CURRICULUM VITAE M C Willett

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E-mail	: mcw@21-dc.com	**Nr. of Years in Industry** : 30+ years	
Nationality	: English	**Marital Status**	: Married with a son.
Languages	: English, Italian, basic German.		

SUMMARY OF EXPERIENCE

I have over 30 years of embedded software experience and consider myself an expert in developing real-time embedded software using the C programming language - 'hard' real-time, event driven state machines supported by any RTOS. Key to any project is communication and I feel this is something that I am good at both in the written and spoken word – most importantly, I enjoy helping to bring clarity and visibility to a project, a pre-requisite for success.

How I Can Help You Develop Embedded Products 'On Time' and 'Within Budget'

I specialise in 'features-first' requirements capture and specification, for rapid development of embedded systems with precise, high-quality code base construction. I can assist with the application of AI and tiny language models for generating custom embedded code frameworks for embedded systems projects.

Define your product within a structured framework for complete product specification.
- Feature sets, features, feature requirements, use cases, use case requirements and device configuration requirements. Take a look at an example – the Oven Project.

This provides you with.
- A specification from which the 'best fit' architecture is determined.
- Full documentation of your product IP for asset protection.
- Full descriptions of your product behaviour and functionality so that inhouse knowledge and expertise can be shared across teams, products and product variants.
- Contractual documentation for client acceptance of deliverables.
- Up to 70% reduction in time, resources and costs.

Using a finalised product specification, an engineering team can choose the most appropriate implementation strategy.
- Hand-crafted code implementation by inhouse engineering teams.
- Code framework generation using my applied AI and language model technology.

This is about systems definition, not just requirements capture. It lets you define an embedded product as a set of bounded behaviours, each with its own intent, scenarios, and invariants.

DOORS and similar tools treat requirements as the primary object. You start with clauses and try to assemble a system out of them. Engineers end up:
- Reading prose instead of structure.
- Chasing IDs instead of behaviour.
- Inferring architecture from text.

- Discovering conflicts late.
- Carrying "global" requirements nobody really owns.

I start with what the system actually does. Each feature is a real behavioural capability. Inside that feature you define:
- What it is for.
- When it is exercised.
- What must always be true.
- What must never happen.
- What hardware it touches.
- What resources it consumes.

Requirements are not a separate universe. They are the laws of that behaviour.

So instead of this mental model:

"We have a pile of requirements. We will implement a system that satisfies them."

You get this:

"The system is a composition of lawful behaviours. Each behaviour is complete, bounded, and owned."

The practical engineer pitch:
- You stop writing abstract requirements and start modelling real behaviour.
- Every requirement lives inside the feature it governs.
- Use cases are not decoration, they drive structure.
- Hardware constraints are not global footnotes, they are part of the feature contract.
- Architecture emerges from feature boundaries instead of being guessed up front.
- Traceability becomes natural because nothing exists without context.

DOORS proves you complied with text. I can help you define a system that cannot misbehave.

To an embedded engineer, that lands in a very different place. It is not "better paperwork". It is a way to think in systems again, using software that matches how embedded products actually exist.

Client Customers

Unicorn Engineering - TomTom - SCHINDLER Lifts - G&D - INFINEON – GPT - MARCONI - ALCATEL - NOKIA - SIEMENS - PHILIPS - DIGI-MEDIA VISION - THORN-EMI - ITT - HASLER – RACAL

SPECIALIST SKILLS

Software development, firmware and 'bare metal' from the ground up. Software architecture, technical auditing, project management of the entire product development lifecycle, SW porting and reverse/re-engineering. Excellent communicator and documentation skills. I personally developed a Virtual State Machine Technology (VSMT) to support a Rapid Application Development Methodology. I wrote an article on the subject earlier in my career - download at http://vsmt.21-dc.com/Documents/Article.pdf

Product Development Areas

Smart Devices for Android and iOS products - Security and Payment Systems – Smart Cards – NAND Flash Memory drivers - SPI, I2C protocols – GSM – GPRS – ATM – Frame Relay – ATM Passive Optical Network (PON) – Set-top Boxes – Flight Data Recorders – System 12 – SDH/PDH Multiplexers – Ticketing Systems – Teletext - Voice and data PaBXs - Network Management Systems - CASE Tools Development - Embedded Systems - ASIC SW Development - Electronic Point of Sale Equipment (EPOS) - Railway Signalling and Control Systems - Store and Forward Message Switching - Transmission Equipment Firmware - Communications Protocols - ISDN – Embedded OS and BIOS Development - Methodologies and Standards - Voice Mail & Messaging – Mobile/Radio Comms – Packet Switching Networks.

