

## ENGINEERING SKILLS, PUBLICATIONS AND ACADEMIC RECORD

### DEVELOPMENT METHODOLOGIES

<i>Object Analysis</i>	<b>RUP</b> (Rational Unified Process) analysis, RT and non-RT method variants, UML notations. Pattern based architecture determination. Modified Coad-Yourden OO analysis. Martin Relational Database Schema analysis.
<i>Work management</i>	<b>XP</b> and Agile development methods. <b>EVO</b> risk management and work products delivery method.

### PROGRAMMING LANGUAGES

<i>High Level:</i>	<b>C++</b> (many variants/operating systems) with <b>STL/Boost</b> libraries <b>C</b> (Extensive experience, many variants/operating systems) <b>JAVA</b> (model 1.0.2, 1.1.8, Personal Java, 1.3, various JDK/AWT) <b>Object Pascal</b> (Delphi) <b>SQL</b> (limited) <b>InstallScript</b>
<i>Meta Languages</i>	Server-side CGI ( <b>PERL, JAVA Servlets</b> ) Client side DHTML ( <b>Javascript</b> ) <b>XML</b> (limited) <b>HTML/CSS, SGML</b> (limited)
<i>Assembler Level (Processors)</i>	ARM 9/Intel SA1100 (limited) Motorola 6800, 6809, 680X0, 68332 Intel 80X86 (relating to PC applications)
<i>Assembler Level (Controllers)</i>	PIC 12/14/16 series ARM 7 (limited) Motorola 68HC11 8051/31 (plus related family groups and derivatives)
<i><u>Other (mainly obsolete)</u></i>	PASCAL (Several variants including object based) FORTH (83, ASYST derivative) FORTRAN (66, F77, ratfor) BASIC (Many dialects) 8085/Z80 Rockwell 6502 AT & T DSP168047/48/35 Texas 1000/1100/1600 (4-bit) NEC 75XX series (4-bit)

### DEVELOPMENT ENVIRONMENTS

<i>Modelling</i>	<b>Rational Rose</b> (various versions) <b>UML Studio</b> (V1.05) <b>Together</b> (V6)
<i>Requirements Management</i>	<b>Requisite Pro</b>
<i>RAD</i>	<b>Delphi</b> 1.0, 2.0 (Borland) <b>C++ Builder</b> 1.0, 3.0, X (Borland) <b>JBuilder</b> 1.0, 2.0, 3.0, 5.0 (Borland) <b>Forte</b> 3.0 (Sun) <b>Visual C++</b> 5.1, 6.0 (Microsoft) <b>Visual Basic</b> (various versions, various products) (Microsoft) <b>Softbench CM</b> (HP)
<i>Instrumentation Tools</i>	<b>Purify/Quantify/Pure Coverage</b> (HP-UX, Windows NT variants) <b>ValGrind</b> (Linux V2.6)
<i>Source Control and Configuration Management</i>	<b>SubVersion SVN</b> (Windows and UNIX) <b>RCS, SCCS</b> (Many UNIX & DOS variants) <b>PVCS</b> (DOS, Windows and UNIX variants) <b>ClearCase</b> (RCS Client, HP-UX VFS)

<i>Build Control</i>	<b>Make, iMake, MakeMake</b> (various versions, many platforms) <b>Ant</b> (various versions, under Forte)
<i>Database Systems</i>	<b>Sybase V10, V11</b> (HP-UX) <b>Interbase</b> (Windows) 3.0, 4.5
<i>Graphical User Interface</i>	<b>X-Windows V11 R3.0, R5, R6</b> <b>Windows 2000, XP</b> <b>HP VUE, CDE</b> <b>HP SoftBench</b> C++ development suite, + integrated tools
<i>Deployment</i>	<b>InstallShield V5.1</b> <b>InstallAnywhere</b> <b>WISE</b> <b>JAR</b> Java Packager (various versions)
<i>Other (mainly obsolete)</i>	<b>SUN SunVIEW, OpenVIEW</b> <b>Programmers Workbench</b> (SUN) <b>GEM 2.1, 2.2, 3.1</b> (PC-based, applications) <b>GSS CGI</b> Virtual Device Interface (PC graphics system) <b>Windows V1.03, 2.01, 3.0, 3.1, 3.11</b> WFW

