

# Robert Hook

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## Profile

An information technology professional with over 23 years experience in the industry, Robert Hook has been involved in a wide variety of projects that have required and fostered a broad and comprehensive skill set.

Robert's main skills revolve around the design, construction and maintenance of large information systems based around relational databases, primarily in a UNIX environment, along with the design, construction and maintenance of web-based information systems, frequently backed by a database. Many of the systems he has been involved with have been based around Ingres and Oracle, and he has considerable experience as an Ingres database designer and administrator. In recent years he has been largely occupied with the design and construction of sophisticated Web Services and Web Applications written in Java using J2EE1.4 and J2EE1.5 paradigms and approaches.

He is a highly competent analyst and programmer, with a dedication to producing high quality, reliable and efficient solutions in a timely and cost-effective manner. Robert has a noted ability to rapidly assimilate new technologies, and actively monitors relevant industry best practices and standards in order to continually improve his abilities to deliver solutions.

## Experience

### **SOFTWARE ENGINEER, SALMAT/HPA — 2003 - PRESENT**

Responsible for the design and development of various internal software products, particularly oriented around Java-based web services. The past three years have been devoted to fast, high-availability complex web applications to support the NAPLAN initiative.

### **DATABASE ADMINISTRATOR / PROGRAMMER, QLD POLICE SERVICE — 1998-2003**

*Information Systems Branch.* Database administration. Responsible for planning and implement upgrade of Ingres 2.0 to Ingres II across the enterprise. Database design and analysis. Design and implementation of large scale data conversion and cleansing strategies, processes and tools. Design and implementation of Database Administration tools and processes.

### **DATABASE ADMINISTRATOR / PROGRAMMER, QLD DEPARTMENT OF NATURAL RESOURCES — 1995-1998**

*IVAS, IVASe, LGIP projects.* Database design and analysis. Design, implementation and maintenance of IVAS system maintenance tool set. Tool and system design and implementation for data acquisition phase of LGIP project.

### **SENIOR ANALYST/PROGRAMMER, DATABASE ADMINISTRATOR, PINE RIVERS SHIRE COUNCIL — 1989-1995**

Responsible for design and maintenance of broad range of administration and financial systems.

### **PROGRAMMER / TECHNICAL SUPPORT, SHANNON ROBERTSON SYSTEMS — 1988-1989**

Development and support of PC based small business systems and support systems for the agricultural industry.

### **SECONDARY SCHOOL TEACHER, MATHEMATICS AND SCIENCE, QLD DEPARTMENT OF EDUCATION — 1987**

Robert remains a registered teacher and maintains his professional interest in educational and didactic techniques, policies and trends.

## Education

Griffith University — Bachelor of Science, 1986

Queensland University of Technology — Graduate Diploma of Teaching, 1986

Mitchelton State High School — Senior Certificate, 1982

## Skills

### Highly Competent

Java, Ant, JUnit, JSF, Struts, JBoss and Apache Tomcat, NetBeans, JBuilder, JSP, J2EE Web Services, J2EE Web Applications, C, C++, Ingres ABF, XML, XHTML & HTML, CSS, Oracle, SQL, JDBC, Unix, Systems Analysis and Design, Data Analysis, Database Analysis and Design, Ingres Database Administration, Technical Writing, Team Leadership, Systems Maintenance, Systems Programming, Source and Document control processes, Product Release processes, Quality Assurance systems, Training, and Mentoring, Web design and construction.

### Competent

XSL/XSLT, UML, Design Patterns, JavaScript, MySql administration, Cryptography and Security standards and protocols, MUMPS, Basic, Fortran, Pascal, AppleScript, dBase III+/Clipper, CGI Scripting, Unix Systems Administration, Project Management, Image preparation for Web presentation.

### Familiar With

AJAX, Objective-C, Forth, Assembly language programming, Linux Systems Administration, Carbon and Cocoa programming for Mac OS X.

### Technical Interests and Aspirations

Robert is greatly interested in the issues associated with the management of large and complex information systems, particularly data integrity, security and privacy. He is also particularly interested in user interface design and in adopting new technologies to present legacy information stores.

He greatly enjoys working with various Java-based techniques for delivering interactive content and services through the Web, leveraging the power of open-source and open-standards products and XML solutions.

### HPA/Salmat, October 2003 -

Robert initially began at HPA working within the Queensland branch IT group, but was promoted in February 2004 to the national R&D group. In November 2007 HPA became part of Salmat, but Robert's role remained the same. During his time within HPA, he has been responsible for or heavily involved with the design and creation of a number of key applications critical to the success of the company. These all related to the core business of the company, which is to say with capturing, transforming and printing very large volumes of data. The bulk of the work done involved the creation of a set of inter-related Web Services, all written in Java.

