

# Curriculum Vitae – Rick Fitzsimmons

Updated: October 2008

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## Summary.

An experienced, degree-qualified embedded software engineer, with a strong background in C and assembler, and in hardware interfacing and debugging. Also has a good understanding of Linux systems and networking.

Experienced in the full software development lifecycle, including version control and configuration management.

Many years experience in the wireless communications industry, including TETRA, AIS and MPT1327 systems (both mobile and infrastructure).

BSI-trained internal auditor for ISO9001:2000 quality management systems.

## Key skills:

- Embedded software development, using C and assembler, on a range of microcontrollers and DSPs.
- Familiar with TI 'Code Composer' tools, and JTAG emulation and debugging.
- Other modern programming languages used include Python, Perl and Ruby.
- Version control, especially using 'Subversion', including installation, configuration and user training.
- Microprocessor system hardware integration and debugging.
- Wireless systems development (both infrastructure and mobile units).
- Detailed knowledge of MPT1327 protocol, and experience with TETRA and AIS systems.
- Software project planning and management experience.
- PC networking and intranet development.
- Excellent written and oral communication skills. Competent technical author.
- Proven track record both with new design work and with maintenance and onward development of existing systems.
- Formally trained internal auditor for ISO9001:2000 quality management systems.

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## Career history and achievements (most recent first):

### ***1999 to present day: Eastwater Systems Ltd.***

Formed a limited company offering embedded software development and IT consultancy. More details can be found at <<http://www.eastwater.co.uk>>.

Projects undertaken for a number of clients, including:

- Modifications and additions to an embedded Linux control system used in a WiMAX radio system, using advanced Perl and some C coding on a PPC platform.
- Low-level software development for an advanced TETRA mobile radio handset, including detailed hardware debugging and liaison with hardware manufacturers to identify and work around 'silicon bugs' in their components (microcontroller and TI 'OMAP' DSP).
- Implementation of control software for a cartesian loop linearised radio transmitter for a TETRA base station. As well as managing the transmitter control and I/Q calibration functions, this also included specifying and implementing the interface to an embedded Linux control module supplied by the customer.
- Development of web filtering software for a major UK ISP, coded in Ruby. As well as

implementing a new protocol to the filter servers, the solution offered improved performance and greatly enhanced diagnostic facilities, which enabled the end user to identify other issues in their infrastructure.

- Design and implementation of an automated protocol test system for a new trunked radio handset under development in New Zealand. This entailed modifying an existing PC-based communications application (written in C), and writing a sophisticated script-driven test system to generate codewords and analyse responses (written in Perl). The resulting system exceeded expectations, and became an integral part of the software development process.
- Migration from 'PVCS' to 'Subversion' for a firm specialising in advanced hardware and software development in the marine AIS market. This included full staff training, and also modification of the software build process to take advantage of the new facilities available.
- Successfully assisted a specialist RF hardware and software development company with the introduction, operation and maintenance of its TL9000:2000 Quality Management System. Subsequent BSI audit for certification was successfully completed at first attempt. (TL9000:2000 is a super-set of ISO9001:2000)
- Specification, design and implementation of control software in a complex radio transceiver unit for the marine AIS market. This incorporated four DSPs and a high-speed link to a separate control unit. Responsible for all non-signal-processing aspects of the software, including specification and documentation of all relevant software and interfaces. Software was developed in C and assembler on TMS320C5402 DSPs, using TI development tools (Code Composer) and JTAG emulator. Inter-processor communication was handled transparently using embedded TDMA controllers and DMA, thus allowing full resource availability to the signal processing functions.
- PC-based test software for a custom IC being developed for the wireless communications industry. Software was written in C++ using Borland Builder, and provided a graphical user interface and a synchronous communications link using the PC's parallel port.
- Implementation in C and assembler of low-level control software for a Tetra radio base station, following UML-defined design documentation.
- Several contracts for a US-based wireless product and service company, supporting and extending their trunked radio infrastructure software (mostly assembler), and also training their own software development, support and installation staff.

### ***1992-1999: Linear Modulation Technology / Securicor PMR Systems.***

- Invited to join this Securicor Group start-up company as a **Development Engineer**, taking charge of all non-DSP software and hardware for a trunked radio system.
- Managed a technology transfer from another supplier, then extensively adapted the software to integrate with the new DSP-based radio equipment.
- Recruited and managed a small team of software engineers, and successfully developed new features for the US market.
- Promoted to **Principal Engineer** to take responsibility for general software engineering issues and look toward future projects and technologies.
- Completed a set of Securicor management training courses.
- Involved in development of the company's ISO9000 quality management system.
- Involved in detailed patent investigations involving the US market.
- Promoted to **Consultant Engineer**. Assisted and advised project development and support teams. Responsible for detailed proposals and trial systems with third party manufacturers.
- Responsible for the administration and development of the local area network, including disaster recovery procedures, full Internet connectivity and an engineering intranet to handle design documentation, QA procedures etc.

**1982-1992: Securicor Electronics.**

- Initially responsible for hardware design, using sequential logic. Responsible for hardware and software development for a new microprocessor-based alarm system (Z80, using HP embedded Pascal and assembler), communicating with intelligent detectors via a proprietary serial bus and with central monitoring equipment via leased-line or dial-up devices. System was for use in large commercial premises and banks.
- Specified, sourced and installed a local-area network (Novell) to support both software development and documentation.
- Promoted to **Software Engineering Manager**. Successfully introduced structured analysis and design, along with version control and configuration management tools and methods, to a previously ad-hoc environment. Wrote software codes-of-practice for C and assembler, and introduced the use of a cross-platform real-time executive and software prototyping techniques.
- Successfully raised the level of software engineering expertise within the company, resulting in transfer to a new start-up company within the group.

**1982: Monitronix Systems Ltd.**

- Software Engineer, developing fuel delivery and metering equipment for vehicle fleet operators.

**1979-1982: Lucas Girling Ltd.**

- Entered on graduate training scheme. Moved around various departments gaining experience in vehicle braking system design and manufacture.
- Accepted position as Development Engineer in 'Advanced Engineering' department, working on instrumentation and control systems in brake test dynamometers and also in-vehicle testing.

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**Personal information.**

Date of birth: 25<sup>th</sup> May 1957.

Degree held: BSc(hons) in Engineering, University Of Bath, 1979.

Good health, non-smoker.

Full UK driving licence.

Married, with two teenage children.

**Interests.**

Family.

Music (listening and performing).

Outdoor pursuits (walking, caving, cycling, skiing, surfing...).