Languages, Development Tools and Standards

Low-level Embedded C / C++ - Java and Java Card – HTML - PASCAL - CHILL - PLM/n86 - PLM/51 - SQL - Object Oriented Design and Programming (OOD) - SSASD - TEAMWORK - Intel 8051/88/n86 assemblers - RCA 1802 assembler - 6502 and Z80 assembler - CORAL - COBOL - RPG II - Motorola 68000 assembler - YOURDON - WINDOWS - Borland DELPHI – MS ACCESS – Tornado - Keil RealView – ClearCase – uVision – Eclipse – CMSIS – MISRA - SNiFF – pRISM - Agile/Scrum.

Hardware

ARM Cortex - PCs - SUN & Apollo WSs - DEC VAX - Intel MDSs - ICEs - Data Line Monitors - Logic Analysers - Intel processors and support chips - RCA - HP - Motorola 68000 MDSs - Beaglebone.

Operating Systems

VxWorks – QNX – Global Platform – RTOS – VSMT-OS – FreeRTOS, pSOS - OS/9 – VRTXsa - RMT 51/n86 - VMS - MTOS with HSFS - RMX/86 - MSDOS - MIRTOS - TMOS - POS - UNIX - GEORGE III - Context – pSOS – QP – eCOS – Linux Debian

CAREER PROFILE

Aug 2025 – present   Solaros Embedded Frameworks, Italy

Project:	Features-First embedded code frameworks
Position:	Technical Lead, Product Development.
Hardware:	LPC1769/OM13085 cortex m3 development target, SPI/I2C/UART serial comms.
Languages:	Embedded C, MISRA compliant.
Dev. Env.:	WINDOWS 10, LPCXpresso IDE, VSMT-OS, Solaros, AI and TLM for IoT, Visual Studio and Visual Code, MS-Office and Doxygen.

I am working on the application of AI and tiny language models for generating custom embedded code frameworks for embedded systems projects. This is part of a greater project to formalise the requirements capture process within the scope of a Feature-Driven Design methodology. Product features and requirements are described in plain English, from which pre-production C code is generated with state machine architectures, scheduling, and event-processing infrastructures built-in and configured for product specific use cases – tool chain and RTOS agnostic. Application of this technology significantly reduces costs, effort and time to market – by up to 70%.

Nov 2024 – Aug 2025   EM Microelectronics – Marin, Switzerland

Project:	Automotive IoT - Sensory Data devices over BLE
Position:	Software Project Manager (freelance).
Hardware:	32-bit ARC target SoC (28kB RAM, 64kB ROM, 256kB FLASH.
Languages:	Embedded C, MISRA compliant, ASPICE software certification L2, Quantum Leaps QPC.
Dev. Env.:	MS Windows 11, Visual Studio Code, MS Teams, Git, Azure DevOps, Tuleap Agile project management, Doxygen, Synopsis Metaware tools chain, Doors.

I have been working as software project manager for the final 9 months of a data sensor and collection device over low energy Bluetooth, for the automotive industry. There were many open issues and limited resources available so the challenge to achieve a delivery of production software on time and to specification was intense - a successful conclusion to a very good project.

May 2023 – Oct 2024   RADE System Platforms, Italy

Project:	IoT-MCU generic platform for Sensory and Data Collection devices
Position:	Embedded Software Engineering Consultant (freelance).
Hardware:	LPC1769/OM13085 cortex m3 development target, SPI/I2C/UART serial comms.
Languages:	Embedded C, MISRA compliant, MQTT/client over wireless TCP/IP.
Dev. Env.:	WINDOWS 10, LPCXpresso IDE, VSMT-OS, FreeRTOS, Visual Studio and Visual Code, MS-Office and Doxygen.