This activity was part of the expression of a corporate IT strategy wherein a suite of services, each fulfilling some core business activity, or providing a core facility, would be loosely coupled together and spread across the corporate network as required. This strategy saw these services deployed as Java-based web services running within a full J2EE environment using a number of different application servers, including JBoss, Orion and Tomcat. Client side applications were written in C# using the .Net framework, while server-side relied heavily on Axis and related technologies. More recent versions of these services migrated to using JAX-WS. Robert was one of two developers solely responsible for the design and implementation of all server side components.

The past several years have been devoted to the development of a sophisticated solution to support on-line marking for the NAPLAN initiative. This solution involved presentation of images through a Flex interface provided by a pair of sophisticated web services and web applications. It was characterised by its emphasis on high availability and high performance, driven by very aggressive response requirements under high load. Robert championed the introduction of Continuous Integration (CI) methodologies during this project, and oversaw the installation and configuration of a build environment based on Hudson to support this approach.

As well as the design and implementation of these systems, Robert was responsible for research and implementation of industry best practices in the J2EE and Web Services realm. This led to the adoption of a single application server – JBoss 4.x – and the adoption of a wide range of industry standard tools and practices. By adopting these open source solutions and standards, and formalising the approaches taken to the design and implementation of J2EE solutions, significant cost and time savings were realised.

As the Web Services were being deployed within a full J2EE compliant application server, they were enhanced by the addition of web-based administration and configuration interfaces written using Struts, and in later iterations JSF, and contained and delivered their own documentation. Each application was also accompanied by one or more client libraries used to facilitate the construction of client-side applications, and these libraries were distributed within the application deployment package. All web services were initially constructed using various versions of Jbuilder, then migrated to NetBeans, as these tools provided powerful mechanisms for simplifying construction of J2EE products.

Several principles guided all the development performed by Robert during his time with HPA, and these were a combination of his personal vision and the corporate vision. As far as possible, all the server-side products were designed to be as close to zero-configuration as possible, with the intention being that all support staff would need to do was deploy the service, then continue configuration through web pages, without any of the typical manipulation of configuration files prior to deployment. Robert also championed the philosophy that documentation and training are core deliverables, and that no product could be considered complete without providing these. Taking that a step further, in collaboration with other developers he was instrumental in ensuring that traditional testing, quality control and release management procedures were put in place and maintained.

His dedication to quality and robustness, and a marked willingness to work whatever hours were necessary to fulfil corporate objectives and requirements, saw Robert lauded on several occasions through the national Employee Recognition program.

### Queensland Police Service, December 1998 - August 2003

Robert's time with the Information Systems Branch (ISB) of the Queensland Police Service was spread across three primary streams of activity: Senior Analyst / Programmer for data conversion and cleansing projects, Database Administrator, and technical lead and mentoring.

He was initially bought into ISB to design, construct and implement a solution for the take-on of Offender History data into the Polaris system from a legacy system. This project required the development of a suite of tools that would be able to process a very large data set as quickly and efficiently as possible, while performing sophisticated data conversion and cleansing. As well as dealing with the difficulties of merging several disparate and complex data sets, the extreme sensitivity of the data required that the tool set produced accurate and unambiguous audit and reconciliation data. The detailed implementation plan developed by Robert for this project was successfully applied in early 2000.

It became evident in the initial stages of this project that ISB had a need for a dedicated data conversion and cleansing arena, and for a well-designed and documented set of reusable tools, solutions and software components. Robert took the lead in the specification, design, construction and implementation of this data conversion and cleansing (DCC) environment. This included reusable component libraries and fundamental tools, in addition to programming, design and documentation guidelines and standards.

The DCC arena proved of great benefits for subsequent projects. The Microfilm conversion process and tool set was designed by Robert and implemented in late 2000 by junior programmers under his guidance. Two other major projects in 2001 also reused the environment.

Through 2001, Robert concentrated on Database Administration activities. During this period he was responsible for the design and implementation of a corporate wide rollout of Ingres II 2.0 to replace older versions of the product. Initial stages of the project required comprehensive regression testing of the new product as well as the development of standards for installation, upgrade and configuration. In addition to detailed project planning, considerable time was spent mentoring junior Database Administrators, significantly upgrading the Ingres operations and other documentation, development of programming standards, and rewriting the local Ingres database synchronisation product.

He returned to DCC activities in 2002 with the Missing Persons project. This project was not restricted to code design and construction, but was explicitly used to investigate more effective ways of delivering solutions. The suite of reusable components was overhauled and replaced with a comprehensive set of C++ classes based on the Relational Database Access Layer Pattern Language, with various supporting and utility classes to encapsulate other data sources and sinks for DCC products. Deliberate investigation of reusable Open Source solutions and code fragments was performed, and such code adopted where appropriate and possible. Product configuration was redesigned to use XML files, and intensive use was made of inline documentation and automatic documentation generators.

