

Wesley Holland

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Keywords: { embedded systems, VLSI, computer architecture, digital system design }

Employment

- 2008-Present** **Intel Corporation** **Austin, TX**
Component Design Engineer
- Designed synthesizable RTL logic for state-of-the-art SOC
 - Owned high-level block design, including architectural decisions, inter-unit communication, and integration of 3rd party IP
 - Assisted and enabled back-end flow by identifying multi-cycle and false paths, making timing fixes, and pursuing power/area convergence
- 2007-2008** **MSU Electrical and Computer Engineering Department** **Starkville, MS**
Graduate Research Assistant
- Researched digital design automation strategies
 - Developed prototype high-level language to Verilog synthesis tool
 - Explored applications for automated FPGA design in interdisciplinary fields
- 2006-2007** **MSU Electrical and Computer Engineering Department** **Starkville, MS**
Laboratory Teaching Assistant (Logic Devices and Digital Design)
- Supervised classes of up to 20 students through various laboratory tasks
 - Taught basic concepts of logic devices and digital design
 - Helped revise laboratory material to better achieve course goals
- 2005-2006** **Institute for Signal and Information Processing** **Starkville, MS**
Undergraduate Researcher
- Developed grammar specification conversion tools for speech recognition
 - Contributed to the authorship of numerous conference submissions
 - Researched and developed novel mobile computing interface prototypes

Education

- 2007-2008** **Mississippi State University** **Starkville, MS**
Master of Science in Computer Engineering (4.0 GPA)
- 2004-2007** **Mississippi State University** **Starkville, MS**
Bachelor of Science in Computer Engineering (4.0 GPA)

Skills

- Extensive hardware design and software development experience for embedded platforms, with concentration in 8-bit PIC, 8051, Cypress PSOCs, and Xilinx FPGAs
- Proficiency with hardware debugging tools such as oscilloscopes and logic analyzers
- Working knowledge of Intel x86 assembly language
- Proficiency with circuit simulation and PCB layout tools – PSPICE, Eagle, Cadence
- Broad VLSI knowledge – CMOS design/fabrication, SRAM design, DRAM design, adder design/layout, delay estimation, design rules, flash memory, clock distribution, and power estimation
- Proficiency with VLSI tools – Spectre, Synopsys, Electric, Java Electric
- Extensive knowledge of modern processor design techniques in the areas of pipelining, branch prediction, caching, and virtual memory
- Mastery of C, C++, Java, Python, and Perl
- Extensive Unix/Linux experience – SunOS, OS X, Gentoo, Fedora, Ubuntu

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Awards

- National Science Foundation Graduate Research Fellowship
- Barry M. Goldwater Scholar
- National Merit Scholar
- Robert C. Byrd Scholar
- Bagley College of Engineering Student Hall of Fame
- Bagley College of Engineering "Most Outstanding Computer Engineering Senior"
- Presidential Scholar Nominee
- MSU Student Hall of Fame
- MSU Honors Society's "Most Outstanding Freshman"

Groups

- I.E.E.E.
- A.C.M.

Publications

- W. Holland and Y. Dandass, "Optimizing Pipelining in HDL Generated Automatically from C Source Codes." *Engineering of Reconfigurable Systems and Algorithms*, Las Vegas, Nevada, USA, 2008.
- W. Holland, "A framework for automatically generating optimized digital designs from C-language loops," M.S. thesis, Mississippi State University, Starkville, MS, 2008.
- W. Holland, D. May, J. Baca, G. Lazarou and J. Picone, "A Unified Language Model Architecture for Web-based Speech Recognition Grammars." *IEEE International Symposium on Signal Processing and Information Technology*, Vancouver, Canada, 2006.
- W. Holland, J. Baca, D. Duncan, and J. Picone, "Language Model Grammar Conversion." *2006 World Congress in Computer Science, Computer Engineering and Applied Computing*, Las Vegas, Nevada, USA, 2006.

Relevant Coursework

- Numerical Analysis
- Differential Equations
- Circuit Analysis I & II
- Electronic Circuit Design
- Digital Signal Processing
- Digital Devices and Logic Design
- Digital System Design
- Computer Architecture
- Network Processor Architectures
- Modern Processor Design
- Embedded Systems
- Introduction to VLSI Design
- VLSI Systems
- Analog Integrated Circuit Design
- Data Structures and Analysis of Algorithms
- Distributed Client/Server Programming
- Operating Systems I & II
- Introduction to Analysis of Algorithms
- Designing Parallel Algorithms