I have been working on a generic platform for high volume, low unit cost sensory devices (IoT-MCUs) for the mass collection of data for cloud-based analytics. The platform has been designed primarily for MQTT/client over WiFi to gateway servers making use of AWS for data transfer to web-based applications. The software stack includes an RTOS (VSMT-OS), MQTT/client, TCP/IP with abstraction layer for wireless comms and device specific drivers. I have also made feature enhancements to the Virtual State Machine Technology I designed and implemented for rapid development of 'hard' real-time multi-tasking embedded software solutions on IoT MCUs. Wirelessly connected alongside Google, Amazon and other web services, VSMT/Smart-OS is a perfect development platform for IoT data collection and monitoring devices. The technology is based on an event driven design methodology that provides an operating system which allows unlimited virtual state machines to execute as 'event' or 'frequency' scheduled tasks. 'Frequency scheduled' tasks can be scheduled at regular intervals rather than being scheduled every scheduler cycle, whereas 'event scheduled' tasks execute only when there is an event waiting to be processed. Latest updates provide a full off-line test harness for module (unit) testing and work is under way on the real-time system test harness for integration and regression testing. VSMT is target processor independent. Compile, build and GO – on any platform. Performance testing alongside alternative free real-time operating systems show that the Smart-OS for IoT MCUs is faster, smaller and simpler whilst offering a more appropriate and feature-rich API – ideally suited for IoT microcontrollers, SoC and all small, bare-metal target system solutions.

Dec 2022 – Apr 2023   Servus Intralogistics GmbH, Dornbirn, Austria

Project:	Intelligent Distribution Robots
Position:	Embedded Software Engineering Consultant (freelance).
Hardware:	STM32Hxxx advanced Arm-based 32-bit MCU, STM32 power saving control logic, ADCs.
Languages:	Embedded C, MISRA compliant.
Dev. Env.:	WINDOWS 10, Eclipse IDE for C/C++ v.2021012 (4.22.0), FreeRTOS, Oracle VirtualBox 7.0, Ubuntu (64-bit).

Implemented the STM32 low power handling for all integrated ADC devices. Reviewed, designed and implemented a system power saving strategy for the STM32 MCU, it's power domains and associated peripheral devices. This required a detailed knowledge of functionality described in the STM reference manual along with in-depth understanding of the low-power modes and activation methods.

Oct 2021 – Nov 2022   RADE System Platforms, Italy

Project:	Virtual State Machine Technology
Position:	Embedded Software Engineering Consultant (freelance).
Hardware:	LPC1769/OM13085 cortex m3 development target, SPI/I2C/UART serial comms.
Languages:	Embedded C, MISRA compliant.
Dev. Env.:	WINDOWS 10, LPCXpresso IDE, VSMT-OS, FreeRTOS, Visual Studio and Visual Code, MS-Office and Doxygen.

Feature enhancement of the Virtual State Machine Technology I designed and implemented for rapid development of pre-emptive, real-time multi-tasking embedded software solutions. This technology is based on an event driven design methodology that provides an operating system which allows an unlimited number of virtual state machines (functional processes) to be scheduled on a frequency or event driven basis, in the same scheduling environment. Latest updates make the VSMT software package target processor independent. Compile, build and GO – on any platform. Ongoing development of bespoke library features allows developers to focus only on application specific functionality.

Jan 2021 – Sep 2021   Restoration Project, Italy.

Full-time working on a home restoration project.

Jan 2019 – Dec 2020   Panthronics, Graz, Austria.

Project:	Smartcards, Vicinity and Proximity Devices.
Position:	Embedded Software Engineering Consultant (freelance).
Hardware:	LPC1125 cortex m0 development target, NFC, host card emulation and POS readers, SPI/I2C/UART serial comms.
Languages:	Embedded C, MISRA compliant.
Dev. Env.:	WINDOWS 7/10, Eclipse IDE, Atlassian Confluence, SourceTree, GIT and Bitbucket, Visual Studio and Visual Code, MS-Office and MCUXpresso, Doxygen, Continuous Integration.

