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Profile

Career History

Jun 2003 - present	Alphecca Systems (Self employed)
Jan 2005 - Dec 2012	GEMS Survey Ltd - Consulting MetOcean Scientist
Feb 1987-Jun 2003	Fugro GEOS Ltd - Principal Oceanographer
	Transferred to Fugro GEOS upon its formation Transferred to GEOS upon its formation Transferred to Wimpey Environmental upon its formation Joined Wimpol Ltd
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
1981-1982	3 “A” levels in physics and mathematics 3 “O” levels
1979-1981	6 “O” levels (including Physics, Maths and English)

Training

November 1994	Data Communications for Instrumentation & Control 2 days by IDC Ltd, Bath
March 1997	C++ Programming for non-C Programmers 5 days by QA training, Central London
June 2000	Local Area Network Fundamentals 1 day by Kenson Network Engineering Ltd, Cirencester
September 2000	Windows NT 1 day by Kenson Network Engineering Ltd, Cirencester
March 2008 February 2011	2-day Advanced Industrial Climbing, Total Access Ltd 1-day Advanced Industrial Climbing and Tower Rescue, Total Access Ltd
Various dates	Offshore Survival Courses (incl HUET)

1985-present	RGIT Aberdeen, Warsash College, Fylde College Fleetwood Humberside Offshore Training Association

Personal Details

Status:	Married
Date of Birth:	7 September 1963

Interests

Diverse interests include photography, model and musical instrument building, early and folk music, mechanics and family life.

Survey/Oceanographic Experience

I have many years' experience in the use of various oceanographic and meteorological techniques and instrumentation, ranging from the installation and service of simple sensors to the design and modification of complex multi-parameter logging systems. Instrumentation with which I am familiar include the entire Aanderaa range of instruments, Vaisala optical sensors for measurement of cloud and visibility, the Nortek and RDI ranges of Doppler current profilers and a multitude of sensors for measurement of parameters such as turbidity, rainfall and pressure. I have also put together numerous met stations using Campbell logging units and various combinations of sensors, and have written programs for these loggers that perform complicated conditional measurements sequences, as well as routinely recording basic parameters.

I have a very sound understanding of measurement techniques, from both the theoretical and practical sides, and have devised special rigs and procedures for validating the accuracy of measurement systems.

I have considerable experience in the scientific interpretation of data from instrumentation, in addition to the technical aspects of its use. My experience is particularly strong in the fields of meteorology and oceanography, and over the years I have written and technically-reviewed many reports and developed scientific techniques for different analyses.

I have spent a lot of time over the last twenty years in the offshore environment, and have worked on many different oil platforms and drilling rigs, as well as several seismic survey vessels. The work has ranged from the installation of equipment and long cable runs to the operation, service and recovery of subsea instruments.

I have worked in many parts of the world, including Argentina, Nigeria, Angola, Dubai, Yemen, Oman, Brunei, Singapore, the Philippines, Malaysia, Myanmar, USA and most European countries.

Management Experience

During my time with Fugro GEOS I was 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 was also responsible for the management of external contract programmers, providing specifications, advice and final testing and correction of completed software modules.

I was Project Manager of a number of Fugro GEOS' 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.

Software Skills
Skilled in several different programming languages, including Fortran, Basic, Forth, Java, Algol and Pascal. Also trained in C++ and have experience programming in Perl, Matlab and many other scripting languages.
I have experience of relational databases including SQL Server 6.5, MySQL and Oracle, both as an administrator and system designer.
I have considerable experience of using assembly language to write low-level programs for microprocessors in the 6502-family, Intel 80- series family and also Harvard architecture PIC devices.

Fortran:
I have more than twelve years continuous experience of writing and maintaining scientific software in Fortran under the VMS operating system, which included the design and writing of programs to perform complex mathematical and data manipulation operations on large data sets of environmental measurements.
Other programs have produced Adobe Acrobat .pdf files of large graphical data presentations, as well as the generation of HPGL printer code from proprietary format graphical files.

Basic:
Many years (26+) 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.

Forth:
I have 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.
I have 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.

Java:
I have more than fourteen 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 relational databases including MySQL and Oracle, as well as the ODBC Bridge with Microsoft SQL Server.

