John Zaitseff

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Character Diligent, hard-working, dedicated, committed to excellence and integrity

Education

University of New South Wales, Sydney, Australia
1992–1995

- Bachelor of Computer Engineering
- Graduated with First Class Honours
- Thesis: *Design of the Élan Am386SC300 Portable Computer*

Jannali Boys High School, Sydney, Australia
1986–1991

- NSW Higher School Certificate
- Tertiary Entrance Ranking of 96.45

Experience

Centre for Autonomous Systems, School of Computer Science and Engineering, University of New South Wales
Research Engineer
Sep. 2003–Sep. 2004 (part-time),
Sep. 2004–present

- Intimately involved in the design and responsible for the implementation of the Humanoid Torso project involving Denso robotic arms, BarrettHand and Robotis 9DOF hands and other sensors. Entirely responsible for designing and implementing suitable safety light-curtain circuitry meeting Australian safety standards
- Intimately involved in the Centre's first entry to the world-wide RoboCup Robotics Rescue League competition, particularly in extensively modifying and maintaining the Yujin Robotics RobHaz DT-3 robot
- Maintain, program and deploy a wide variety of other robots, including five ActivMedia Pioneer robots with custom sensor payloads and embedded computer systems, an ActivMedia PeopleBot, Sony AIBO robotic dogs, a Cycloid II humanoid, Denso robotic arms and custom-built Truxar and DraganFlyer robots
- Continuing to maintain, program and deploy a large range of robot sensor payloads, including laser range-finders, sonar, pan-tilt-zoom cameras, Videre three-dimensional cameras, the Omega infra-red heat-sensitive camera and the SwissRanger 3D infra-red range camera
- Designed and implemented a substantial hardware and software upgrade of older ActivMedia Pioneer robots with new VersaLogic-based embedded processor systems, wireless connectivity, power supplies, panels and wiring
- Administer a reasonably large network of computers and robots running Linux, including a number of servers running Web, FTP, Subversion, NIS and NFS services, amongst others
- Extensively involved in Debian GNU/Linux system administration and custom package programming; almost all robots have now been reconfigured to use this distribution of Linux
- Writing and collating in-depth technical documentation for all robots
- Design and construct many robot accessories and payloads involving mechanical, electrical power and electronic aspects
- Involved in supporting fourth-year COMP4411 Experimental Robotics students, as well as researchers from the Centre, with custom designs and modifications, system and network administration and practical advice
- Intimately familiar with purchasing procedures and practices at the University of New South Wales, including having appropriate financial delegation for the Centre
- Perform many other tasks, including general laboratory maintenance, asset management and equipment specification and purchasing

Experience (continued)

Embedded, Real-time and Operating Systems Program, National ICT Australia
Research Engineer (ARM Linux Operating System Programmer)
Sep. 2003–Sep. 2004 (part-time)

- Responsible for the Fast Address Space Switching (FASS) project for ARM processors under Linux, involving in-depth low-level knowledge of ARM processors' Memory Management Units, of the Linux kernel source code (v2.4 and v2.6) and of Linux patch-management techniques using `patch`, `quilt` and LXR
- Ported the FASS patch-set to the IXDP425, iPAQ, PLEB and StarGate platforms
- Collaborated with Intel and SnapGear (now Cyberguard) to integrate the FASS patch-set into SnapGear Linux, a popular embedded-platform Linux distribution
- Provided guidance and direction to final-year students in the design and construction of a StrongARM-based Flight Computer board for BLUEsat, the UNSW student micro-satellite project
- Involved in the design and manufacture of the PLEB II XScale processor platform, as well as a JTAG programming and debugging board
- Personally manufactured a number of double-sided Printed Circuit Board designs using the in-house LPKF ProtoMat PCB milling machine and through-hole plating system. Familiar with manufacturing four-layer PCBs using the same technology
- Performed many other tasks, including porting and debugging software, creating patch files for various projects, being involved in setting programming standards for the entire Program, maintaining content on Web servers, system administration, and specifying and purchasing laboratory equipment

MedCare Systems Pty Ltd, Australian Technology Park
Systems and Network Administrator
Nov. 2000–Sep. 2005 (part-time)

- Designed and implemented a small computer network for MedCare Systems (the commercial arm of the Biomedical Systems Laboratory, UNSW), including Debian GNU/Linux-based servers that provide Web, FTP, mail, firewall, printer and DNS services, amongst others
- Ensured the smooth running of the network and servers, by managing security patches, auditing log files, providing a help-desk-style service and so on
- Wrote an extensive report investigating hardware and software options for the Home Clinical Workstation, the primary product being developed by MedCare Systems; discussed embedded processor board choices, the advisability of porting or rewriting graphical-based software to Linux, operating system patch management, intellectual property protection and licensing issues
- Occasionally retained by MedCare Systems as a "consulting expert" on a wide range of hardware, software, network and system administration questions

School of Electrical Engineering, University of New South Wales
Hardware Design Engineer (Academic Support)
Sep. 2001–Jun. 2003

