C#, C, Assembler

M68HC11, ARM7

LPCXpresso54606, ARM-M4

AVR128DA48

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# Personal Brief

I am an Embedded Software Developer with over 25 years of experience. This has consisted mainly of work within the telecommunications industry. This includes Tait Electronics for ten years (a Mobile Radio equipment manufacturer) six years with 4RF Ltd (SCADA radio manufacturer). I have also worked in the Consumer Products, Power Management, Automotive and (presently) Fire Systems industries (as outlined below).

Working in all stages of software development and on many platforms (both large and small), I have experience in C and Assembly language equally. I have worked on a range of processors and Operating Systems. The processors include Coldfire, NXP, Renesas, Motorola HC11, Atmel, ST and TI DSPs. The operating systems I have used range in size from proprietary NEC Exchange OS down to a small 'ECos' also Micrium MicroC-OS as well as my own proprietary design.

I am very keen on Object Oriented methods and prefer to use them in my designs. Hence the ideas of Use Case Analysis, Domain Analysis, Object states, Portability and Data Encapsulation are familiar to me.

As I have moved between industries and companies and my experience has increased within these respective environments I have gravitated naturally towards mentoring, planning, advising and, ultimately, leading. I have very much enjoyed this and learned a lot during it. Feeling passionately about any subject that you have in common with others often results in a desire to help each other learn and grow within it. Being able to take the lead in this process is a privilege that I have very much appreciated

# Strengths

* Analysis and attention to detail
* Creative
* Enjoy being challenged
* Open to new ideas
* Enjoy collaboration
* Able to work work with all disciplines
* Ability to communicate well
* Self and other management

# Education

1986 to 1989: **Victoria University and Canterbury University (New Zealand)**

Electrical Engineering Degree (Communications Systems)

1995 to 1999: **Massey University (New Zealand)**

Post Graduate Diploma in Business and Administration (Management)

Career Progression

*September 2018 to Present*

***Johnson Controls Ltd***

***Principal Software Engineer***

I am working in the Fire Systems team Building Services division of Johnson Controls.

I am currently working on a ground-up platform for a fire extinguishing product. This included architecture and design by me for twelve months followed by technical leadership of several Software Engineers and Interns to continue this development. I developed my own bare-metal scheduler We work using SCRUM and Agile techniques and I have undergone training as a Scrum Master.

During this time, I have developed skills in C# in order to provide GUI test interfaces to my product.

I also work closely with Hardware engineers and Technicians.

I am currently waiting for a patent approval for an invention that Johnson Controls has kindly let me spend time developing and putting forward to our IP team.

**Development Platform**

C#, C, Assembler

M68HC11, ARM7

LPCXpresso54606, ARM-M4

AVR128DA48

**Development Environment**

MKS, IAR , CrossWorks

MCUXpresso, Microchip Studio

SCRUM

*April 2018 to September 2018*

***Airspan Networks Ltd***

***Senior Software Engineer***

Airspan Networks is a telecommunications company that produces pico-cell repeaters that are used in filling coverage gaps in LTE and 5G cellular networks. My role was to assist with the SNMP configuration management software of these portable cell-sites.

**Development Platform**

C, C++

Embedded Linux

**Development Environment**

GIT, Perforce

JIRA (no SCRUM)

*October 2016 to April 2018*

***Pertronic Industries Ltd***

***Senior Software Engineer***

Pertronic Industries is a Fire Alarm Systems manufacturer based in Wellington, NZ. I worked in a team of six Software Developers enhancing and maintaining networked fire-alarm systems software. The networks comprise multiple nodes sending PPP data via Protobuf messages to control and monitor up to many thousands of sensors and panels.

Their development process also utilises Agile methodologies. Our team comprises predominantly Senior Developers using highly collaborative methods of Design, Development and Test.

**Development Platform**

C, C++, python

Embedded Linux

ARM7, ATMega processors

**Development Environment**

GIT, CMake, Ubuntu, bash, pytest, pycharm,

JIRA, Crucible, Fish-Eye, Jenkins

GDB, ATMEL Studio, visual studio code

SCRUM, Agile

*February 2016 to September 2016*

***ThaiGerTec Co. Ltd***

***Project Manager***

ThaiGerTec is a Software Testing House based in Bangkok. I managed a team of Software Designers working on the development of a BUS monitoring tool. The tool is to be used by BMW and ThaiGerTec to replace their existing externally sourced tool. It is capable of monitoring and logging vehicle communications messages in both CAN-BUS and Flex-Ray protocols. The team consists of four members.

My project was the Design and Development of a Scripting Language which runs internally to the Monitoring Software. This language comprises of a Syntax Checker, and Compiler to parse C-like instructions which can perform automated tests and calculations during run-time. My responsibilities include Software Architecture development, Project Planning and Management.

**Development Platform**

C#, MVVM

Windows OS

Embedded Linux + Xenomai, Beagle-Bone

**Development Environment**

Visual Studio

Tortoise SVN

SCRUM, Orange Scrum

*March 2015 to October 2015*

***Verifone NZ Ltd***

***Embedded Software Contractor***

Development of EFTPOS terminal software

I was part of a team working on the development of EFTPOS terminal software. The role was to assist with the migration of terminals from the ANZ banking network to the new Verifone network. Tasks include transaction messaging and processing, data handling and storage, batch processing and communications fail-over processing.

