Eric Middleton

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Current Address: 1415 Coconino Road Unit 108, Ames, IA 50014

Education

Iowa State University   2013-Present
Bachelor of Science in Computer Engineering
- Anticipated Graduation: May 2017

Internships

Electrical Engineering Intern   Summer 2014, 2015
MidAmerican Energy Company, Davenport, Iowa
- Project manager on four substation upgrades
- Independently identified inefficient processes and created automated tools in VBA

Research and Work Experience

Undergraduate Research   2016-Present
Reconfigurable Computing Lab with Dr. Jones and Dr. Zambreno
- Created a multithreaded video streaming system in C++11 on ARM SoC to log video data
- Worked to identify problems and create utilities to simplify data collection procedures
- Currently researching artificial neural networks

TA for CprE 288 - Embedded Systems   Summer 2016
- Taught all lab sections: helped students troubleshoot/debug low-level C programs on AVR microcontroller
- Lectured when professor was unavailable
- Developed software that is used by students in the new ARM-based embedded systems course
- Developed firmware for TI CC3200 wireless microcontroller running TI-RTOS for lab use

Electronics Technician   2014-Present
Department of Electrical and Computer Engineering at Iowa State University
- Debug and fix lab equipment and computer systems
- Manage the multimedia wall, a 13.5', 12-monitor multimedia display
- Troubleshoot and provide advice on student projects

Skills

- **Programming languages:** C++11/14, C, assembly
- **Libraries/APIs:** boost (asio and signals2), linux sockets, TI RTOS, TI simplelink
- **Embedded systems:** TI MSP430, TI Tiva C Series, TI CC3200 wireless MCU, Atmel AVR, Zinc-7000 FPGA, ESP8266

Engineering Activities

Critical Tinkers - Vice President   2015-2016
- Host workshops to teach useful skills, e.g. PCB design, surface mount soldering

Projects

- **intelliHAUS:** Smart home framework for WiFi connected sensors and actuators. Voted 2nd best project in CS309
- **Hackathon project:** Large, 768 pixel LED matrix with interactive games, controlled by Raspberry Pi
- **Audio LED Lightsuit**: Sound reactive LED lightsuit, controlled by ATMega328p with analog audio filtering system
- **Audio LED Lightsuit V2.0**: Sound reactive LED lightsuit, controlled by CC3200 with Android app control over WiFi
- **LightHub:** Network-based LED control system that supports multiple effects (e.g. music-controlled color effects)
- **WS8211 LED controller:** Bit-bang controller for WS8211 LEDs on TI MSP430 using C and inline assembly
- **Additional projects can be found on my GitHub page:** https://github.com/EricMiddleton1