Development of feature enhancements and software stacks for product specific application systems for payment and proximity-based transaction processing. Software development and bug fixing using embedded C on various target platforms. One of the tasks was to design and implement an event collection and distribution mechanism for all low-level events to ensure asynchronous presentation to application programs.

May 2017 – Dec 2018   UE Energy Systems, Stuttgart, Germany.

Project:	Intelligent Battery Systems.
Position:	Systems Architect and Technical Consultant (freelance).
Hardware:	Linux Debian target OS on Beaglebone with CAN bus protocols. eBike system components, Bluetooth LE, NFC, CAN-open, EnergyBus.and USB protocols.
Languages:	Embedded C, MISRA compliant.
Dev. Env.:	WINDOWS 7/10, Netbeans IDE 8.2, Visual Code, MS-Office, GIT, Redmine.

Development of a modular, intelligent battery system for home storage, e-Bike and other portable devices. Worked on the development plan and product specification of a Developer Kit product that allows configuration and status reporting of application specific battery systems. All inter-device communication via CAN bus. I also specified all the use cases for e-Bike operation and 'plug and play' device interoperability - battery management systems, drive motor systems, human interface devices and charging systems. This was followed up with the implementation and successful release of the new Developer Kit product.

March 2016 – April 2017   Off-grid Solutions, Imperia, Italy.

Project:	Smart Living.
Position:	Director of Operations.
Hardware:	IT only used in the context of back-office support for the projects..
Languages:	n/a.
Dev. Env.:	WINDOWS 7/10 Enterprise, MS-Office.

Development of sustainable, eco-friendly off-grid living solutions. I spent a year working on a self-sponsored project to design and prototype off-grid solutions for 21st century living. The project focused on domestic water (drinking, grey and black), flushed water bio-composting sewage systems, passive solar heating (air space and water), biomass heat recovery and low impact sustainable construction using locally sourced materials. The project was a great success and really a lot of fun!

Oct 2015 – March 2016 TomTom International, Amsterdam, Netherlands.

Project:	Mobile Navigation Devices.
Position:	Software Development Engineer (freelance).
Hardware:	PC development hosts, Arm Cortex target controller board running QM framework and RTOS, touch screen, Bluetooth and USB comms protocol stacks.
Languages:	eClipse C/C++, Embedded C, MISRA compliant.
Dev. Env.:	WINDOWS 7 Enterprise, MS-Office, Linux Ubuntu, Keil uVision IDE, simulator, Git, Gerrit, Jira in an Agile/Scrum project team.

Development of touch screen driver extensions and an application API for feature image handling. In addition, produced a set of client commands for instigating test and control operations from the client host to device under test via a USB interface. I also implemented the battery charge informational displays as part of the power management user interface, and helped integrate and 'bug-fix' 3rd party software.

Apr 2015 – Oct 2015   Schindler Lifts, Luzern, Switzerland.

Project:	Safety Critical Lift Control Systems.
Position:	Software Development Engineer (freelance).
Hardware:	PC development hosts, Coldfire MCF5281 target controller board running eCos RTOS, I2C and CAN bus protocols.
Languages:	Visual Studio C/C++, Embedded C, MISRA compliant.
Dev. Env.:	WINDOWS 7 Enterprise, MS-Office, Keil IDE, uVision, simulator, ClearCase, Agile/Scrum.

RAM and ROM footprint reduction, bug fixing and feature enhancements relating to lift/elevator drive systems. Development and integration of new 'in the field' test facilities, integration and test of a new frequency converter for the lift drive systems. 'dead code' / duplicated code analysis and subsequent 'clean up', analysis of message buffering system in order to reduce resource demands without compromising 'peak' and 'burst' load system requirements. Apart from the hardware/firmware integration activities, all my tasks were related to fine-tuning the real-time and memory usage aspects of the system so that system performance and availability could be maintained with fewer resources.

