Jonathan G. Tao

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Education

Bachelor of Science in Electrical Engineering - Expected March 2016
Bachelor of Science in Computer Engineering - Expected March 2016
University of California, Davis with GPA: 3.84/4.00 (Engineering Dean's Honor List, 8 quarters)

Relevant Course Work

- Digital System Design and Verilog HDL, Analog Circuit Analysis and Design, Device Physics, Electricity and Magnetism, Probabilistic Analysis of Electrical and Computer Systems, Signals and Systems, Embedded Systems.
- Software Development and C/C++ Programming, Discrete Mathematics, Data Structures, Algorithm Design and Analysis, Computer Architecture.
- Technical Writing in Engineering.

Skills

- Use of oscilloscopes, signal generators, spectrum analyzers, multimeters, and logic analyzers to verify circuits.
- Printed Circuit EDA (CadSoft Eagle, Kicad) with final assembly and testing of circuit boards.
- Hardware description and testing with SPICE (HSPICE, LTSPICE, HPSPICE) and Verilog HDL (Altera Quartus).
- Breadboarding, soldering with both through-hole and surface mount components, and wire-wrapping.
- Programming in C/C++ and MIPS/ARM assembly. Scientific programming with MATLAB/Octave. Automation, testing, and verification with UNIX shell.
- Operating system software development for Linux/Unix and Windows.
- Embedded system software development for Cypress PSoC, Texas Instruments MSP, Atmel AVR, and ARM Cortex platforms. Familiarity with device registers and high level API. Familiarity with embedded communication protocols and peripheral devices.
- Revision control with Git, compilation automation with Make, and development with platform specific IDEs. Comfortable and familiar with command line environments.
- Typesetting in LaTeX (this document was written with LaTeX) and HTML.
- Professional working proficiency in Cantonese Chinese.

Experience and Projects

New Product Introduction Electrical Eng. - Internship at Keysight Technologies (Formerly Agilent Tech.) 2015

- Verified power sequencing and observed its affects on reliability of a PXI vector signal generator with SPICE simulations. Provided direct, real-time feedback for design engineers to revise designs.
- Wrote test automation scripts with BASH and Make to significantly shorten the time to simulate circuits, evaluate how well circuits were simulated, and perform evaluation of circuit reliability. Created new metrics to quantify how well simulations were performed.

Electric Vehicle Management Electronics and Telemetry - Senior Design Project 2014 - 2015

- High voltage electric vehicle battery management system, which monitored battery cell health.
- CAN bus sensor network logging and wireless telemetry to a custom desktop application.

Formula SAE Student Electric - Race Car Design Competition 2013 - Present

- The team took 3rd place at the SAE Electric International competition of 2014 in Lincoln, Nebraska.
- Programmed a supervisory control unit for catching and resolving faults to prevent harm to hardware and people.
- Created a driver dashboard interface for monitoring information on the vehicle's drivetrain and battery in real time.
- Developed a KS-108 LCD driver for a dashboard interface with font and geometry rendering routines.
- Wrote a program to convert PNG images and fonts into C-style constants, which can be pasted into the source code of the dashboard user interface.

Ludum Dare 28 - 48 Hour Game Development Competition 2013

- Wrote a 2D survival platformer game from scratch about killer bunnies and holy hand grenades using C++ and the Allegro library, including art and music within 48 hours.
- Ported the game from Linux to Windows within the competition for cross-platform distribution.