## OPERATING SYSTEMS

<i>Operating Systems (workstation and target development)</i>	<b>Linux:</b> V2.4 and 2.6 kernels (Debian/SuSE/Ubuntu distributions) <b>UNIX:</b> HP-UX 9.0.4 & 10.20; SunOS (up to 4.1.12); Solaris 2.x; FreeBSD 2.x, 3.x & 4.x; BSD 4.2 & 4.3 variants; System V variants; POSIX variants (Device driver experience on some systems) <b>Tao Elate:</b> (Audio Visual environment) V1.2, 1.3.1, <b>Intent JVM</b> <b>pSOS:</b> V2.x and <b>pNA+, pREPC, pHILE</b> extensions (x86) <b>OS-9:</b> 6809 V1.2 & 2.0 Level 1, V2.0 Level 2, 68K V2.3, V2.4 (Device driver experience) <b>VRTX:</b> V3.2 and IFX V2.08 & TNX V1.45 extensions (M68k) (Device driver experience) <b>Windows 2000/XP</b>
<i>Other (mainly obsolete)</i>	<b>Apple Macintosh V6.1, 7.1, 7.5, 7.6</b> <b>Windows NT 3.51, 4.0</b> (Workstation), 3.51 (Server) <b>Novell NOS V3.12, 3.2</b> <b>PC-DOS/MS-DOS/DR-DOS:</b> Various systems, various OS versions to V6.0 (Device driver/Networking applications) <b>VMS:</b> Version 5.3, 3.2 (VAX 11/780, MicroVAX II, VAXStation) <b>CP/M:</b> CIPHER CP/M 80 (Z80) V2.2, 2.5, 3.0, CP/M+ (Z80), MP/M <b>PRIMOS</b> (PRIME PR750) <b>XINU</b> (PDP 11) V6.1, 7.0

## OTHER DEVELOPMENT - SOFTWARE

<i>Shell Scripting</i>	Various shell script languages under UNIX/NT (sh, csh, ksh, DOS)
<i>Other Scripting</i>	Perl, Javascript, PHP (limited)
<i>Networking, RMI, RPC</i>	<b>Network Sockets</b> based distributed application development: <ul style="list-style-type: none"> <li>• Extensive TCP/IP Berkeley-style socket-based (various platforms including Windows, SunOS, HP-UX, pSOS and JAVA JVM).</li> <li>• Extensive RPC/RMI based application development (various platforms, including UNIX and JAVA JVM)</li> </ul> Limited IPX/SPX (Novell) <b>CORBA</b> based distributed application development <ul style="list-style-type: none"> <li>• (cross-platform, single platform, including UNIX and Windows)</li> </ul>

## OTHER DEVELOPMENT - HARDWARE

<i>Bus-based design</i>	SCSI 1 & 2 (Interfacing/Hardware design, device drivers) G64/96 (System and hardware design, device drivers) PC-ISA (8 & 16-bit IBM interfacing, device drivers) IEEE 488/GPIB/IEC 623 (Interfacing and device drivers)
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## MANAGEMENT & SUPERVISORY

<i>Project Management</i>	Training and experience with managing small projects, resource management and project planning (PERT/GANTT/Critical path analysis), personnel management, budgeting and estimation. Responsibility for equipment purchase & installation, office and working environment setup, personnel interview and selection.
<i>Technical Lead</i>	Process study and refactoring of existing processes and designs. Design assessment and consistency determination. Determination of application and system requirements. Responsibility for specifications and associated documentation. High level and detail design of systems and applications. Determination of functional patterns as architectural components. Responsibility for documentation and standards definitions.
<i>Supervision</i>	Supervision and direction of programmers and other staff. Supervision of development groups. Supervision of computer infrastructure support staff.
<i>Teaching &amp; Mentoring</i>	Teaching and mentoring of engineering and IT staff of client companies. Technical lecturing, presentation to development groups and management on analysis, processes, project architecture, and system design.
<i>Process Management</i>	Introduction and management of software CM systems and procedures. Creation and management of standard design documentation.
<i>System Administration</i>	Administration and maintenance of company computer networks (homogeneous and non-homogeneous). Establishment of management and backup procedures, change control.