Sep 2012 – Jan 2015   G&D, Munich, Germany.

Project:	Chip Card Development (security & payment).
Position:	Software Development Engineer (freelance)
Hardware:	PCs, ARM cortex-m3, Cortex Microcontroller Software Interface Standard (CMSIS).
Languages:	Java Card, Embedded C, ARM assembler, Infineon SLExxxx asm, NXP asm.
Dev. Env.:	WINDOWS 7 Enterprise, MS-Office. Keil RealView Microcontroller Development Kit; uVision, Eclipse, IDE, debugger, simulator, Java, Java Card, Global Platform, assembler, linker, C coding conforming to MISRA 2004 rules, ClearCase, Agile/Scrum.

Global Platform (GP) projects: worked on the development of a generic GP implemented for a Java card target environment, used for a variety of payment and security systems including credit cards, subscription cards and

e-passports. More specifically, worked on the development of 'StoreData', putData' and associated OS features. Other activities included work on the Java virtual machine byte-code security, system build and product variant configuration.

Firmware projects: development of low-level firmware drivers for smart card chip sets OS feature enhancements. Integration of new SPI and I2C drivers for flash memory extensions. Another of my responsibilities was for footprint reduction, performance improvement activities and real-time OS improvements.

Requirements/Reverse-engineering: much of the OS and drivers (hardware abstraction layer in C and assembler) were legacy code from projects dating back 10 years so most of the generic functionality was reverse engineered to produce meaningful API documents and functional descriptions. Additionally, some of the APs were not formally written against requirements so the Java code had to be studied and updated with requirements reference points so that the test engineers could correlate tests against real requirements from marketing / standards specs. For all new software we initially agreed the product requirements prior to producing feature specifications and appropriate 'use cases', from which system and module level documentation could be written as input to the implementation teams.

Dec 2010 – Mar 2012   Infineon Technologies, Munich/Germany & Graz/Austria.

    Project: Security Chip Cards Development.
    Position: Software Development Engineer (freelance)
    Hardware: PCs, ARM cortex-m3, Cortex Microcontroller Software Interface Standard (CMSIS), SPI, NOR Flash memory devices. **Languages**: C, ARM assembler
    Dev. Env.:   WINDOWS 7 Enterprise, MS-Office. Keil RealView Microcontroller Development Kit; uVision, IDE, debugger, simulator, C/C++ compiler, assembler, linker. CMSIS C coding conforming to MISRA 2004 rules, ClearCase, Agile/Scrum.

Chip card development of HD SIM offering extended flash memory options on the latest SIM cards. This comprised of a Flash Translation layer to allow robust, reliable memory access to NOR flash memory devices over an SPI interface I had to develop. Wear levelling, bad block management and 'tearing' were the key features of the flash driver. I then had to port the a firmware sub-system to a new ARM-based target environment with start-up code, low level firmware resources and application notes being the deliverable package to client companies developing chip-card applications.

Mar 2005 - Aug 2010   Freelance Business and Technology Consulting, Italy

    Position: Software Development Engineer (freelance)
    Hardware: PowerPCs, PCs, 8051, 80286, 8086, ARM. **Languages**:   C, C++, x86 assembler.
    OS: WINDOWS XP/7, MS-Office, Vx-Works, pSOS, RTOS, QNX, SNiFF+, pRISM+, Keil, KRC & Hitex, jTag debuggers, OO Analysis.

I have been working on a variety of business and technology projects in Italy and the UK. Projects include; firmware for BIOS and driver development, broadband and wireless communications, debugging and enhancement of 'legacy' software, porting of Virtual State Machine operating system to a variety of target environments and train network signalling systems. All of my work involves Real Time software in embedded systems.

Oct 2004 – Mar 2005   Fujitsu Telecommunications, Birmingham, UK

    Project: ATM Switching equipment
    Position: Software Development Engineer (freelance)
    Hardware: PowerPCs.
    Languages: C, C++, 8051 assembler. **OS**: WINDOWS XP, MS-Office. Vx-Works.

