

Resume for
Steven J. Bell

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Contact Details

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Personal Details

Immigration Status: US Permanent Resident (can work for any employer without sponsorship. Eligible for US Citizenship)

New Zealand national with dual New Zealand and United Kingdom (European Union) citizenship

Skills

I am a "**hands on**" engineer with the following skills:

Networking:

Developing and maintaining LANs, VLANs, and VPNs over multiple international sites using Juniper Networks equipment. Network security using Juniper SRX series security gateways. IPv4 to IPv6 migration.

Systems Administration:

Building and maintaining Linux servers, Linux and Windows workstations. Experience with shell scripting (sh/bash), Red Hat, Mandrake, Mandriva, CentOS, Ubuntu, Windows 2000, Windows XP, Windows Vista, Windows 7, VMware, and cloud computing platforms.

Website Design:

Design and maintenance of in-house and client websites. HTML, CSS, JavaScript, PHP, Perl, CGI programming, LAMP stack (Linux/Apache/MySQL/PHP).

PBX / VoIP:

Configure and maintain networks of multiple Asterisk PBXs and SIP devices.

Hardware Design:

Digital and analog circuit design. Design of microprocessor based systems. PCB design.

Software Development:

C++, C, JavaScript, PHP, Perl, Assembler, Pascal, Basic etc., including embedded, multithreaded, and real-time systems. Extensive API experience (both Windows APIs and Linux APIs). Microsoft Visual Studio and Eclipse IDE.

I have written hundreds of thousands of lines of C++ code for:**Linux Servers:**

- **e-business** and **e-commerce** applications (customer data management, online order and payment processing, automated billing, invoices, receipts, credits etc.)
- Downloadable software, and pay per download services.
- Generation of dynamic web content.
- **DoS** mitigation (detection of malicious activity and automatic firewalling of the source IPs).
- Systems administration tasks, such as automatic detection of equipment failure, and automated backups and data replication off-site.

Windows Workstations:

- Windows application programs, development of consumer software products etc.
- Aircraft navigation and 3D Digital Terrain Modelling.
- Graphic displays and animation. Audio and video players.

Expert in Legacy Systems including DOS (MS-DOS, PC-DOS etc.), CP/M, Assembler (8086 ASM, Z80 ASM etc.), standard C.

Qualifications

- New Zealand Certificate in Science - Physics Option, 1985
Equivalent to a US Bachelors Degree BS - Computer Science.
(Official Qualifications Equivalency Assessment available on request).
- University Entrance, 1981
- Sixth Form Certificate, 1981
- School Certificate, 1980

Employment History

President, Digital Design

Sep 2010 to Present

Refocused on the area of **network security** by:

- Providing **Juniper Networks** installation and support services at customer sites.
- Providing **secure hosting** of client's business needs on **VMs** behind Juniper Networks SRX series firewalls.

Real-time embedded controller. Developed the software for a fuel booster control system for large industrial diesel engines. Written in C and assembler, with multiple layers of interrupts and timer controls.

IT Manager, iRis Networks

Jan 2010 to Sep 2010

Responsible for all IT systems.

Received extensive training on **Juniper Networks** equipment, including the **SRX series** security gateways.

Installed Juniper Networks equipment.

Installed management servers to support the deployment of next generation **Cyan Optics** Z77 equipment on the company's fiber transport network.

President, Digital Design Inc.

(US registered company)

Apr 2005 to Jan 2010

Responsible for all technical and administrative functions, as well as software development, systems administration, and IT management.

Maintained and evolved the **websites** for my software products (see below).

Maintained and evolved the supporting **Linux servers**, and **VPNs** in both the United States and New Zealand.

Built an **Asterisk PBX** running on a Linux platform, using **SIP** and **IAX** devices on the VPN, and interfaced it to my business and personal phone numbers via a VoIP Provider.

Evolved the supporting software for my software products into a fully modular **e-Business tool suite**, built in **C++** and running on **Linux** servers. The system automatically performs all business functions; sales, online payment processing, and generation of invoices / receipts / credits, managing customer accounts, periodic rebilling for subscriptions, right through to generating the daily import files for **QuickBooks**.

Developed software for **internet download websites**. **C++** running on **Linux/Apache**. The system is fully automated, with the customers being able to make single purchases, or charge multiple downloads to their credit cards.

Developed PC based **entertainment / marketing software** under the name of **Musical Vision**. This combines animated sequences of images, set to music, that companies could give to clients on a **USB Flash Drive**, or **download** from their websites. **C++** under **Windows**, developed under **Microsoft Visual Studio (MVS)**.

For **software testing** purposes I built two 'Schiz' machines, able to be rapidly switched to any given OS and any given service pack level. They currently support everything from MS-DOS 2.11 through to Vista and Windows 7, and all modern Linux distributions. They also allow me to **test websites** under all browser types and versions.

President, Digital Design Ltd.
Oct 1991 to Apr 2005

(NZ registered company)

I developed **HeliNav**, a new **navigation system** for helicopters and tiltrotor aircraft such as the Bell/Boeing V-22 and Bell/Augusta 609. The software was written in **C++**. It dynamically computed - in flight - the routes and all obstacle clearance requirements, using the **GPS** position of the aircraft, Digital Terrain Models (**DTMs**), and obstacle databases.

