Nathan Godwin

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Education

Electrical Engineering, MS, UC San Diego (Expected December 2018), GPA 3.5
Areas of Focus: Signal and Image Processing, Machine Learning, Digital Logic Design

Electrical Engineering, BS, UC San Diego (June 2017), GPA 3.6
Areas of Focus: Signal and Image Processing, Circuit Design

Experience

Cymer **FPGA Intern**
San Diego, CA **6/2016-12/2017**

- Created self-checking SystemVerilog verification for high precision VHDL FPGA system.
- Developed a design verification system in Python for board level system validation.
- Reduced the on-bench hardware testing time from eight hours to one hour.

Digital Acoustics **Contractor**
Grass Valley, CA **2/2013-9/2015**

- Designed a script for automated FIR filter generation and correction in VHDL and MATLAB.
- Created systems for data pipelining and control in VHDL for VLF transmitter controllers.
- Performed analysis and characterization of unknown FSK and MSK signals.

Intern
10/2012-1/2013

- Performed bench-testing for jitter on fiber-optic systems.
- Generated verification test benches and simulations for FPGA systems.

Projects

Matrix Factorization Recommender System: An SVD-based recommender system with dimension reduction and live-system entry addition with low error rates. *MATLAB*

Peak Load Shaving Through Demand-Side Data Analytics: K-means clustering to determine trends in power consumption with proposed methods to reduce peak-power usage. *MATLAB*

Soft-Margin SVM: A support vector machine design with adjustable kernels for non-linearly separable datasets. *MATLAB*

8-bit NAND Processor: An 8-bit general purpose processor built primarily from discrete NAND gates chips with custom OS and drivers. *Assembly, Python, PCB Design, SystemVerilog*

8-bit ASIC Multiplier: An 8-bit signed multiplier design in SystemVerilog with netlist and layout. *SystemVerilog, Synopsys Design Vision, Cadence Innovus*

Autonomous Line-Following Car: Designed motor driver, PCB, and control software for a small autonomous car. Received 3rd place out of 15 teams at UCSD's GrandPrIEEE competition and 4th place out of 10 teams at UCD's NATCAR competition. *C++, Circuit Design, PCB Design*

Quarterly Project Chair: Designed new project program for UCSD IEEE, managed ten project teams, developed technical workshops, and provided programming and circuit design assistance. C++, *Circuit Design, Leadership*

Laser Cutter: A CNC laser cutter system constructed from CD drives, an Arduino, and supporting circuitry with GUI. *C++, Circuit Design, Java*

Skills

Software: Assembly, C, C++, Java, MATLAB, Python, SystemVerilog, Verilog, VHDL

Hardware: Analog and digital circuit design, computer architecture, digital RTL, layout and design verification, firmware programming, FPGA programming, PCB design, SPICE simulation

Signal & Image Processing: Analog and digital filter design, image processing, image recognition, supervised learning