using both native platforms and react-native

GNSS Simulator — Self-founded Project/Product (2012-now)
Full featured GPS/GLONASS/Galileo/BeiDou system and signal simulator:
- Full simulation of any GNSS.
- Simulation of any error source such as satellite perturbations, clock, weather (snow/rain/etc.), Einstein relativity, etc.
- Simulation of high dynamic receiver platforms such as satellites.
- Open-platform and feature-rich API.

Different Satellite Subsystems Innovations — University Space Research Center (2011-2019)
About 9 years of key rules in three different satellite projects and different subsystems. These projects include:
- Main and head software developer for communication subsystem.
- Main and head software developer for ground station.
- Main and head software developer for onboard computer embedded software.
- Quality test conductor/integrator for all embedded softwares in satellite.
- Designing and developing the control software of thermal and vacuum chamber.

DMR and TETRA Modems — FDEshragh Company (2016-2018)
An SDR based DMR and TETRA modem to use in mobile radios and repeaters

Education

Master's Degree — Amirkabir University of Technology (2011-2013)
Electrical Engineering - Communication Systems

Bachelor's Degree — Amirkabir University of Technology (2006-2011)
Electrical Engineering