**Development Platform**

C++

Proprietary OS

**Development Environment**

Visual Studio

Tortoise SVN

SCRUM, Agile

*April 2008 to January 2015*

***4RF Communications Ltd***

***Senior Embedded Software Designer***

Development/Optimisation of Aloha OTA Communications Protocol for SCADA RF Equipment

I worked as part of a team on the development of a SCADA radio designed to work with the Utilities Industry. My responsibility is the development and optimisation of a high-speed MAC protocol. I was involved mentoring and training others in this capacity.

**Development Platform**

Coldfire Processor, uC OS

**Development Environment**

Free Scale Code Warrior

Tortoise SVN

*Nov 2007 to November 2008*

***Arc innovations Ltd***

***Senior Embedded Software Designer***

Integration of Data logger to Automatic Metering Device

I ported data-logging firmware to an integrated Meter Recording platform. I wrote a driver layer that interfaces to a GE SM110 IEC meter using an ANSI C12.18 standard protocol. The purpose of the driver was to collect and manipulate analogue meter recording data to be used in billing applications.

**Development Platform**

ATMEL Mega256 (256k ROM, 8k RAM)

GE SM110 IEC meters

**Development Environment**

AVR Studio

IAR compiler

Visual SourceSafe

SCRUM, Agile

*June 2005 to Nov 2007*

***Fisher and Paykel Ltd***

***Senior Embedded Software Designer***

Development of Advanced Oven Cavity Controller and Graphical Display

I was in charge of a 'ground up' development of Oven Cavity Controller and LCD GUI software platforms.

**Development Platform**

Renesas M16C Processors (512k & 32k ROM)

Micrium GUI library and bitmap/font conversion tools

ST7 Lite processor (8k ROM) for motor control

Purpose written task Scheduler and system timers

**Development Environment**

HEW IDE

Subversion Version Control using Tortoise SVN.

KD30 (FoUSB , Flash over USB) and E8 debuggers

*Oct 2003 to June 2005*

***Tait Electronics Ltd***

***Senior Embedded Software Designer***

Development of Fourth Generation Trunked Mobile Radio.

I worked on porting a next-generation Trunked Mobile radio code base (written in assembler) from a Motorola MC68HC11 Platform to a Sparc Leon processor using C.

**Development Platform**

Sparc Leon Processor

Ecos Operating System

TIC5402 DSP

**Development Environment**

Linux based IDE using gdb, ddd and dsumon

GNU C Compiler and using splint

XML used for Database Design and System Interfaces

Rational Rose UML for OOD

Rational ClearQuest Issue Management System

*Jan 2002 to Oct 2003*

***Tait Electronics Ltd***

***Senior Embedded Software Designer***

Development of Fourth Generation Conventional Mobile Radio.

I worked on the development of a 'Next-Generation Generation' Conventional Mobile radio. This was a ground up hardware and software development designed to completely replace the old Third Generation range of Conventional Mobiles.

This involved re-designing the software modules for the Motorola HC11 processor in order to control a new digital and RF platform. The designs were done using Rational Rose and implemented in C on a TIC5402 DSP

**Development Platform**

TIC5402 DSP

**Development Environment**

IDE Windows based using 'Code Composer', Synth development boards and jtag emulation

Version Control used was CVS (and tkcvs)

Rational Rose UML for OOD

Rational ClearQuest for Issue Management

*Jan 2000 to Jan 2002*

***Tait Electronics Ltd***

***Software Team Leader***

Small Project Development and Enhancements of Tait Mobile Radio Software

I was the Software Team Leader of a group Developers. Together we maintained and enhanced the full range of Tait Software products.

My role involved planning, negotiating resources, coordinating, and controlling the range of small projects and bug-fixes dictated to us by the Manufacturing Department and our Customer Support Department.

This proved to be a natural progression from the work I performed in the preceding years as Customer Support Software developer.

*Jan 1995 to Jan 2000*

***Tait Electronics Ltd***

***Embedded Software Designer***

Small Project Development and Enhancements of Tait Mobile Radio Software

I worked on the maintenance of the Tait mobile radio software range. This encompassed bug fixing, as well as small market-specific enhancements. My role was largely customer-focused. Hence a lot of time was spent in communication, requirements capture, on-site commissioning and follow-up support of changes made. (Such customers included Chinese Gong An, UK Band III, Australian Conventional Networks, Transtel SA)

**Development Platform**

MC68HC11 microprocessor

**Development Environment**

IDE Windows based, 2500AD Assembler and Compiler

Nohau ICE

Orion HC11 emulators

Version Control CVS

Proprietary issue management tools

Various protocol analysers (Marconi, Rohde and Shwarz, HP)

*Jan 1991 to Jan 1995*

***TSSC Ltd***

***Embedded Software Designer***

Call Connection Software and Network Applications Development

I worked as Software Designer developing applications for Telecom NZ NEX61E exchanges. Projects included subscriber billing software modifications as well as call processing and interconnect software modifications for the Telecom G4 project.

**Development Platform**

NEAX61E Multi-processor switch

**Development Environment**

IDE was Unix based

Proprietary simulation tools

In-house Test Exchanges

Version Control used was Historian