Worked on the high-level design studies of new ATM switching cards to be incorporated into SDH/Broadband network equipment.

Sep 2002 – Apr 2004   Infineon Technologies, Sophia Antipolis, France.

Project:	Security Chip Cards Development.
Position:	Software Development Engineer (freelance)
Hardware:	PCs, 8051 **Languages**: C, C++, 8051 assembler
OS:	WINDOWS 2000P, MS-Office. Keil, KRC & Hitex emulators

Design, development and enhancement of software tools test environment. This focused primarily on software process improvement, coordination and planning of team activities, and development of an automated regression testing system.

Jul 2000 – Apr 2002   Marconi Communications: Genova, Italy / Pittsburg, USA.

Project:	1. ATM Switch Development. 2. ATM PON Development
Position:	Software Development Engineer (freelance)
Hardware:	PCs, Motorola PowerPC xpc8260 **Languages**: C, C++
OS:	WINDOWS NT, MS-Office, C/C++, pSOS, SNiFF+, pRISM+

My first project was to design and implement driver software for the ATM switching fabric and the connection management layer for ATM/Frame Relay Access Hub systems. The second project concerned ATM PON Development for an ATM-PON system in accordance with ITU-T Recommendation G.983, to enable multi-vendor interoperability between the OLT and the ONT. Working from G0983.1/2, I specified the PON driver software, being the interface between OLT/ONT high-level control software and the ODN hardware functions which supports the FTTH (Fibre to the Home), FTTB/C (Fibre to the Building/Curb) and FTTCab (Fibre to the Cabinet) functionality required.

Jun 1999 – Jun 2000   Siemens (Italtel), Milano, Italy.

Project:	GPRS / GSM Product Development
Position:	Software Development Engineer (freelance)
Hardware:	PCs, Intel 386 / 486 / Pentium, Motorola 68322 **Languages**: C, C++
OS:	WINDOWS NT, MS-Office, MS-Visual C++, CAD-UL, pSOS, UNIX, RTE

Responsible for the development of a new OS platform on which AP software from various OS environments could be ported and run 'platform' independent, with no modification to the software. This was primarily to allow for the integration of 3rd-party software products with existing product specific core software. The new, pSOS-based platform is then able to host many emerging internet telephony products along with the core GPRS / GSM products to dramatically reduce 'time-to-market'.

Jan 1999 – Jun1999   Philips, Hasselt, Belgium.

Project:	Digital Set-top Box / Web TV Product Development
Position:	Systems Development Engineer (freelance)
Hardware:	PCs, Philips Tmips 7219 **Languages**: C, C++, HTML
OS:	WINDOWS NT, MS-Office, MS-Visual C++, Clearcase, pSOS

Responsible for the development of the board support package for the target processor board and getting pSOS 'up and running' in order to provide the platform on which TV stack and web related applications could be integrated.

Jan 1998 – Jan 1999   Alcatel Bell, Antwerp, Belgium.

      Project: System 12 Product Development
      Position: Systems Development Engineer (freelance)
      Hardware: Sun Workstations, PCs   **Languages**:   C++, HTML
      OS: MS-DOS, MS-WINDOWS, Unix, MS-Office, Interleaf, Netscape

Responsible for the requirements capture, analysis and feasibility, and technical specification of a range of supplementary services for the public and private voice/data networks. All specifications must be compliant with the various international telephone standards, i.e. ETSI. Main focus of project was to specifiy a new generic World Release in order to reduce costs and lead-times associated with multiple country/customer variants.