The design and construction methodologies championed by the Agile Alliance, particularly elements of the Extreme Programming (XP) and Pragmatic Programming approaches, were investigated and applied to this project wherever possible, and informed a revision of the DCC programming standards. During this time, Robert was able to apply these new ideas in the creation of the Polaris Code Review Process and Polaris Program Design and Specification standards.

During his time at ISB, Robert's role was frequently to act as technical lead and mentor in both the Database Administration and Analyst/Programmer realms. As well as significant amounts of time dedicated to physical database design and implementation, to data analysis, and to technical support to other Programmers and Database Administrators, Robert was often responsible for finding solutions to the more difficult and complex problems. Beyond simple resolution of such issues, he used them as opportunities to improve documentation and tools, perform ad-hoc training, and to encourage reformation of organisation wide policies and procedures.

Some of the smaller projects were particularly satisfying to Robert. These included the Polaris PES data take-on which successfully demonstrated the cost benefit of the reusable foundation and new methodologies introduced for Missing Persons, the revision of the NNI download which allowed QPS to increase the details provided to this national database from Polaris almost tenfold, and the Batch Recommend Link tool which could find all Persons apparently stored more than once in Polaris within twenty minutes by traversing more than 20 Gigabytes of data.

Robert's final months with the Queensland Police Service were divided between resolving long-outstanding data integrity and data quality issues, and advising on design and construction for the DNA DCC project. This included ad-hoc training of junior programmers in C++ and use of the revised DCC framework.

### Queensland Department of Natural Resources, October 1995 - December 1998

Robert was associated with three projects while working for DNR. These were all related to the property valuations business area, namely IVAS, LGIP and IVASe. This allowed him to draw on his experiences gained from six years working in Local Government.

When he came to IVAS, Robert was acting as Database Administrator for what was, at the time, one of the largest Ingres databases in the world. Beside the day-to-day administration activities, he undertook a substantial revision of the tools and processes used for administration, massively automating a great part of the standard administration and monitoring activity. While there, he managed to reduce the number of required full time database administrators from two to less than one. He also brought substantial performance and reliability improvements to the IVAS database through changes to the physical database design and implementation. Part of the data quality improvements were delivered through a tool which performed comprehensive relational integrity checks across ten independent physical databases and was able to find any and all integrity errors within a few hours.

As part of the revision and automation activities, Robert created a comprehensive set of documentation for the site, which he eventually turned into a Web-based documentation repository hosted on a Linux system. This intranet server also hosted a simple interface to the database monitoring suite, allowing the business representatives to gain a quick overview of the system status directly. Toward the end of his time with IVAS, Robert further extended this Linux system to provide a means for the business representatives to export data to magnetic tape on an ad-hoc basis via a simple Web interface without the intervention or assistance of technical support staff.

Beside Database Administration and IVAS physical database design, Robert was responsible for technical support to the team of C and Ingres/ABF Analyst/Programmers who maintained the IVAS application. This not only included code review and assistance with program design, it involved the creation of various coding standards and guidelines.

The LGIP project entailed a large-scale cleansing of name and address data in IVAS. Data was obtained in a wide variety of formats from every Local Government Authority in Queensland, parsed into a form where it could be compared to IVAS, then used to correct IVAS as required. Robert was responsible for the design, construction and implementation of all code for this project. The main tools were the parsers and data converters running under the UNIX environment, and a VisualBasic data entry tool used for manual corrections prior to loading to IVAS. As well as their ability to process very large quantities of data quickly and efficiently, the LGIP tools were distinguished by their sophisticated algorithms for parsing names and addresses out of more-or-less arbitrary input data sets.

Throughout his time at DNR, a parallel project was progressing to replace IVAS with a client-server solution using Ingres databases, Tuxedo as a transport layer and VisualBasic for presentation and data entry. For this enhancement project, IVASe, Robert contributed the majority of the physical database design including specification of new server infrastructure. The move to the use of a PC-based application development environment allowed Robert to create a database schema versioning system which largely automated the implementation and maintenance of the physical database schema for IVASe. This system remains in use and has been recognised as a good general solution to the problem of bringing version control to the maintenance of an Ingres database schema.

### Pine Rivers Shire Council, June 1989 - October 1995

The six years spent at PRSC involved Robert in the maintenance, design and development of a very broad range of financial and administration systems to handle everything from dog registrations to the library catalogue. Initially these systems were developed using Digital Standard MUMPS and RSTS/BASIC on PDP-11 minicomputers. Over time council adopted PCs and moved to a UNIX base for several Ingres databases and a GIS system. This entailed a move to programming in C, ABF and Ingres/Vision.

