CURRICULUM VITAE

Name: **Charles Henry Oram**.

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Profile

I am an electronics engineer with a wealth of experience in development of real-time software for electronic systems and PCs, using both structured and object oriented techniques. I am an engineer with good technical and time-management skills, and I am motivated by developing software and systems that are involved in the running of our day-to-day lives. I consider myself an easygoing person who gets on well with others and enjoys working in teams.

Summary of Skills

Programming (C, C++, Assembler, C#). Embedded Systems software. Digital Signal Processing (DSP). PC Systems software. Implementation of encryption systems. Communication protocols. Server software for processing data from embedded systems. Real-time operating systems. Windows. Linux (embedded and desktop). Wireless and low-power systems. Good understanding of digital electronics with some circuit design and PCB design experience. Time management. Project management. Problem solving. Experience with 8051, PIC, NXP and ARM microcontrollers. Source code revision systems (CVS, Subversion, Git). Internet of Things (IoT) technology.

EMPLOYMENT RECORD

2014 - REX Bionics Ltd, Auckland

Senior embedded systems engineer.

As an embedded systems software engineer with Rex Bionics I have been involved with the following projects:

- Improvements and maintenance of monitoring and control firmware for the Rex battery pack.
- Development of prototype software for controlling a brushless DC motor (TI Hercules ARM Cortex R4 processor) using C and FreeRTOS.
- Investigating real-time operating systems for the next generation product.
- Design and planning for the next generation product.

2006 - Oram Embedded Technology Ltd., Auckland

Embedded systems engineer and consultant.

For several years I have worked as a consultant and contract embedded systems engineer.
During this time I have worked for companies such as Actronic Technologies (now Trimble Loadrite), QVisual, Gallagher Security, Scott Technical Instruments and Navicom Dynamics.
Some of the projects I have worked on include –

- System for monitoring elderly persons at home. Recently converted to use MQTT to transfer data from the gateways to the server.
- Wireless monitoring system using Zigbee devices connected to a central controller running Linux. The wireless devices used the Ember EM250 and EM357.
- Electronics and PCB design for a range of wireless sensors
- GSM modem SMS interface for Linux (C, C++).
- Frost alarm with GSM modem.
- Acoustic distance measurement system using TI TMS320C28346 DSP.
- SIA DC-09 IP Alarm receiver software (Windows). Server written in C++, configuration and monitoring software written in C#.
- CAN interface for pressure transducers using Freescale MC9S12C64.
- PC based software for NMEA data routing (C# and C++)
- Civil defense warning system
- Prototype multi-media system using the Cubox-i and Linux (Yocto Project)
- Re-design of an environmental data-logger with telemetry interface (PIC18F4520 and NXP LPC2106).
- Design and implementation of a telemetry server for receiving and storing data from flow-meter loggers. Written in C++ with MySQL database.
- Design and implementation of software for a battery monitoring sensor prototype. Written in C for the Silicon Labs C8051F411.

2003 - 2006 PowerShield Ltd. , Auckland

Senior Software Engineer.

Embedded C programming for Motorola 68332 (16-bit) based battery monitors and Silicon Labs C8051F411 based battery voltage sensor prototype. Delphi programming of Windows configuration and management software. Development of signal processing algorithms for a battery monitoring sensor.

2001 - 2003 Datareach Ltd., Napier

Senior Software Design Engineer.

Datareach was previously the Ericsson NZ Data Services group. During this period I worked on firmware, written in C and C++, for SHDSL, ADSL and IDSL line cards and an SHDSL modem router.

2000 – 2001 Self employed (Oram Embedded Technology), Marton

During this period I was contracted to Cardax (International) Ltd.

Two particularly interesting projects during this period were i) implementing SSL (Secure Sockets Layer) on a 386ex based embedded system. and ii) implementing PPP dial-up on a 386ex based embedded system.

1990 – 2000 Cardax (previously PEC (NZ) Ltd.), Marton

Software Engineer, Project Leader, Project Manager, Systems Architect.

During my time with PEC and Cardax I worked on a wide range of products in both the Cardax division and the Retail division. I started at PEC as a software engineer, was promoted to a software project leader and then project manager and then moved back into technical work to work as a Systems Architect. This work involved software development for embedded and PC systems and project management with experience in the following -

Languages - PL/M-86, ASM-86, PL/M-51, ASM-51, C, C++, Jade.

Operating systems and other software - SCO Unix, OS/2, OSF/Motif, Windows, RMX, Phar Lap TNT ETS, MFC and COM (ATL) programming.

Microprocessors, microcontrollers and DSPs - 80186, 80188, 8051 (various), Intel 386EX, Dallas 87C520, Motorola DSP56303

Methodologies - Structured Design, Object Oriented Analysis and Design (Booch Method). UML.

Software Development Processes -Waterfall, Incremental, Iterative, Software Metrics.

Communications Protocols and Interface Standards- Familiarity with HDLC, TCP/IP, Secure Sockets Layer (SSL), Ethernet, OPC (OLE for Process Control) and encryption algorithms and protocols.

1987 – 1989 Sira Ltd., Kent, U.K.

Software Engineer.

Sire Ltd. was a private research and development company in the UK. During this time I worked on development of software for the LINKman rule-based industrial expert system (Pascal), perspex sheet inspection system (C) and a production scheduling expert system (Lisp). I also ran a 3 day, hands-on training course for the LINKman system.

1985 – 1987 Staefa Control System (NZ) Ltd., Auckland

Applications Engineer.

Commissioning, programming, and maintenance of building and energy management systems. Project management. Implemented one of the first integrated building management and security systems in the country (written in assembler on a PDP-11).

EDUCATION

1982-1984 University of Auckland

- Bachelor of Engineering (Electrical and Electronic) 2nd Class Honours Div. II. (May 1985)

1996 Massey University

- Human-Computer Interaction and Knowledge-Based Systems (A)(single paper).

PUBLICATIONS

- Charles Oram, “The Use of Encryption in Embedded Systems”, Proceedings of the 1st New Zealand Embedded Systems Conference, Auckland, New Zealand, May 1999.
- Charles Oram, Felix Collins, Nick Body, “Fully Integrated Digital Imaging in an Access Control and Security Monitoring System”, Proceedings of the IEEE 33rd Annual International Carnahan Conference on Security Technology, Madrid, Spain, October 1999.

REFEREES

Please contact me for details of referees you may contact to discuss my work.