May 1997 – Dec 97   Penny & Giles Aerospace, Christchurch, Dorset.
    Project: Flight Data Recorders for Flight Operations Analysis **Position:** Software Systems Development Engineer (freelance) **Hardware:** Motorola 68332 processors, PCs **Languages:** Microtec C, VRTXsa, 68332 asm, SELECT Yourdon, IntaSoft AllChange **OS:** MS-DOS, MS-WINDOWS, Microtek XRAY debugger

Apr 1996 – Apr 1997   Digi-Media Vision Ltd, Southampton, Hampshire.
    Project: SDH / PDH Multiplexing Equipment for Digital TV Broadcasting **Position**: Software Systems Development Engineer (freelance) **Hardware**: Motorola 68332 processors, PCs **Languages**: Microtec C, VRTXsa, 68332 asm, **OS**: MS-DOS, MS-WINDOWS, Microtek XRAY debugger

Jan 1996 - Mar 1996   Wayfarer Transit Systems, Poole, Dorset.
    Project: Transport Ticketing Systems **Position**: Software Systems Development Engineer (freelance) **Hardware**: Intel 80386ex processors, PCs **Languages**: MSVisual C, Borland DELPHI **OS**: MS-DOS, MS-WINDOWS, Microtek Emulator

Jun 1995 - Dec 1995   Philips Semiconductors, Southampton, Hampshire.
    Project: Chinese Teletext Decoder **Position**: Software Systems Development Engineer (freelance) **Hardware**: Philips RH24, Intel 8051 processors, PCs **Languages**: C, Borland DELPHI **OS**: MS-DOS, MS-WINDOWS, Apollo Wss, Unix

Oct 1994 - May 1995   RACAL Communications, Seaton, Devon.
    Project: Secure Radio Networks **Position**: Software Systems Development Engineer (freelance) **Hardware**: Motorola 68000/68332 processors, PCs **Languages**: C, 68000 assembler **OS**: MS-DOS, MS-WINDOWS, VSMT-OS, Intersolv PVCS, WinEdit, HIWARE Hi-Cross

Mar 1994 - Sep 1994   THORN Transit Systems, Wells, Somerset.
    Project: Networked Ticket Issuing System for the Stockholm Metro **Position**: Software Systems Development Engineer (freelance) **Hardware**: Intel 80186/386 & 8051 processors, PCs, UNIX workstations **Languages**: C, PLM **OS**: MS-DOS/WINDOWS, UNIX

Apr 1993 - Mar 1994   BBT Limited, Poole, Dorset.
    Project: Network Based Intelligent Voice Services. **Position**: Software Systems Development Engineer (freelance) **Languages**: C, PASCAL, 68302 Assembler **OS**: MS-DOS, MTOS, MS-WINDOWS, UNIX, VX Works

Nov 1991 - Dec 1992   DORSET TEC, Bournemouth, Dorset.
    Project: Technical Consultancy and Systems Development. **Position**: IT Manager (freelance) **Languages**: PLM/51, ASM51, SQL, PASCAL, ULTRIX, MS-DOS, MS-WINDOWS.

Jun 1991 - Sep 1991   ALCATEL-HALOCS BV., The Hague, The Netherlands.
    Project: Home based telecommunications product development **Position**: Software Systems Development Engineer (freelance) **Languages**: PLM/51, ASM51, Alcatel's own hw & sw development tools

Mar 1991 - May 1991   ALCATEL-AUSTRIA AG., A-1211 Vienna, Austria
    Project: X.25 Data Concentrator development **Position**: Software Systems Development Engineer (freelance) **Languages**: CHILL, ASM186, Alcatel's own hw & sw development tools, VMS, RMT/186

Feb 1990 - Feb 1991   MISSION SERVICES Ltd., Poole, Dorset.
    Project: Network Management Systems development **Position**: Software Systems Development Engineer (freelance) **Languages**: PASCAL, CORAL, n86 assembler, VMS, MSDOS, POS

Sep 1989 - Jan 1990   NOKIA TELECOM Ltd., SF-02601 Espoo, Finland
Project: Setting up a new product development centre **Position**: Engineering Manager **Languages**: C++, X/Windows, OSF-Motif, UNIX, VMS, MSDOS, TEAMWORK

May 1989 - Aug 1989
I spent most of this time moving back to the UK and seeking new employment.

