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Profile

Career History

Jun 2003 - present	Alphecca Systems (Self employed)
Feb 1987-Jun 2003	Fugro GEOS Ltd - Principal Oceanographer
Sep 1986 - Jan 1987	North Herts College Part time supply tutor
Oct 1985 - Aug 1986	Seismograph Service Ltd Assistant Observer.

Education/Qualifications

1982-1985	University College of North Wales, Bangor IIi BSc (Hons) in Oceanography and Electronics

Training

November 1994	Data Communications for Instrumentation & Control
March 1997	C++ Programming
June 2000	Local Area Network Fundamentals
September 2000	Windows NT
Various dates	Offshore Survival Courses (incl HUET)

Personal Details

Status:	Married
Date of Birth:	7 September 1963

Interests

Photography; building models and musical instruments; English folk music; mechanics and family life.

Software Skills

Skilled in several different high-level programming languages, including Java, Fortran, Basic, C++ and Forth.
Experienced in many aspects of web design, in particular server-side technologies such as JSP and Java Servlets.
Experience of MySQL , PointBase, SQL Server 6.5 and Oracle databases as administrator and system designer.
Experienced in assembly language for 6502-family and Intel 80- series devices.

Java:
Five years' experience of programming in Java, using J2EE technologies such as JDBC database API, Servlet API, Image handling and Swing GUI libraries.
I have considerable experience of programming using AWT, Swing and Servlet APIs and of using serialised objects to store scientific data.
I am experienced in the use of JDBC with MySQL and PointBase relational databases, as well as ODBC Bridge with SQL Server and Oracle.
I have a sound understanding of the theory and implementation of OO principles, and have used these in the design and implementation an advanced web server-based real time

environmental measurement system called ARTEMeS which features interactive and animated graphical Applets for the display of real-time environmental data.
ARTEMeS makes extensive use of many of the J2EE technologies, including Servlets and JDBC, as well as web technologies such as HTML, JSP and JNLP (Web Start).
I also have experience of J2ME, using embedded CLDC devices as smart, web-aware instruments to interact with the ARTEMeS server remotely, enabling immediate global access to measurements.

Web technologies
I have experience of producing web sites using both HTML and JSP, having designed and written both my own site which makes extensive use of Java servlets to provide dynamic HTML content and access to data within a relational database. I was also responsible for authoring and maintaining a local school web site.
I am experienced in writing servlets to provide database access and maintenance for the Apache Tomcat web server, and of many aspects of the HTTP protocol, having written very low-level programs to generate HTTP requests.
I have also used FTP extensively, writing scripts to automatically copy data to/from offshore sites, and provide remote control of networked machines using command-line NT administration tools.

Fortran:
More than twelve years continuous experience of writing and maintaining scientific software in Fortran under the VMS operating system. Designed and written programs to perform complex mathematical and data manipulation operations on large data sets of environmental measurements. Programs to read and convert binary files of instrument data at byte level. Have written a program to produce Adobe Acrobat .pdf files of large graphical data presentations, as well as the generation of HPGL printer code from proprietary format graphical files. Programs to provide digital filtering of short-period time series data.

Basic:
Many years (20+) continuous experience of various Basic dialects, producing many diverse programs for tasks ranging from Graphical front-ends for instrument control to bit - and byte-level operations in EPROM data sets. Have made extensive use of Basic for algorithm development while managing programmers working with other languages.

Forth:
More than ten years experience of programming in Forth; writing embedded programs for micro controllers. Designed and written programs to control diverse logging instruments incorporating frequency- and time-domain operations; remote data telemetry using NOAA satellites; real time measurement systems using UHF radio; Fourier analysis; digital filtering and other mathematical functions.
Considerable experience of implementing complex mathematical algorithms using integer arithmetic, these including FFT, cubic spline and trigonometric functions.
Have designed and written many systems with hybrid Forth and machine code using multiple interrupts to provide high speed control functions, some with electro-mechanical interfaces such as a solenoid-driven shear wave source for down hole seismic surveys and a programmable, mechanical wave simulator for testing oceanographic measurement systems against real wave signals. Other projects have used interrupts to derive PWM signals for simulating fluxgate compasses in ship mounted current measurement systems, and for high frequency gamma ray counting using a photomultiplier tube within a nuclear density probe used for harbour dredging operations.