Working in a small multidisciplinary team gave Robert exposure to all aspects of computer systems maintenance and development, and even gave him the opportunity to manage the IT section for almost six months in 1995. The extremely varied challenges posed at this site fostered the development of a strong belief in the importance of a flexible and responsive approach to providing fast, cost-effective solutions.

### Shannon Robertson Systems, January 1988 - April 1989

Robert began his career in information technology with Shannon Robertson Systems, trading as Saltbush Systems, a small company which at the time held a dominant position in the agricultural software market. He was responsible for the creation and maintenance of farm management and small business software to run on MS-DOS PCs based around various database products including dBase III+/Clipper. As well as programming, Robert performed client support and training, PC hardware maintenance, and was even called on from time to time to help in dispatch and shipping.

Robert's first exposure to UNIX occurred at Shannon Robertson, where he was responsible for the design, construction and implementation of a Xenix-based office automation solution distributed across the offices of a legal firm scattered over the Sunshine Coast.

### Queensland Department of Education, January 1987 - December 1988

Having developed an interest in Computer Aided Education (CAE) and Computer Based Training (CBT) while studying for his undergraduate qualification, Robert accepted an offer to study teaching. After gaining that qualification, he opted to put it to use for a year, and spent that year as a secondary school teacher of Junior mathematics and science in a small country town. While greatly enjoying teaching and working with young people, Robert preferred to return to his true calling and move into the information technology industry. Despite this, Robert remains a registered teacher, and make an effort to keep abreast of modern didactic methodologies. This has served him well as it has allowed him to effectively take on the role of technical trainer and mentor to less experienced staff.

### Early Experiences, pre 1987

Robert was fortunate to be exposed to serious small computers and systems as a high school and tertiary student. This not only gave him the opportunity to understand computer technology from a very fundamental level, it gives him a perspective on the astonishing development of the industry over the last twenty years. In 1980 his high school purchased a small PDP-11 system, allowing him to spend many hours writing code in assembler, BASIC and FORTRAN, balanced by assisting his brother in the development of process control hardware by writing and debugging software in assembler and Forth.

His tertiary experiences mainly involved Pascal on mainframe and minicomputer systems, and quite a lot of instrumentation construction and programming in assembler. His third-year project saw him partnered with another fledgling programmer to write a general-purpose 3D graphing program for the recently released Macintosh, as an exploration to discover if the Macintosh could be considered a real computer. He decided it was, and has been programming personal projects on the Macintosh ever since.

### Personal Interests and Background

On my business cards and personal web site (<http://www.parttimepolymath.net>), I describe myself as a "Part Time Polymath". This is mainly word-play, but it was one way to indicate that my interests are wide and varied. I am a voracious and omnivorous reader, and that pattern extends through my other interests in fine arts and music.

I am a keen amateur musician, playing renaissance and medieval recorders, dulcian and saxophone. I've dabbled with painting and fine arts, although most of my artistic endeavours now revolve around digital images. Although I am an avid technophile, particularly regarding Macintoshes, most of my leisure time is taken up by my deep interests in things medieval. I am heavily involved in Medieval Living History and am seriously studying renaissance fencing. My historical reenactment activities have led me to try my hand at everything from sword fighting in armour to hand sewing and shoe making. I am a past president of the Queensland branch of the Richard IIIrd Society, and was treasurer of the Queensland Living History Federation for several years. Over three years running I was significantly involved in the organisation of the annual Abbey Medieval Festival on behalf of the Abbey Museum of Art and Archaeology. When not busy with all of these things, I can be found in my workshop, working with wood.

My particular technical interests focus on two domains: the issues with developing information repositories that should be accessible from anywhere for an indefinite time into the future; and the efforts to make software construction a professional, cost-effective and efficient activity.

I have a great interest in the work being championed by the World Wide Web Consortium in various applications of XML to the issues of resource description and classification. I am firmly of the belief that applications of XML provide the possibility of constructing information repositories that are not dependent on maintenance of legacy systems into the indefinite future for access. The Semantic Web and Web Ontology projects may eventually fulfil the long-held dream of automating the conversion of data into knowledge. I would relish the opportunity to deploy some of the work being done in these areas in a real environment, but meanwhile play with the presentation aspects through my personal website.

Having spent 23 years in the IT industry, I have seen a many trends in software construction come and go, and have a fair degree of scepticism about most buzzword marketing. I am however very much drawn to the methodologies espoused by the Agile Alliance members, particularly the ideas expressed in the Pragmatic Programming writing. While I have some concern that these methodologies may be dependent on having access to experienced programmers and designers, I am convinced by my own experiences and the documented case studies of the cost benefit of these light-weight methodologies. The test-driven approach to software construction espoused in the Extreme Programming approach, coupled with the older ideas of Design-By-Contract and Literate Programming, demonstrably improve code quality and reliability. Wherever possible, I hope to introduce and adopt elements of these paradigms in an attempt to code for the future.