- Co-responsible for the complete redesign of the third-year ELEC2041 Microprocessors and Interfacing course at UNSW, particularly in designing, implementing and teaching a series of laboratory experiments involving both hardware and software
- Wrote over 250 pages of pedagogical and technical documentation, including a 130-page Laboratory Manual and over 3,000 lines of extremely high-quality, well-documented assembly language source code; student reaction has been extremely positive
- Solely responsible for the content, design and production of the *Companion CD-ROM*, a disc containing everything a student needs at home or in the laboratory (available on-line at `http://www.zap.org.au/elec2041-cdrom/README.html`); almost 14,000 lines of HTML documentation were written for this disc
- Extensively involved in setting up of the refurbished Digital Systems Laboratory, including hardware design and integration, software installation and network/server configuration
- Integrated and customised the GNU Compiler Tools software suite and environment for the Laboratory and CD-ROM, both under Windows and Linux; used CVS to manage the necessary changes to the source code and documentation
- Evaluated a number of ARM processor-based hardware boards for use in a teaching environment, including some in-house designs

Experience (continued)

- Designed the Expansion Board to complement the ARM processor board finally chosen, requiring circuit design, PCB layout and hardware debugging
- Customised the front-end software for the ARM processor board, involving graphical programming under Linux using GTK
- Performed many other tasks, including Linux system administration, typographic design of all documents, modifying the eCos embedded operating system and programming for programmable logic devices (FPGAs and CPLDs)

Biomedical Systems Laboratory, University of New South Wales
Hardware Design Engineer (Electronics Design, Computer Programming)
Jan. 1996–Sep. 2001

- Designed a generic Universal interface for the PC-based ISA bus, involving schematic circuit design and printed circuit board (PCB) layout; this interface used as the basis of all ISA-bus designs
- Developed low-level device driver software and intermediate-level interfacing software for the Universal interface for every version of MS-DOS and Windows, including VxD drivers for Windows 95/98/98SE/ME and native drivers for Windows NT 4, Windows 2000 and later
- Designed or helped design the PC-PROTO prototyping card, PC-SPIRO spirometry card, PC-BP blood-pressure card and PC-ECG 12-lead electrocardiogram card, including schematic design, PCB layout, sample software and documentation
- Involved in the design of the Home Clinical Workstation (HCWS), an integrated device providing remote diagnosis and monitoring of patients, including the PCB design for ECG2 (2-lead electrocardiogram) and BP (blood-pressure) components
- Designed many other digital and analogue circuits, including a “high-end core” based on the Intel StrongARM SA1110 microcontroller, a serial-port version of the PC-ECG and a PC-Card (PCMCIA) version of the Universal interface
- Created and maintained the typographical guidelines and style-sheet for the Biomedical Systems Laboratory
- Involved in administering the Windows NT-based computer network

Abilities

Computer Programming

- Extensive capabilities in C, C++, objected-oriented Pascal (Borland Delphi), Perl and all major Unix scripting languages, as well as the ARM, i386/x86, PIC, Z80 and MIPS assembly languages. Competent in Tcl/Tk, Python, Visual Basic, Java, JavaScript, Fortan and many other high-level and low-level languages and tool-sets
- Highly proficient in high-level user interface, systems-level and kernel-level programming under MS-DOS, Microsoft Windows (including all 16-bit and 32-bit API versions), and POSIX, BSD-based and System V-based Unix (especially Linux, the various BSDs, SunOS and Solaris). Currently learning graphical applications-level programming under Qt/KDE and GTK
- Very familiar with the Linux kernel v2.4 and v2.6 source code, as well as with kernel programming paradigms, tools and development processes
- Highly-developed ability to quickly grasp new programming paradigms, as well as to learn and adapt to any programming language or standard
- Committed to maintaining a high standard of quality in writing source code, including using “best practices” such as Subversion or Arch for version control
- Very knowledgeable in typographic design and related disciplines. Extensive abilities in LaTeX/TeX and HTML/SGML/XML. Maintained the official UNSW Thesis style class for LaTeX. Able to design and implement Web sites using standards-compliant technologies
- Written and released a number of applications, including Base Calculator, a very popular integer calculator that won the prestigious Ziff-Davis Press 5-star award
- Designed and released Sinorcaish, a highly-popular CSS style sheet that is used on many web sites around the world; an example of this style sheet may be seen at `http://www.zap.org.au/documents/styles/sinorcaish/example/`
- Contribute source code and bug fixes to the Debian GNU/Linux project, the GNU project, the KDE project and many other Open Source/Free Software projects
- Extensive practical knowledge of world-wide copyright, licensing and intellectual property laws and issues, as well as of security and cryptography

Abilities (continued)