At the time it was described by the **FAA** as the most comprehensive and complete system that they had seen to date. It culminated in an invitation to Washington DC by the **FAA**, where I put on presentations to **FAA**, **NASA**, and various industrial groups in 1996.

Being a New Zealand registered company I was unable to secure funding, and the project died.

Developed a number of **downloadable applications** for PCs, sold over the internet. This included Time Zones for PCs®, Remote Control for PCs, and The Metric Conversion Calculator.

Time Zones for PCs® allowed individuals and businesses to see the CORRECT local time anywhere in the world (there are around 252 individual time zones in the world, and there are changes to the various daylight saving rules around the world almost every week - so it is not trivial if it is done properly). It also allowed people to plan ahead and coordinate times for international conference calls.

For a number of year it sold reasonably well, with customers including **Boeing, MasterCard Europe, E! Entertainment Television, Raytheon**, and even the **US Strategic Command**.

The work not only involved the products themselves, but the **websites, marketing**, and all the supporting internet infrastructure including **3 servers** running **Linux** and **Apache**.

I also developed the entire product sale / download / registration / product update software that ran on the servers (**C++** running under **Linux**).

Rather than being sold outright as a product, because of the frequent data changes **Time Zones for PCs®** was sold on an annual subscription basis. It was probably one of the first of what is now known as **SaaS** (software as a service).

Assistant Navigation Services Specialist, Navigation Services Unit, Airways Corporation of New Zealand Ltd.

Feb 1990 to Oct 1991

Our unit was responsible for maintaining New Zealand's system of Instrument Flight Rule (**IFR**) navigation routes, approaches, and departures to international **ICAO PANS-OPS** standards.

I designed a number of new routes, including two down to Antarctica.

I also developed software in **C++** to scan multiple Digital Terrain Models (**DTMs**) and perform all the route calculations. This reduced around 7 days of manual work down to just a few minutes.

President, Digital Design Ltd.

Mar 1987 to Feb 1990

Developed the **hardware** and **software** for 80X86 and Z80 based **real-time embedded systems**. This included:

- **circuit design**
- **PCB design**, often using **STE** (the small brother of **VME**)
- design and programming of **FLPDs**, and **Altera EPLDs**
- **firmware**, written in **assembler** and involving **multithreading** and **multitasking** techniques
- **DOS application programs**, C and 8086 assembler

Specific Equipment:

- data protocol converters
- print spoolers and switches
- alarm controllers and security systems

Technical Services Division, A.W.A. (New Zealand) Ltd.

Apr 1985 to Apr 1987

A.W.A. had the New Zealand agency for companies such as **Koden, Trimble Navigation, Hitachi, Oki**, as well as producing products under our own name.

Our unit installed the first GPS system in New Zealand (at a cost of \$60,000). This was a large fishing vessel and they recovered the cost on their first catch.

I was responsible for the **repair and customization of data systems** (computers, printers, and networking products), as well as working on **marine equipment** (radars, sonars, net monitors, weather faxes etc.), and **radio equipment** and **avionics** as required. Some work was in the workshop, some was at the customer's site, or in the case of marine, on board their ships.

I supervised three other technicians.

Physics and Engineering Laboratory, Department of Scientific and Industrial Research (DSIR)

Jan 1982 to Apr 1985

Under the **DSIR's** technical training program I was rotated through the following sections, until being permanently placed in the **Electronics Group**.

Electronic Design Section

Design of analog, digital, and microprocessor circuitry for original scientific equipment used by other branches of DSIR.

PCB design, PCB assembly, equipment construction, and environmental testing of equipment to international standards.

Specific projects: Designed and built an interface/controller card for DSIR's vibration testing rig, built equipment for DSIR's silicon wafer facility, rebuilt a eupathioscope for simulating the heat signature of the 'standard' human.

Thick Film Section (miniature electronic circuits)

Thick film is the process of screen printing multilayered conductors, resistors, and insulators onto a small ceramic substrate to develop miniature hybrid electronic devices.

Trained in the use of all techniques and equipment; screen printers, furnaces, bonders etc., and generating the rubylith masters.

At that time the plant was producing the substrates for the DSIR designed SSB emergency transceiver.

Temperature Standards Section

The Temperature Standards Section maintained New Zealand's temperature standards, built equipment to support that role, and calibrated client's thermometers, thermocouples, and other temperature sensors to international standards.

Specific projects: Designed and built a temperature controller PCB for a new oil bath that was being built. Assisted in a number of calibration jobs.

Remote Sensing Section (satellite image processing)

Developed software to simulate a chopper front end for a new type of infrared detector for DSIR's **Hand Held Radiometer**. The HHR was used onboard a number of Space Shuttle flights.

Researched and produced a study on liquid crystal shutter techniques, again for the HHR.

Photometry Section

The Photometry Section maintained New Zealand's light standards.

Specific projects: Maintained the section's equipment, and did various calibration jobs including pyranometer calibration.

Drawing Office

Trained in electronic and mechanical drafting techniques, and all the processes of a drawing office.

Specific projects: Circuit diagrams, mechanical drawings of equipment produced by our various machine shops, and diagrams and charts for international publications.

Outside Interests

Flying airplanes and helicopters. I used to be in a formation team in New Zealand. We competed with other teams, and put on displays at air shows.

Ballroom, latin, and swing dancing.