

Profile

An enthusiastic freelance senior software developer with a strong academic and engineering background and broad ranging experience in analysis, design, architecture, programming and management. Capable of quickly adapting to changing environments, and leading a development team. Highly versatile developer, with experience ranging from embedded “bare metal” programming to designing enterprise software solutions and professional data-driven web applications. Flexible, committed individual with excellent communication and problem-solving skills, meticulous attention to detail, and strong all-round software engineering skills.

Seeking a hands-on role as software architect, team leader or senior developer in London or along the M4 corridor.

Key Skills

- Highly proficient C++ and Python developer with experience of database programming and GUI design.
- Linux expert, with sound knowledge of kernel configuration and optimisation and bash/shell scripting. Expert in the use of Open Source tools and technologies in general, including GNU tools, MySQL, PostgreSQL, SQLite, CVS, Subversion, Mercurial, Apache.
- Object Oriented practitioner, with track record of leveraging Design Patterns, the UML, RUP and Agile (including Scrum) development methodologies, and employing Test-Driven Development techniques.
- Strong logical and physical database design, and data reporting skills, gained in large-scale mission-critical commercial database environments. Oracle, SQL Server, PostgreSQL, SQLite and MySQL.
- Solid embedded software/firmware engineering skills (10 years), developing real-time C++, C and assembly language solutions targeting embedded OSes, as well as programming directly (no operating system) for various microprocessors and microcontrollers. Able to understand and design microprocessor and microcontroller-based electronic circuits.
- Adept at designing multi-technology solutions, leveraging an array of diverse technologies to fulfil clients’ business requirements.
- Proven ability to competently manage and lead development teams, good time and organisational management skills. Experience of large-scale projects.

Languages and Technical Skills

- Enterprise Software Development Skills: C, C++ (17 years) with STL and Boost, Python (3 years), the UML and Rational Rose, ErWin, CORBA (Iona Orbix), Java (3 years), Unix/Linux bash/shell scripting. Experience of several SCM tools including Subversion, Mercurial, CVS, VSS, Rational Clearcase, PVCS.
- Database Design Skills: T-SQL (SQL Server 7 and 200x, including DTS and OLAP), PL/SQL (Oracle, 8i, 10i, 11g), MySQL, PostgreSQL, SQLite.
- Web Application Development Skills: HTML (including HTML5), XHTML, CSS, Python (including Django), DHTML/JavaScript (DOM scripting, JQuery, JSON, AJAX), Apache configuration.
- Mobile Application Development Skills: Objective-C targeting iPhone OS 2.x and 3.x, C++/Qt (Qtopia).
- Operating Environments: GNU/Linux (Red Hat, Debian, Ubuntu, SUSE), Unix (OpenBSD, Mac OS X), Windows, various embedded targets including SIBO/EPOC (16-bit), integration with mainframes.
- Embedded Software Development Skills: C, C++, Assembler, targeting 68000, 68332, ColdFire MCF5206e, 6809, 68HC11, 68HC05, x86, PIC, Atmel AVR. Linux (creating custom distros with optimised kernels). Microprocessor/microcontroller circuit schematic and circuit-board design.

Experience

Over 20 years of experience as an I.T. professional in the UK and USA, applying my skills in a variety of commercial environments, including engineering, airline, financial, medical, manufacturing, retail, defence and leisure.

I've undertaken numerous and varied assignments, most recently developing software in C++ and Python for the airline industry; involved in all stages of the development lifecycle.

Career Summary (since 1997)

Jan 2010 – present : Software Developer, Amadeus, London, UK

Projects

- Re-engineering part of the reservations system, previously running on the TPF mainframe system, to run on Linux. The new system is written in C++, and is backed by an Oracle database. This was part of the company's initiative to decommission the mainframe system. This part of the system deals with a large volume of low-latency, real-time transactional traffic (in excess of 500 tps) associated with mission-critical passenger bookings.
- Maintenance of a portion of a large C++ framework and libraries for manipulating passenger records, and converting them between Linux and TPF-hosted environments.
- Development of a tool to assist Amadeus in the migration of airline passenger records to the Amadeus reservations platform. The resulting product was awarded first prize in Amadeus's global excellence awards. In this project, I took the lead in the design of the Linux-hosted portion of the tool, while working closely with my colleagues who were developing mainframe-hosted programs that the tool communicates with via new EDI messages, the grammar for which we designed together. The tool I developed was written in Python, with performance-critical parts in C++, and encompassed multi-threaded communications, parsing of EDIFACT messages, SQL database storage, and user interfaces. I developed two UIs for the tool; one text-based, and one web-based, each optimised for different use cases.

Other Tasks and Responsibilities

- Liaising with users and product definition teams, analysing requirements, defining solution architecture, writing technical specifications, conducting code reviews.
- Applying Agile and Test Driven Design methodologies. Scrum Master for the re-engineering project.
- Promoting and supporting product deliveries through progressive test phases and to production.
- Establishing automated non-regression testing for the team's software.
- Assisting in the setting up of a code review system for our team, based on Review Board.
- Mentoring new and less experience team members.
- Establishing regular C++ seminars for the department covering advanced C++ topics including design patterns, Boost and STL.

