

Christopher Wilson

Hardware Design Engineer

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Experience

Vocational

2010 – Present **Hardware Engineer**, *Cisco Systems*, San Jose, CA.

Internet of Things (IoT) BU

- Lead design engineer for Connected Grid Endpoint (CGE) SDK hardware reference design.
 - Designed ARM Cortex-M & Tensilica based modular reference designs for IEEE 802.15.4g 800/900 MHz RF and 1901.2 PLC smart grid endpoint devices.
 - Managed external ECAD and MCAD contractors during PCB layout and enclosure design.
 - Responsible for NPI engineering using Cisco manufacturing tools.
 - Worked closely with Cisco Developer Network (CDN) partners to review partner hardware designs for "Cisco Compatible" certification.
- Co-designed Cisco's first industrial "Fog" compute server module, allowing customers to utilize Cisco IOx hypervisor architecture to run Internet of Things (IoT) applications inside CGR 1000 series routers.
 - Designed interface logic boards for AMD G-Series COM Express module to meet stringent worldwide and smart grid performance requirements for harsh operating environments.
 - Validated HW design specifications over industrial operating temperature range, and performed physical layer qualification testing for SATA, Gigabit Ethernet, and USB interfaces.
 - Worked with internal ECAD and MCAD teams to complete PCB layout and chassis design.
 - Guided operations team to transition the product from NPI to production.
- Developed the worlds largest closed-circuit RF and PLC mesh network testbed consisting of over 5000 endpoint devices.
 - Designed sophisticated custom rack-mount chassis and internal backplane PCB with embedded Linux ARM controller, providing networked back-channel and instruction-level JTAG/SWD debug to every endpoint in the testbed.
 - Modified Linux kernel source code and BSP to support custom backplane PCB hardware.
 - Developed user space applications in C for CLI device control.
 - Developed Python CGI web application for device management from a web browser.
- Managed DevOps for the Connected Grid Endpoint firmware team.
 - Set up and maintained Git (SCM), Jenkins (CI and release build), and Gerrit (code review) servers.
 - Developed build scripts in Windows batch and Bash for a hybrid Cygwin/IAR firmware build server.

2007 – 2010 **Hardware Engineer**, *Arch Rock (acquired by Cisco Systems)*, San Francisco, CA.

- Responsible for transition to agile in-house hardware design and manufacturing. Adopted industry standard EDA, DFM, and PLM tools and methodology to scale hardware development for production.
- Designed 802.15.4 2.4GHz "PhyNet" wireless sensor motes and network interface cards.
 - Schematic capture and PCB layout using OrCAD Capture and Cadence Allegro.
 - Board level bring-up and verification using lab test equipment.
 - Hand assembled and reworked prototype PCBs.
- Developed embedded TinyOS firmware applications in nesC (network embedded systems C) for hardware bring-up and manufacturing test. Debugged and optimized production runtime firmware with special emphasis on low power operation.
- Designed and built a fully isolated wireless mesh testbed with reconfigurable RF topologies.
 - Developed integration test scripts in Ruby to allow automated deployment of embedded firmware for devices in the testbed.
 - Tightly integrated the testbed with Buildbot based continuous integration to facilitate automated regression testing for the full mesh network stack.

- 2006 **Undergraduate Researcher**, *Berkeley Wireless Research Center*, Berkeley, CA.
 ◦ Implemented distributed adaptive duty cycling algorithm in nesC for Telos wireless sensor motes running TinyOS 1.x operating system.
- 2004 **Interim Engineering Intern**, *Qualcomm*, San Diego, CA.
CDMA Technologies form factor accurate (FFA) baseband team
 ◦ Developed framework for an intranet website used to track internal development of FFA hardware.

Miscellaneous

- 2010 – Present **Proprietor**, *Flying Camp Design*, Castro Valley, CA.
Indie hardware and software design
 ◦ Designed open source hardware boot-strap loader (BSL) programmer for TI MSP430 MCUs.
 ◦ Manufactured and sold over 100 programmers internationally.
 ◦ Developed open source cross-platform BSL GUI utility in Python.
- 2010 – 2015 **Partner**, *Moteware*, Berkeley, CA.
Open source hardware disseminator for the academic research community
 ◦ Founded with a group of former graduate students at UC Berkeley.
 ◦ Helped manage sales, support, IT, and manufacturing.

Education

- 2003 – 2007 **B.S. Electrical Engineering and Computer Science**, *University of California, Berkeley*, Berkeley, CA.
 Awards: Edward Frank Kraft Scholarship
 Activities and Societies: IEEE, Alpha Gamma Omega, FoCUS

Skills & Expertise

- Lab PCA bring-up, electronic test equipment, hand soldering/rework, lab safety
 EDA Cadence Concept and Allegro, OrCAD Capture, Cadsoft EAGLE
 PLM Cisco Agile, Arena Solutions
 Advanced Git, Python
 Basic make, C, nesC, Java, Bash, Ruby, Tcl/Tk, L^AT_EX, Bazaar, SVN, CVS
 Environment Mac OS X, Linux, Windows, Cygwin

Interests

- Travel Traveled extensively in Europe and parts of Africa.
 Social Justice Projects in Kenya, Haiti, and Mexico.
 Sports Surfing, skateboarding, snowboarding, biking, lacrosse

References

Available upon request.