Assembly Language
Very experienced in writing assembly language programs using Intel 8080/8085/Zilog Z80 series microprocessors and 6502 family CPU. Have also some experience of programming Intel 8048/8035 single-chip microprocessors.

Most recent experience is with Hitachi 6303 micro controller, writing low level interrupt-driven hardware functions such as serial ports and pulse counting for close integration with high level programs written in Forth.

MySQL
Have designed, implemented and administered a large database structure for the storage and control of my own large scale real-time measurement system called ARTEMeS on a remote MySQL database, and it's interaction with web server components.

SQL Server 6.5
Experienced in using MicroSoft SQL Server 6.5 relational database as a designer and administrator. Have designed a database for a real-time acquisition system and managed the implementation, users and privileges for several installations.

PointBase
Have implemented the same ARTEMeS structure within PointBase, and additionally written low-level stored procedures for providing additional functionality within queries.

Oracle 7
I have some experience of using Oracle 7 as a designer and administrator, am working with Oracle 10g at present.

Mathematical Skills
Experienced in frequency- and time-domain operations, including discrete and continuous Fourier/fast Fourier transforms, inverse Fourier transforms, correlation and digital filtering. Spatial transforms, rotations and complex number calculations.
Experienced in numerical algorithms such as interpolation, curve fitting and numerical calculus. Have experience of programming map projections, and producing three-dimensional models of global projections for use in a military geodetic training course.
Good understanding of scientific statistical techniques, and their implementation in software, using either floating point or integer arithmetic when necessary.

Electronic Skills
During my career I have migrated from electronics and low-level software design to the high-level languages such as Java. I am experienced in the design and building of analogue and digital electronic systems, mainly for the processing of raw sensor signals. Previous projects have often been integrated with a Forth-based microcontroller, and involved instrumentation amplifiers, filters (both linear and switched capacitor), Digital/Analogue conversion and a variety of signal-processing components such as analogue multipliers and rms voltage conversion. I am also experienced in the design of medium scale systems using discrete CMOS logic.
I have very considerable experience of interfacing electronic sensors and transducers for the measurement of a variety of environmental parameters, including strain-gauge bridge sensors for pressure and force; infra-red sensors for the measurement of transmission and optical back scatter to determine turbidity and visibility and resonant quartz sensors for pressure. I am also very familiar with most of the standard sensors used for oceanographic and meteorological measurements.
Some of the projects I have designed and built include nuclear density probe for in-situ sediment density measurement; a mechanical wave simulator that recreated sea surface motion using a microprocessor-controlled, motor-driven trolley; a down-hole seismic source for shear-wave generation and a plethora of meteorological and oceanographic measurement systems.
I also have considerable experience in the design and implementation of data telemetry systems, using UHF radio and satellites.

Management Experience

In recent years I have been involved with the technical management of development projects, starting with the initial project plan at the tender stage, followed by detailed specification, design of algorithms, and test procedures. During the implementation stage I have been largely responsible for the supervision of programming staff, ensuring that software coding is performed to an adequate standard with appropriate testing applied throughout.

I have also been responsible for the management of external contract programmers, providing specifications, advice and final testing and correction of completed software modules.

I have been Project Manager of a number of contracts, involving management of all aspects of the project, including initial proposal, Client liaison, shipping of equipment to foreign states, planning of installation and maintenance visits, reporting, and invoicing.

I was responsible on a day-to-day basis for providing technical support to a team of programming staff, working mainly with SQL, Visual Basic and Visual C++; and also to a large team of field staff working mainly with electronic measuring equipment offshore.

Other Experience

During my career I have frequently been involved with training, on topics ranging from Electronics and the Mathematics of Computing at North Herts College, through frequency-domain analysis techniques, basic geodesy and map projections to the safe use of knots offshore.