Skills: GNU C, C++ with STL (GCC, GDB), Boost, Valgrind, Oracle, SQLite, SUSE Linux, bash/shell scripting, CVS, Mercurial, Eclipse, Python, Django, HTML, CSS, Javascript, jQuery, EDI (EDIFACT), Review Board (code reviews), Rational Rose, Agile (Scrum), integration with TPF (IBM mainframe operating environment)

Feb 2005 – Dec 2009 : Senior Software Engineer, Gamesoft Ltd, Cardiff, UK

During my time at Gamesoft, I successfully developed a multi-game embedded Linux software framework for use in the company's range of video gaming cabinets, as well as a PC-based video games controller. This software framework and the new games controller have been used to launch dozens of games in the UK and abroad.

- Porting the company's existing software libraries to the new hardware platform, and extending them to take advantage of the new hardware capabilities, leveraging third-party libraries and APIs including SDL, OpenGL and FFmpeg to implement high-performance video. Developing custom smartcard-based security using PC/SC and BasicCard.
- The design of a custom embedded Linux distribution, with a 2.6 kernel configured for optimal performance on the hardware platforms, and developing device drivers for touchscreen devices, coin and note acceptors and payout hoppers.
- Developing a multi-threaded game hosting platform and operator console (including GUI design).
- Establishing a completely new Linux development environment (including a complete toolchain with cross-compiler) for the company's team of software engineers.

As the company's expert in Linux, I have mentored the software engineers (previously unfamiliar with Linux) in the new platform, as well as in OpenGL, and other new technologies. Whilst at the company, I also implemented a custom-designed continuous integration system.

Other projects I undertook were the development of libraries and device drivers for both Linux-based and ColdFire-based gaming platforms, the design (electronics and firmware) of a PICmicro-based external Random Number Generator, and a PIC-based interface board used for coin metering using a custom communication protocol to communicate with the host gaming controller in real-time.

I developed a complete server-based gaming platform for the Czech Video Lottery Terminal (VLT) market, enabling operators and government authorities to securely access financial data from the terminals, and allowing the operators to manage all aspects of running the terminals remotely from their headquarters using a secure data-driven web application. This included programming at the Ethernet socket-level in order to facilitate secure communications in real-time between terminals and the servers.

Skills: GNU C, C++ (GCC, GDB, DDD), Embedded Linux, PostgreSQL, MySQL, PIC (assembler and SDCC C), ColdFire, BasicCard, PC/SC, OpenGL, MPEG, SDL, Qt, PERL, PHP, Javascript, Subversion, bash/shell scripting, gEDA, device drivers

Apr 2001 – Oct 2003 : I.T. Manager, Younger Mfg. Co., CA, USA

Oct 2003 – Feb 2005 : Senior Developer, Younger Mfg. Co., CA, USA (working from UK)

From April 2001 - October 2003 I managed the I.T. department. This was a hands-on role, consisting of 50% management and 50% software development. As manager, I was responsible for staffing, managing the annual I.T. budget, defining the company's I.T. strategy, and taking a technical lead role in development projects.

Major software development projects I led were a touch-screen order entry system, a custom Accounts Receivable system, and a branch sales data warehouse and OLAP decision support system for analyzing sales data. I also developed a safety-critical chemical storage monitoring and alarm notification system.

I also managed the planning and deployment of the I.T. infrastructure of a new stock office in the Czech Republic, and a new manufacturing plant in Mexico linked with the HQ in California.

After moving back to the UK in October 2003, I continued to work for Younger remotely as a senior software developer for 16 months.

Skills: VB, Visual C++, COM/ActiveX, UML, SQL Server (including OLAP and DTS), Crystal Reports, ASP, IIS, OLAP@Work (acquired by Business Objects SA), XML, TAPI, Speech SDK, National Instruments NIDAQ

Oct 2000 – Mar 2001 : Software Architect & Development Team Leader, Toyota, CA, USA

I undertook the dual role of software architect and software development team lead. During my time at Toyota, I successfully developed and documented the complete solution architecture of a mission-critical web-based car sales analysis and production planning system as part of a major multi-million dollar project, whilst also managing the team of six developers. I applied the UML while developing the architecture documentation to unambiguously capture the system's design for the benefit of the development team.

My specific responsibilities were defining the architecture and designing the major software components of the system, including the logical and physical design of the Oracle 8i database, and also managing the development team. I worked closely with the analysts in developing and refining the system's Use Cases.

A significant challenge I successfully undertook in this role was ensuring that all members of the development team fully understood the use cases and the architecture of the system. Not all of the development team had UML experience, so some mentoring was required to ensure that everyone understood the project artefacts.

