Jonathan G. Tao

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Education

Bachelor of Science in Electrical and Computer Engineering - Expected June 2016
University of California, Davis with GPA: 3.87/4 (Engineering Dean's Honor List, 7 quarters)

Relevant Course Work

- Digital System Design, Analog Circuit Analysis and Design, Device Physics, Electricity and Magnetism, Probabilitstic Analysis of Electrical and Computer Systems.
- Software Development and Programming, Data Structures, Algorithm Design and Analysis, Computer Architechture.
- Technical Writing in Engineering.

Skills

- Programming in C/C++, MIPS/ARM assembly, MATLAB, and UNIX shell.
- Platforms: Linux/Unix, Windows, AVR, MSP, and PSoC.
- 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.
- Use of oscilloscope, function generator, and digital analyzer to characterize and verify circuits and systems.
- 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 in 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 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 that can be copy and pasted into a C program. Used for easily programming fonts and graphics into the EEPROM of the afformentioned dashboard interface.

Ludum Dare 28 - 48 Hour Game Development Competition 2013

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

- Simulated the use of Hamming Code (8,4) and (7,4) error correction over different rates of error in communication lines with C and MATLAB to determine its efficacy for a wireless data streaming application where bandwidth is a major constraint.

Blackjack in 74-Series Logic - Course Project 2013

- Designed a blackjack game in Quartus. Built the game as a state machine on 74-Series logic chips.
- Used wirewrap for compact and quick prototyping.

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

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