JOEL STANLEY

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Education

- **University of Adelaide**—Adelaide, South Australia
  Bachelor of Electrical and Electronic Engineering (Computer Systems), Honours
  - Areas of Interest:
    - VLSI including VHDL, Verilog, and hardware verification
    - Computer architecture focusing on multi-processor systems on chip
  - Achievements:
    - 2010 IET Student Papers Competition: Exploring Multi-Processor System on Chip Architectures, finalist.
    - Participated in the Google Summer of Code, working with Google engineers on Chromium. Granted commit access. (2009).
    - Gained an internship at One Laptop Per Child, a project of the MIT Media Lab (Summer 2007).
    - Published paper "A MIPS R2000 Implementation", special section award at ISSCC, and Student Design competition at DAC.

Experience

- **Minelab Electronics**—Adelaide, South Australia
  Software Technical Lead: November 2011 - March 2012
  - Lead software team following departure of software manager.
  - Liaised with outsourcing software team.
  - In charge of architecture and configuration management for release of consumer metal detector device.
- **Minelab Electronics**—Adelaide, South Australia
  Software Development Engineer: March 2011 - present
  - Worked on embedded platforms in C and C++ for consumer metal detector products.
  - Linux boot time optimisation, focusing on driver development.
  - Linux USB Mass Storage application, including user space code, modification of kernel driver, and addition sysfs based event notification
  - ARM STM32F bare metal drivers and application, including USB peripheral driver.
  - Ported IAR AT91SAM7 application to GCC.
  - Debugging of u-boot, Linux kernel and bare-metal applications using gdb, JTAG.
  - Introduction of Python as a tool for rapid development of testing infrastructure.
- **Multi-processor Systems on Chip Research**—Adelaide, South Australia
  Student Engineer: March - Nov 2010
  - Computer Architecture research focusing on communication and memory subsystems.

  - Developed applications in C and Assembly for a NUMA multi-processor system on chip, implemented on a Virtex-6 FPGA.
  - Developed and modified hardware IP using Verilog and VHDL with Xilinx ISE.
  - Produced a demonstration application involving real-time emulation of legacy hardware.
  - Received High Distinction and produced work of a publishable standard.

- **Chromium**—Adelaide, South Australia
  Google Summer of Code Participant, Volunteer Software Engineer: March 2009 - Present
  - Implemented features relating to the Linux/GTK version of the web browser.
  - Contributed patches to the WebKit project.
  - Brought up the ARM Linux build on the OMAP3 based BeagleBoard.
  - Assisted in bring-up of 64-bit Linux build.
  - Instrumented power usage of browsers on the ARM Cortex-A8 processor.

- **Australian Semiconductor Design Company**—Adelaide, South Australia
  Software Engineer: Sept 2007 - Feb 2010
  - Worked on embedded systems simulators for cell phones.
  - Prototyped, implemented and maintained continuous integration and build systems.
  - Benchmarking of instruction set simulators.
  - Developed software models of IP blocks using custom simulator backplane in C++.

- **One Laptop Per Child**—Cambridge, MA, USA
  Google Summer of Code Participant, Internship: July - Sept 2007
  - Detailed analysis of laptop power usage.
  - Hardware troubleshooting using C and Forth, including operation of Tektronic Oscilloscope and Logic Analysers.
  - Worked with experts in fields of user interface design, security, wireless mesh networking and embedded firmware.

- **MIPS Microprocessor**—Adelaide, South Australia
  Student Engineer: 2007
  - Developed CPU based on MIPS R2000 Instruction Set Architecture in collaboration with team from Harvey Mudd College, CA.
  - Responsible for implementation and layout of cache memory subsystem, using GNU Electric and Xilinx ISE.
  - Involved in verification and simulation using switch level simulation and FPGA implementation. Fabricated by MOSIS.
  - Published award winning paper "A MIPS R2000 Implementation".

- **Robotics Peer Mentoring**—Adelaide, South Australia
  Student Mentor: 2004 - 2007
  - Instructed high school students in construction and soldering of small two wheeled robots.

  - Introduced children to PIC assembly programming, through CoreChart flowcharting software.

Skills

- **Systems experience:**
  - Linux 2.6 kernel and systems (userland) programming.
  - ARM, PIC and Atmel Microcontrollers, x86.
- **Programming:**
  - Proficient in C, Python, LaTeX, UNIX Shells, Makefiles.
  - Experienced with many version control systems, specialising in Git.
  - Familiar with Perl, Java, MATLAB, C++.
  - Have used MSVC, IAR and GCC for development, the latter on both big and little endian architectures, as well as 16, 32 and 64-bit systems.

Activities

- **Conference Talks:**
  - *Tux in Space* at linux.conf.au, Ballarat, 2012.
  - *iviewiir: iView homebrew for the Wii* at linux.conf.au, Ballarat, 2012.
  - *Tux in Space* at linux.conf.au, Ballarat, 2012.
  - *Many-core Programming: A FPGA-based Quad-core Game Boy Emulator* at linux.conf.au, Brisbane, 2011.
  - *High Altitude Arduino: Project Horus* at linux.conf.au, Brisbane, 2011.
  - *Partnering with Hardware Companies for Open Software* at linux.conf.au, Wellington, 2010.
  - *There's Something on my ARM: Chromium and the Beagleboard* at Open Source Developer Conference, Brisbane, 2009."
- Interviewed on OLPC and Sugar, for online media, national, state and local newspapers, national magazines, national and regional radio.
- Committee member of the Adelaide University Engineering Society (2006-2007).

References

- **Dr Andreas Hansson** *Senior R&D Engineer, ARM (Cambridge, Great Britain)*
  Co-researcher and Advisor for Honours Project at the University of Adelaide
  andreas.hansson@arm.com - 44 7748 202720

- **Assoc. Prof. Mike Liebelt** *Deputy Dean, Faculty of Engineering, Computer and Mathematical Sciences, University of Adelaide (Adelaide, Australia)*
  Lecturer, Honours Supervisor at the University of Adelaide
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- **Mr Timothy Ansell** *Software Engineer, Google (Sydney, Australia)*
  Former co-worker at Australian Semiconductor Technology Company
  tansell@google.com - 61 421 968221