Skills: OOA/OOD, UML, Rational Unified Process (RUP), VB, ASP, IIS, Oracle 8i, MTS/COM+, XML, XSLT, Rational tools (Rose, ClearCase, ClearQuest)

Apr 1999 – Oct 2000 : Senior Developer & Team Leader, Younger Mfg. Co., CA, USA

I led a development team in the delivery on-time and within budget, of a mission-critical three-tier client-server ordering, shipping, billing and data warehousing solution for a manufacturing company, making a seamless transition from an aging non-Y2K compliant system. Integrating with a third-party accounting package, the system provides barcode-scanning driven services for warehousing and goods shipping, and customized user interfaces for pricing, customer service, and management reporting.

Skills: Analysis, Design, VB 6, UML, SQL Server (including OLAP and DTS), COM/ActiveX, ErWin, Crystal Reports, GUI design

Apr 1997 – Dec 1998 : Senior Developer, Sema Group, Nottingham, UK

Senior team member, building high-profile train ticket vending applications. I became involved in several different projects during the time I was at Sema:

- Graphical client application for manipulating detailed schematics of the railway infrastructure. The application communicates with an existing railway asset database system hosted on a CICS mainframe.
- Multi-user GIS train planning system. The system allows train planners, using graphical client applications communicating with an Oracle database server, to view and maintain rail network links on a geographical representation of the UK railway. In this project I was involved in Object Oriented analysis and design, heavily employing UML to model and document the design.
- Developing two types of train ticketing system, and designing a common framework for ticketing applications. The first project was to develop a GUI driven desktop ticketing machine to be used by counter staff in train stations. My contribution was to design a new OO framework in C++ for ticketing applications, and writing a number of system utilities in support of the application. In the second assignment, I undertook a lead role in the development of a new unattended train ticket vending machine. In this project, we used CORBA technology to integrate several software components written in C++ (using Iona's Orbix). As this project involved integrating some software components that were written outside of my team by Swiss developers, the co-ordination of IDL interfaces was critical to ensure the smooth integration of the system.
- Designing the architecture, and implementing a helpdesk system for managing alarms raised by unattended train ticket vending machines.

Skills: OOA/OOD, Visual C++/MFC, UML, Oracle, SQL Server, CORBA, COM, ActiveX

Portfolio of Other Projects

In addition to the professional work experience listed in the Career Summary above, I have also developed a number of other software projects.

- **OTP Generator** (<http://itunes.apple.com/sg/app/otp-generator/id294055241>) - Standards-based one-time password generator for the iPhone and iPod Touch (compliant with RFC-2289, RFC-1938 and RFC-1760).
Skills: Objective-C, iPhone, Mac OS X
- **TimeSleuth** (<http://www.timesleuth.org>) - PDA time tracking system.
Skills: C++, Qt (embedded), Linux
- **MotoRobots** (<http://motorobots.sf.net>) - Embedded real time robotics software library for 32-bit Motorola microcontrollers and microprocessors.
Skills: Motorola 68K Assembler, C, Embedded
- **Open Automaton Project** (<http://oap.sf.net>) - Mobile robot reference design.
Skills: PICmicro Assembler, C, Linux, Embedded
- **JBarcodeBean** (<http://jbarcodebean.sf.net>) - JavaBeans barcode component.
Skills: Java, JavaBeans, JFC Swing, Servlets.
- **Wedding Wishes** (<http://www.weddingwishes.co.uk>) - Wedding directory, budget tracker (web and mobile) database-driven web application with integration with social networks.
Skills: Python, Django, HTML, CSS, Javascript, jQuery, jQuery Mobile, MySQL, Linux, Apache
- **Open Source Resource Centre** (no longer on-line) - e-commerce web site based on osCommerce, with significant PHP and MySQL customisation
Skills: PHP, MySQL, HTML, CSS, DHTML/Javascript, Apache, Linux
- **AnnounceList** (<http://announcelist.sf.net>) - Web-based group membership and mailing list system.
Skills: PHP, PostgreSQL, Apache, Linux

Academic and Professional Qualifications

- B.Sc. (Hons) in Electronic, Computer and Systems Engineering, with Diploma in Industrial Studies from Loughborough University, England (1986 – 1990)
- Member of the Institution of Engineering and Technology (MIET)
- Linux Professional Institute Certification (LPIC-1)
- Brainbench Master C++ Certification
- Sun Certified Developer for the Java Platform
- Sun Certified Programmer for the Java 2 Platform
- Microsoft Certified Solution Developer – MCSD (Visual Studio 6.0)
- Microsoft Certified Database Administrator – MCDBA (SQL Server 2000)
- Graduate Enterprise Program (Cranfield School of Management, England)

Personal Summary

My personal interests and hobbies include electronics, and robotics. I am well known within the amateur robotics community, having contributed several technical articles to robotics magazines. I am a fluent Welsh speaker. I hold a private pilot's license (fixed-wing light aircraft).