Electronics Engineering

- Extensive digital and analogue electronics knowledge and experience, especially in the area of PC-based interfacing and microcontroller/embedded microprocessor systems
- Highly proficient in using the Protel EDA tools for schematic capture and PCB layout, including designing schematic components and PCB footprints
- Excellent grasp of surface-mount and through-hole technologies in PCB design and layout, including high-speed and multi-layer boards
- Consistently high-quality schematic drawings and PCB layout designs, with a commitment to maintaining these standards
- Ability and experience in personally manufacturing two-layer PCBs using the LPKF ProtoMat C60 PCB milling machine and through-hole plating system at UNSW; able to manufacture four-layer prototyping boards on the same system
- Intimate knowledge of many PC-based electrical/electronic standards, including the Universal Serial Bus (USB), PC-Card (PCMCIA), ISA/EISA, PC/104 and PC/104+ buses, amongst others
- Able to grasp new areas of electronics as needed, as well as being committed to continually expanding and improving electronics knowledge and experience
- Reasonable knowledge of programmable logic devices (FPGAs and CPLDs), including designing hardware using schematic diagrams, VHDL and Verilog

Systems and Network Administration

- Extensive experience and intimate knowledge of system and network administration under BSD-based and System V-based flavours of Unix, including many versions of Linux and the BSDs, SunOS and Solaris. Significant experience with Microsoft Windows systems and networks, including administering heterogeneous environments
- Involved with the Linux operating system since June 1993, including contributing source code and bug fixes to the Debian GNU/Linux project. Currently creating a customised Debian GNU/Linux distribution with additional custom packages
- Excellent grasp of many open standards and technologies, including TCP/IP, firewalls, HTTP (Web serving), FTP, Secure Shell, CVS, SVN, DNS (Domain Name System), SMTP, POP3 and IMAP (incoming and outgoing e-mail protocols), NTP (Network Time Protocol), NFS (file sharing), NIS/YP (authentication), SMB (Samba/Microsoft networking) and so on
- Ability to learn new technologies and standards quickly on an as-needed basis, with a commitment to expanding knowledge and experience in all areas
- Currently administering a Debian GNU/Linux-based server for the ZAP Group, a non-profit organisation dedicated to providing high-quality software and computer-related documentation

Robotics and Artificial Intelligence

- Extensive experience and in-depth knowledge of many types of robots, particularly ActivMedia Pioneer 2DX and 3DX, ActivMedia PeopleBot, Yujin Robotics RobHaz DT-3, Sony AIBO robotic dogs, the Cycloid II humanoid, Denso robotic arms and custom-built Truxar and DraganFlyer robots
- Extremely proficient in specifying, deploying, troubleshooting and repairing Intel-based embedded computer systems commonly used in robots, as well as associated technologies, including wireless, PCMCIA, PC/104+, USB and FireWire
- Wide experience and knowledge of many types of robot sensor payloads, including laser range-finders, sonar, pan-tilt-zoom cameras, Videre three-dimensional cameras, the Omega infra-red heat-sensitive camera and the SwissRanger 3D infra-red range camera
- Highly familiar with robotics software applications, particularly with Player/Stage, a C++-based robotics software platform used by many AI researchers
- Extensive practical abilities in the mechanical design and construction of robots, associated accessories and payloads
- Able to grasp new areas of robotics as needed, as well as being committed to expanding and improving knowledge and experience in these areas

Abilities (continued)

Other Abilities

- Excellent command of written and spoken English and Russian, including technical and non-technical communication
- Highly experienced in working with others in a team environment, as well as in leadership
- Many others not listed!

Interests and Activities

- Youth Leader at the Slavic Pentecostal Church, Lidcombe, since January 1994. Still currently serving in this capacity. Also involved in the weekly running of this church, as well as being an itinerant preacher to other churches
- Involved in ministry and outreach in Russia through Kids Outreach International, particularly as a counsellor in children's camps in 2000, 2001 and 2005
- Highly involved in leadership with Students for Christ Australia from July 1994 to December 1998, including a voluntary position of two days per week for the last three of those years
- Reading both non-fiction and fiction rather avidly
- Computer programming
- Bushwalking and camping
- Photography

References

- Professor Claude Sammut, UNSW node Director of the Centre for Autonomous Systems; Head of Artificial Intelligence Group, School of Computer Science and Engineering, University of New South Wales
  Known for 3 years, since 2003
- Dr. Waleed Kadous, Senior Research Fellow, Centre for Autonomous Systems, School of Computer Science and Engineering, University of New South Wales
  Known professionally for 3 years, since 2003
- Professor Branko Celler, Head of School, School of Electrical Engineering and Telecommunications, University of New South Wales; Director and Acting Chief Executive Officer, MedCare Systems Pty. Ltd.
  Known for 12 years, since 1994
- Dr. Saeid Nooshabadi, Senior Lecturer, School of Electrical Engineering and Telecommunications, University of New South Wales
  Known for 5 years, since 2001
- Professor Veronica James OAM, formerly School of Physics, University of New South Wales
  Known for 15 years, since 1991
- Pastor Alex Minchenko, Slavic Pentecostal Church, Lidcombe
  Known for 32½ years, since 1974

Résumé current as at September 2006

Please do not hesitate to contact John Zaitseff for additional information