**Reza Amani** Pakuranga heights, Auckland 2010

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Summary

R&D engineer with years of experience in a variety of positions, including embedded SW/HW/DSP engineering with a great track record of accomplishing projects within limited budget and time.

Technical skills

* MCU/DSP HW/SW
* Analogue, digital and mixed systems
* C, C++ and assembly
* Embedded programming within limitations
* DSP, SDR, implementing communication algorithms by DSP’s
* Audio/Telephony signal processing, audio compression, filters, Caller-ID,…
* DSP IDE’s; Code-composer, Visual-DSP
* Filter design and spectrum analysis for DSP systems
* Converting floating-point algorithms to fixed-point and MIPS optimizing for DSP’s
* RF design; RFIC’s
* RF amplifiers, filters, synthesizers, etc.
* Modulations; AM, FM, FSK, OOK
* Test and debug
* Python, 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
* Wireless sensor networks
* EMC and EMI
* Schematic and PCB
* Analogue circuits simulation with LTSpice
* Ability to translate user requirements into technical solutions
* Predict future problems and providing best solutions during design stage
* Serial and wireless communication standards like RS485, RS232 and Bluetooth/BLE
* Safety-critical programming, fault trees, IEC and AS/NZ safety standards

Soft Skills

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

**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 Engineering:** Involving closely and directly in all tasks of projects.

**Computer:** Working with SW packages in different areas, such as SW IDE’s, HW tools, simpulators and office programs.

Attributes

* Creative
* Avid traveller
* Action-oriented
* Co-operative
* Decisive
* Open-minded
* Detail-oriented
* Can-do attitude
* Calm
* Seeking out new responsibilities

Experience

**R&D engineer** 2015-now

**Tru-test group, Auckland office**

Responsibilities:

* Embedded software programmer
* Signal processing; real-time pulse processing
* SW implementation/considerations for compliance with safety standards; IEC,AS/NZ, EN
* Gathering data from field tests, simulating real data in lab
* Handling timing/MIPS problems in real-time processors
* Design architecture, HW design and SW implementation for independent safety module
* Working on legacy codes, debugging and improving
* Code reviewing

Achievements:

* Suggested ideas for designing safety module and actively contributed to design discussions
* Redesigned signal processing method that enabled us to perform in-pulse calculations
* Provided ideas to increase software development pace
* Came up with ideas for measuring and minimizing packet jitter in Bluetooth Low Energy communication
* Improved the cooperation between HW and SW team by a common understanding
* 3 times titled as “Engineer of the month”
* Involved in fixing mixed HW/SW bugs and cooperated in catching some HW issues

**Embedded designer, system architecture, DSP engineer** 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 DSP systems and RF designs
* Implementing DSP algorithms for spectrum scanning applications; searching for signals, interception, modulation recognition and demodulation.
* Designing mixed systems (HW&SW); schematic and PCB
* 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
* Professional testing and evaluating radio systems
* Research and development for an audio-watermark project
* 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 re-engineering it with a DSP-based solution
* 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 wide-band spread-spectrum radio link for safe and secure control of UAV’s
* Designed and implemented a secure FH-SS video down-link for UAV’s
* Proposed an under-ground communication system based on seismic signal processing
* 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
* Suggesting a new communication system in a parking management/guidance system, led to wiring costs being halved; using WSN, Ad-Hoc and wireless technologies

**DSP engineer, Digital electronics engineer** 2002-2005

**Basamad Negar Ltd.**

Developer of laboratory and broadcast products

Responsibilities:

* Digital hardware designing; schematic and PCB
* Implementing telephony algorithms, ADPCM, FSK CALLER-ID, A-law/u-law,… for a handheld TI DSP-based system
* 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

Achievements:

* Reached the record of 100MS/s sampling rate and 13.5 ENOB with an acquisition board
* Cut the hardware cost of future projects by 80% suggesting and developing a general purpose SDR platform

**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

Achievement:

* As a team member, managed to develop a portable battery-powered DSP-based ANC (Active noise controller)

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 Microsoft office

TI code composer, Visual DSP Analog Devices simulation programs

Xilinx ISE Microsoft Visual Studio (.NET 2013)

Code Vision, Keil uvision, Eclipse, AVR studio, IAR ProjectPlace

Jira, Gitlab, Git, version control systems Matlab

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\*