## PUBLISHED PAPERS

- Quality Control for CD-Video Disks *(on the development of a QA tool for CD-V disks) (Presented IEE Young Members Papers, Queens University of Belfast, 1988. Also entered in Young Members papers competition.)*
- Microcontroller Eurocard Development *(on the development of flexible, compact, robotic axis controllers) (Paper for IEE Colloquium Low-cost Control, 1989)*
- Appendix to Ph.D. Dissertation *(on the development of a computerised data acquisition system in support of a Ph.D. Civil Engineering (Hydraulics), Dr. L.A.Martin, University of Ulster, 1985)*

## PATENTS

- "User Control of Telephone Switch Through an HTTP Client Application" (2000) *(U.S. and European Patents Pending, Philips Electronics NV, The Netherlands)*

## UNIVERSITY STUDIES & ACADEMIC PROJECT SUPPORT

University of Leeds:		Studies - <b>B.Sc.</b> ( Hons. ) Electrical and Electronic Engineering (1982)
<i>Study subjects:</i>	<p>Heavy current machines.          Electromagnetic theory.          Pure mathematics.          Applied mathematics.          Digital design theory and practice.          Computer systems, operating systems and programming.          Computer-Aided Design: theory and system implementation.          Control systems and feedback theory.          Amplifiers and discrete circuit element design.          Semiconductors (Discrete Microwave devices)          Semiconductors (Transmission devices)          Semiconductors (Design and Fabrication Technology).</p>	
<i>Project Work: (to Dissertation)</i>	<p>Design, realisation and test of discrete passive circuit elements for Microwave Integrated Circuits (MICs). Semiconductor integrated circuit device realisation (passive devices). Design and development of prototype half wavelength coupled microstrip band pass filter (11 GHz) on high dielectric value support media. Development of software application to calculate and display the impedance of microstrip elements of given dimensions from the dielectric characteristics of the support medium using a recursive scaling algorithm.</p>	
Queens University of Belfast:		Studies - <b>M.Sc.</b> Electronics (1989)
<i>Study subjects:</i>	<p>Computer Systems Architecture.          Software Engineering.          Microprocessor-Based Control Systems and Software Design.          Electronics Of Solid State Devices.          Microelectronics Technology.          Digital Systems Design.          Custom Integrated Circuit Design.          Hierarchy of Integration &amp; Systolic Arrays.</p>	
<i>Project Work: (to Dissertation)</i>	<p>Design of a 68HC11 micro-controller based, rack-mounted robot arm control system with up to 8 degrees of freedom. Design of a Master CPU card. Design of a cascadable Slave interface card to control individual robot arm axes. Coding of a Machine Monitor for the control system processor card. Development of a 68HC11 disassembler program. Coding of an embedded position control system (PID). Coding of "Learning" application for sequence creation using a control pendant. Development of a menu-based control program for a PC remote master (via serial link).</p>	
Open University:		Studies - <b>Modular Degree</b> 3rd year courses in IT
<i>Study subjects:</i>	<p>Human-Computer Interaction (1995)  <i>(Theory and practice of user interfaces and ergonomics)</i></p> <p>Computer-Based Information Systems (1994)  <i>(Information theory &amp; database design)</i></p>	

University of Ulster:	Research support - <b>D.Phil.</b> Civil Engineering (Hydraulics) (1986)
<i>Support Work:</i>	Design of opto-isolated, four channel data acquisition unit for BBC-B computer, operating in static environment (closed water channel). Design and installation of wiring for computer controlled actuators (winch motor, release servo magnet) and acquisition sensors (start and stop triggers, water level sensors in tank). Design, coding and test of acquisition control software (BBC-BASIC) including linearity calibration, real time data graphing during acquisition, storage and post processing. Contribution of technical appendix to D.Phil. dissertation (Dr. L.A. Martin, 1986) "Behaviour of Ships in Restricted navigation Channels"

Queens University of Belfast:	Research & Documentation support - <b>APT Ltd.</b> (1989)
<i>Support Work:</i>	Preparation, editing and verification of data sheet and application notes content for sub-band sampling audio processing DSP. Layout of reference application circuitry and generation of CAD library models. Desktop publishing and commercial document preparation.