I designed and implemented 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 and JSP.
I have made much use of J2ME, having used CLDC and MIDP devices to provide smart, web-aware instrumentation to interact with my own ARTEMeS servers remotely, enabling immediate global access to measurements.
I have also developed a web-based automatic documentation system for the management of a network of weather stations in the Caspian Sea. This system was based around an XML storage model and made extensive use of XSLT technology.

C++
Attended a 5-day training course in C++ during 1997. Have written specifications for components of real time acquisition software and devised appropriate test procedures. Was responsible for the design and implementation of a C++ - based real-time system using OO principles for a consortium of US oil companies.

Assembly Language
Very experienced in writing assembly language programs using Intel 8080/8085/Zilog Z80 series microprocessors and 6502 family CPU in the form of the 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.
Most recent assembly-language experience has been the 12/14-bit PIC family of devices to provide extremely-low level mission-critical components for integrated telemetry systems.

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.

Web technologies
I have considerable 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 am experienced in writing plug-in components for the Apache Tomcat web server, and of many aspects of the HTTP protocol.
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.

XML technologies
In recent years I have acquired experience in the use of many XML-related technologies including XSLT and the dynamic generation of XML content using a web server.

Mathematical Skills
I have considerable experience of writing software and deriving algorithms for diverse and complex mathematical processes. These include frequency- and time-domain operations, such as discrete and continuous Fourier/fast Fourier transforms, inverse Fourier transforms, correlation and digital filtering; also spatial transforms, rotations and complex number calculations.
I have worked with many numerical algorithms such as interpolation, curve fitting and numerical calculus. I also 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.
Projects that I designed and built include a 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.

Recent Employment Roles
For seventeen years I worked with Fugro GEOS and its predecessor companies, starting out as an oceanographic engineer and progressing to a Principle Oceanographer. I was made redundant from FugroGEOS in June 2003.

Since that time I have set up my own company, called Alphecca Systems, to provide both oceanographic consultancy and a flexible, web-based service for the measurement, acquisition and display of environmental parameters.
I have designed and developed an advanced real time measurement system called ARTEMeS that is now operational and providing essential environmental monitoring functions to the London Gateway port development on the Thames Estuary. This project has been running for almost five years, and comprises a network of some 32 subsea and inter-tidal instruments, each connected to the Internet using GPRS modems. The modems execute my own specialized firmware to provide an ARTEMeS interface.
Acquired data are subject to automatic status tests and the results delivered by email and SMS directly to the civil engineers.

At the same time as developing and managing my ARTEMeS service, I have worked with a number of companies, including the former GEMS Survey Ltd.

Since 2006 I worked as a consulting MetOcean Scientist, bringing my experience to a young company and allowing GEMS to build up a dynamic and successful metocean team of more than twenty personnel. Much of my time with GEMS was spent in an advisory and multi-disciplinary training capacity, with opportunities to train staff in GEMS' regional offices in London, Nigeria and Kazakhstan.

I performed metocean fieldwork for GEMS in countries such as France, Nigeria, Kazakhstan and Indonesia, and managed and advised on other projects in many other regions.
I was also responsible for the data processing and reporting of recovered data sets until new staff had been trained.

I worked with GEMS in an advisory capacity during the tendering processes for other prospective projects and a number of other large metocean projects.

I have written software for the automatic location of subsea beacons using acoustic ranges and GPS coordinates. This software was subsequently used to locate a seabed mooring to an accuracy of 8m in a depth of 1100m.

Other companies with whom I have worked in the last ten years include Muir Matheson, EGS, Nortek and the former Compass Hydrographic in fields ranging from storm-water monitoring and real time weather stations to the design of specialist boat wake measurement systems.

In very recent months I have been working as a Consulting MetOcean Scientist to the UTEC group of companies, working closely with Geomarine Ltd in Bath. As a Geomarine consultant I have twice worked as a client representative, supervising mooring recovery and redeployment operations off the coast of Myanmar.

A large part of my work with all of my clients has involved training other staff on a variety of topics, from tidal analysis techniques through basic geodesy and map projections to the safe use of knots offshore.

Other Experience

Apart from the technical roles in which I have been employed, I have also worked as a teacher in a further education college, teaching basic electronics and the mathematics of computing.

I have also worked as a private tutor, teaching mathematics to GCSE level to a number of students.

In addition, I trained as a driving instructor, completing all the training although I did not subsequently pursue a career in this field.