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: 3.82/4 (Engineering Dean's Honor List, 7 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, function generators, multimeters, and digital logic analyzers to characterize and verify circuits and systems.
- EDA (e.g. CadSoft Eagle, Kicad, LTSPICE, Quartus) with final assembly and testing of circuit boards.
- Breadboarding, soldering with both through-hole and surface mount components, and wire-wrapping.
- Programming in C/C++, MIPS/ARM assembly, MATLAB/Octave, and UNIX shell.
- Operating systems software development for Linux/Unix and Windows.
- Embedded systems software development for Cypress PSoC, Texas Instruments MSP, Atmel AVR, and ARM Cortex based platforms.
- Embedded programming with both device registers and high level API. Familiarity with use of embedded communication protocols and peripheral devices.
- Revision control with Git, compilation automation with Make, and development with platform specific IDEs.
- Typesetting in LaTeX and HTML.
- Professional working proficiency in Cantonese Chinese.

Experience and Projects

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 serious damage to hardware and people. Completely designed and built both the hardware and software of a driver dashboard user interface for monitoring the vehicle's drivetrain and battery in real time.
- Developed a KS-108 LCD driver with basic font and geometry rendering routines. Developed a complementary program to convert PNG images into text hexadecimal constants to be inserted into C program source code. Used for easily programming fonts and graphics into the flash memory of the aforementioned dashboard interface.

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

- High voltage electric vehicle battery management system with cell monitoring, cell balancing, and charge estimation.
- Sensor network logging and wireless telemetry to a custom desktop application.

Ludum Dare 28 - 48 Hour Game Development Competition 2013

- Wrote a 2D survival platformer game from scratch about killer bunnies and holy hand grenades with 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.

Hamming Code Efficacy 2014

- Developed automated tests for Hamming Code (8,4) and (7,4) error correction over different rates of error using C, MATLAB, and Make. Determined the encoding's efficacy for a wireless data streaming application where bandwidth and latency are major constraints.