Mar 1986 - Apr 1989   ALCATEL-AUSTRIA AG., A-1211 Vienna, Austria
Project: ALCATEL 5200 BCS (Business Communications Systems) - voice and data PaBX product development **Position**: Software Systems Development Engineer (freelance) **Languages**: CHILL, ASM51, ASM286, Alcatel's inhouse tools, RMT/51, RMT/286

Oct 1985 - Mar 1986   MISSION SERVICES Ltd., Poole, Dorset.
Project: Design Methodologies and SW Quality **Position**: Software Systems Development Consultant (freelance)

Mar 1985 - Sep 1985   THORN-EMI (ARCS), Wells, Somerset.
Project: DRU (Data Retrieval Unit) - development of data requisition equipment for an Automated Ticket Issuing System based on Point-of-Sale terminals. The DRUs enable automatic update of POS terminals by providing a communications interface with the national accounting centres. They are also used for the store and forward of sales transaction data. **Position**: Software Design Engineer (freelance) - DRU development **Languages**: VAX PASCAL, HP 64000 PASCAL, Intel 80186 Assembler, VAX VMS development, MTOS for target

Mar 1984 - Mar 1985   GEC, Borehamwood, Herts.
Project: SSI Monitoring System for Railway Signalling and Control applications. **Position**: Senior Analyst/Programmer (freelance) - Systems & Applications group. **Languages**: Intel 8086 Assembler, Intel Macro Processing Language, System Design Language, VAX VMS & MSDOS for development, TMOS for target.

Aug 1983 - Feb 1984   Seven months spent travelling in Europe and North Africa.

Nov 1982 - Jul 1983   ITT (The Commercial Cable Company), London
Project: ADX MKIV Message Switch - development of a message switch providing store and forward facilities for terminal users interfacing with the Telex network. **Position**: Senior Analyst /Programmer (employee) **Languages**: PLM/86, 8086 asm MIRTOS

Jul 1982 - Oct 1982   Hasler AG, Bern, Switzerland.
Project: T203 Development - SPC Telex Exchanges for national and international telex networks. **Position**: Software Engineer (employee) - Applications Group. **Languages**: T203 Assembler, TOS

Oct 1979 Jun 1982   Plessey Secure Digital Systems, Christchurch, Dorset.
Project: MRS (Multi Role Switch) - a multi-purpose military PaBX system providing both voice and data communication facilities. Modular component architecture to allow customer specific configurations with total redundancy option. **Position**: Analyst/Programmer (employee) - MRS Design Group. **Languages**: Intel 8086 Assembler, CORAL 66, VAX VMS for development, CONTEXT for target, MASCOT design methodology.

Nov 1978 - Oct 1979   The Plessey Company, Poole, Dorset.
Project: PTARMIGAN **Position**: Trainee Programmer (employee) - Device and Message Handling. **Languages**: PP250 Assembler, GEORGE III & DEVPOS for development, POS for target.

Education

Sep 1972	**Lytchett Minster Secondary School**
- Jul 1977	7 GCE 'O' levels in; Mathematics, English, Physics, Geography, Biology, Metalwork, Woodwork.
Sep 1977	**Bournemouth College of Technology**
- Jun 1978	'A' levels in; Pure Mathematics, Applied Mathematics and Physics.
Jul 1978	**Control Data Institute, London**
- Nov 1978	Diploma in Commercial Programming and Data Processing
Nov 1978	**Dorset Institute of Higher Education**
- Jun 1980	HNC Computer Studies
Jan 1982	**Integrated Computer Systems, London**
	Diploma in Structured Design and Programming for Real-time Applications
Jan 1983	**Integrated Computer Systems, London**
	Diploma in Computer Network Design and Protocols
May 1989	**Self-Study and OY Integro, Finland**
- Dec 1989	Goal Oriented Management, Team-building and Communicating & Understanding People. I also made a comparative study of English, Japanese and European management styles and techniques.

Qualifications

HNC Computer Studies - Diploma in Structured design and Programming - Diploma in Computer Network Design and Protocols

Responsibilities

I attained the position of School Prefect. I was selected as Captain for various sports teams and in my final year, was voted House Captain to represent 25% of the school's pupils. I was also involved with several school drama productions.

Leisure Pursuits

Tennis, squash, walking, cycling, motorcycles, skiing, travel, travel photography, paragliding.