

Jason Feldt
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Objective

To work on challenging problems in hardware design that utilize my problem solving, mathematical, and technical skills to create important and imaginative products and solutions.

Education

- **University of California** Santa Cruz, CA
MS Physics Sep. 2002 - Dec. 2005
 - Relevant graduate courses: Electromagnetic Fields and Waves (2), Statistical Mechanics, Quantum Mechanics (2), Quantum Field Theory (3)
- **California Polytechnic State University** San Luis Obispo, CA
BS Physics, minors in philosophy and mathematics 1996-2001
 - Relevant undergraduate courses: Analog Circuit Analysis (3), Digital Logic Design, C++ (2), Linear Systems Analysis, Nonlinear Systems, Electromagnetic Fields and Waves (2), Optics, Advanced Optics, Statistical Mechanics (2), Linear Algebra (3), Partial Differential Equations

Skills

Hardware Design: Embedded systems, RF theory, FPGA design, programmable logic, silicon detectors, computer architecture, analog design

Languages: C++, C, Verilog, VHDL, Perl, UNIX shell scripting, PHP, ROOT, \LaTeX , HTML, Basic

Applications: Xilinx EDK, Xilinx ISE, ModelSim, MS Visual Studio, LabView, Maple, Matlab, AutoCAD, 3D Studio, Apache, MediaWiki, Microsoft Office

Operating Systems: Microsoft Windows, FreeBSD, Linux, OpenBSD, MS-DOS, IRIX, Solaris

Lab Equipment: Logic Analyzers, Oscilloscopes, semiconductor analyzers, LCR meters, function generators, interferometers, discriminators, National Instruments data acquisition

Miscellaneous: excellent verbal and written communication skills, great at collaborating with others, exceptionally quick learner, superb problem solving and troubleshooting skills, hard working

Work Experience

- **Santa Cruz Institute for Particle Physics** Santa Cruz, CA
Assistant Specialist May 2006 - current
 - Created a CMOS detector/ASIC simulator using Verilog on a Xilinx Virtex-II board
 - Created testbenches for the above, used ModelSim SE for post PAR timing analysis
 - Co-operatively developed 64 channel LVDS data-aquisition peripheral for the Xilinx ML310 embedded system using Xilinx EDK, which interfaces with silicon strip CMOS detectors

- Created cross-compile toolchain for embedded PowerPC cores on Linux-based x86 PC
- Created custom Linux kernel and all software configuration for the above system

Santa Cruz Institute for Particle Physics

Santa Cruz, CA

- *Graduate Student Researcher*

Oct. 2004 - Oct. 2005

Sep. 2002 - Aug. 2003

- Began a medical imaging experiment with broken prototype hardware with nearly no documentation and obtained published results in under a year
- Analyzed the system (9 PC boards, 72 ASICs, 12 Si detectors, Xilinx FPGA) and identified chip, silicon detector, board, and component level problems and repaired them
- Wrote a LabView data acquisition program for a particle tracking silicon microscope
- Assisted in FPGA-implemented logic design
- Wrote PERL analysis scripts and documentation
- Wrote the current documentation and designed/drafted the new mechanical setup
- Automated device characterization and testing for the silicon strip modules using GPIB
- My thesis involved analyzing the data obtained from a medical proton beam run (≈ 20 million events) using C++ based ROOT programs I created and comparing the data to theoretical models, also implemented in C++
- Results compared favorably to x-ray CT and have been published (see publications below)

- **Resonate, Inc.**

Sunnyvale, CA

- *Summer Intern*

July 2000 - Sep. 2000

- Created database using PERL and CGI to streamline HTTP load-balancing test process
- Analyzed network traffic using Ethereal
- Assisted in networking lab operations

- **3Com, Inc.**

Santa Clara, CA

- *Summer Intern*

June 1998 - Sep. 1998

- Implemented a design on a programmable logic device that acted as glue logic between an IPsec processor, ARM processor, a PCI bridge, and two NICs for a prototype Ethernet server NIC which went into production as the 3CR990
- Co-designed logic within an Altera FPGA to handle PCI bus transactions and memory access
- Performed testing for the aforementioned project

- **Adaptec, Inc.**

Milpitas, CA

- *Summer Intern*

June 1997 - Sep. 1997

- Performed Windows NT SCSI compatibility testing, created testbeds, wrote reports

Selected Publications

Jason Feldt, et al., “Prototype Tracking Studies for Proton CT” IEEE NSS-MIC Symposium in Puerto Rico, October 2005. http://www.jasonfeldt.com/papers/pCT_IEEE_2005.pdf

H. F.-W. Sadrozinski, et al., “The Particle Tracking Silicon Microscope”, IEEE Transactions on Nuclear Science, Vol 51, No. 5, pp. 2032-2036, October 2004.
http://www.jasonfeldt.com/papers/PTSM_IEEE_2003.pdf

Interests

Mountaineering, hiking, travel, bicycling, photography, literature, playing classical piano, jazz, high-end audio, old SGI and SUN workstations, computer architecture, Linux on the Linksys WRT54g