**Reza Amani**

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Sunnynook, North Shore

Summary

A software/hardware embedded engineer with more than 10 years of experience in a variety of positions and industries, and with a hand in other areas including electronics engineering, DSP, system architecture, test and debug.

Technical skills

Software

* C, C++ and assembly
* RTOS
* Embedded Linux
* Linux driver implementation, sysfs, iio
* Embedded programming within limitations
* Test and debug
* Python, LUA, Visual C# and C++
* Developing peripheral drivers
* Driving external data-acquisition parts and measuring technical parameters
* Agile methodology, Scrum
* TDD, unit testing
* Version control software; SmartGit, Gitlab, BitBucket
* Project management software Jira, ProjectPlace, …
* GCC, CMake
* Common IDEs; Visual studionEclipse, Keil, IAR, …
* Serial and wireless communication standards like RS485, RS232 and Bluetooth
* Developing communication protocols
* Bluetooth programming, SiLab and Nordic

Electronics

* Analogue, digital and mixed systems
* EMC and EMI
* PCB layout considerations for reducing interference and noise
* Power supplies, filters, signal shaping
* Noise challenges in mixed systems
* Schematic and PCB
* DC/DC converters and battery management
* Analogue circuits simulation with LTSpice

Other

* System architecture
* Ability to translate user requirements into technical solutions
* Predict future problems and providing best solutions during design stage
* Designing and implementing test jigs
* Safety-critical programming, fault trees, IEC and AS/NZ safety standards

DSP

* DSP, SDR, implementing communication algorithms by DSP’s
* Modulations; AM, FM, FSK, OOK
* Filters, FFT, …
* Converting floating point algorithms to fixed point
* Implementing signal processing algorithms on DSP’s & MCU’s with maximum performance

RF

* RF design; RFIC’s
* Designing, simulating and evaluating RF modules
* RF amplifiers, filters, synthesizers, etc.
* Designing RF modules by MMIC’s
* Designing High power RF amplifiers
* Simulating RF blocks by AWR
* Electronic measurements; Spectrum-analyzer, network analyzer
* Analog Devices solutions for sub-GHz short-range wireless communication

Soft Skills

**Problem solver:** Actively seeking and resolving technical and operational problems.

**Teamwork:** Extensive experience in team projects at different levels including leadership of small team.

**Independent:** Able to work without being supervised; with preference for handle barriers in person.

**Supporter:** Eager to mentor colleagues and help them to debug their works.

**Hands-on Engineer:** Involving closely and directly in all tasks of projects.

**Time management:** committed to do the job in time with prioritising tasks.

Attributes

* Action-oriented
* Co-operative
* Detail-oriented
* Tolerant
* Can-do attitude
* Creative
* Calm
* Avid traveller
* Logical thinker
* Seeking out new responsibilities

Experience

**Senior embedded software engineer** 2018-now

**Teknique, Auckland Headquarter**

Responsibilities and achievements:

* Working on the existing code-base, debugging
* Implementing Linux drivers for embedded
* Adding new functionalities to the SDK
* Working with some image processing libraries
* Challenging stubborn bugs in the system level, as a mix of HW and SW problems
* Finishing an OTA module for the product
* Node Authentication using CryptoAuthLib
* Scripting for LabJack
* Working on the test system with Python

**Senior embedded software engineer** 2015-2018

**Tru-test group (DataMars)**

Responsibilities:

* Embedded software programmer for a state-of-the-art energiser
* Signal processing; real-time pulse processing
* Ensuring compliance with safety standards; IEC,AS/NZ, EN 60335
* Gathering data from field tests, simulating real data in lab
* Design architecture, HW design and SW implementation for independent safety module
* Working on legacy codes, debugging and improving
* Code reviewing
* Investigating development tools, to help selection of platform for future projects

Achievements:

* Configuring Bluetooth Low Energy in advanced modes, e.g. master/slave simultaneously
* Suggested a new mixed SW/HW idea for safety module to reduce TMC and TTM
* Designed new signal processing method that enabled us to perform in-pulse calculations
* Provided ideas to increase software development pace
* Improved the cooperation between HW and SW team by a common understanding
* 3 times titled as “Engineer of the month”

**Embedded designer, system architecture** 2005-2015

**Pardazesh Basamad Ltd.**

An agile, small size, high-tech Company performing high-level R&D projects

Responsibilities:

* HW and SW designing for DSP systems, SDR platforms
* Simulating
* Programming embedded systems with C
* Choosing and setting up platforms; ARM, PIC and AVR microcontrollers, Piccolo and floating point DSP’s
* Developing GUI for control applications with visual C#
* Working with OLE databases with visual C++
* Designing and implementing serial protocols for wireless projects
* Technical negotiating with the costumer, providing solution and choosing platform
* Proof-of-Principle, Form Study and/or functional prototyping
* Working on legacy codes, debugging and improving
* Implementing battery management functions in hand-held products
* Utilising TI DSP’s and DSC’s for controlling high-power RF amplifiers and implementing telecommunication algorithms in handheld wireless transceivers

Achievements:

* Reverse-engineering for an old under-water communication system, in order to improve it for new requirements
* Designed and implemented a high-tech AD-HOC FH-SS handheld wireless radio, using TI DSP’s and Analog Devices ISM-band transceiver modules
* Designed and implemented a secure FH-SS video down-link for UAV’s
* Introduced a new idea of combining MAC and PHY layers in a frequency-hopping Ad-Hoc radio with a state-of-the-art robust routing algorithm
* Eye-catching records of budget and delivery time for 4 embedded control projects

**Digital electronics engineer, Driver/Firmware developer** 2002-2005

**Basamad Negar Ltd.**

Developer of laboratory and broadcast products

Responsibilities:

* Digital hardware designing; schematic and PCB
* Developing peripheral drivers for DSP and microcontroller in C and assembly
* Implementing simple GUI’s with visual C++ 6.0
* Designing signal processing algorithms
* Designing and testing analogue interfaces and high precision circuits
* Proof-of-Principle, Form Study and/or functional prototyping
* Planning and teaching costumers training courses

**Signal processing group member** 2000-2002

**Professor Hesabi organization (NGO)**

A scientific and research non-governmental organization

Responsibilities:

* PCB design, montage, primary tests
* Developing DSP drivers with assembly
* System test and evaluating

Education

**M.Sc. in Digital Electronics Engineering 2000**

**Sharif University of Technology**

Thesis: Debugging method for parallel-processing DSP systems

Implemented on a platform consisting 4 floating-point digital-signal-processors

**B.Sc. in Electronics Engineering 1998**

**Sharif University of Technology**

Final project: Implementing a narrowband FSK transceiver

Controlled and used by a MCS-51 microcontroller

Computer Skills

Altium/ Protel 99SE debug tools, GDB, RTT

TI code composer, Visual DSP Microsoft Visual C#

Code Vision, Keil uvision, Eclipse, AVR studio Simplicity Studio, SEGGER embedded IDE

Jira, Gitlab, Git, version control systems

Awards

3 silver medals from physics, mathematics and computer students Olympiads, 1993

2nd place in university scientific competitions among 150 students, 1998

8th place in national electrical/electronic engineering Olympiad, 2000

Outside interests

Chess (Fide Rating: 1624, Howick club team member) Team sports, volleyball

Physics Classical music

Psychology Travelling

Referees

Available on request\*