

Casey T. Morris

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EDUCATION

UNIVERSITY OF WISCONSIN-MADISON

Master of Science in Electrical Engineering, GPA: 3.8/4.0

Madison, WI

May 2016

UNIVERSITY OF NOTRE DAME

Bachelor of Science in Electrical Engineering Magna Cum Laude, GPA: 3.800/4.000

Notre Dame, IN

May 2014

EXPERIENCE

ORRO

San Mateo, CA/Remote

Senior Embedded Engineer

July 2018-Present

- Program Manager for Orro HW product launch, overseeing all efforts from EVT to launch, incl. coordinating internal engineering and business team deliverables and managing build plans with external partners
- Develop firmware for PIC16, Cortex M4, and Cypress PSoC processors for features incl.: forward/reverse phase dimming, voltage, current, power sensing and calculation, bulb type detection, and novel multiway toggle support
- Linux bring-up and development: Custom I2C drivers, Yocto build system, NXP BSP validation and testing
- Migrated new product from Android to Linux, incl. custom Java/Kotlin user app, SensorHAL layers, JNI libraries
- Designed, implemented, and supported system level manufacturing tests and processes to facilitate production

RAYTHEON (DoD Clearance: Secret, Inactive)

Various, USA

Member, Rotational Engineering Leadership Development Program (RELDLP)

Third Rotation: Digital Force Technologies – San Diego, Firmware Engineer

November 2017-June 2018

- Development of FW for communication between proprietary systems and Sony, Canon, and Hitachi cameras
- Schematic design and PCB layout for digital video processing, networking, and power management designs
- Program lead overseeing product from design through production, customer management and integration effort

Second Rotation: RMS – Tucson, Software Engineering Center

March 2017-November 2017

- Create and implement software services for real-time embedded application utilizing SCRUM Agile Framework
- Primarily responsible for design of guidance, telemetry, and payload delivery functionality using RTI DDS

First Rotation: SAS - El Segundo, Hardware Engineering Center

June 2016 - March 2017

- Develop and verify PWB layout guidelines through signal and power integrity analysis on various programs

WISCONSIN ELECTRIC MACHINES & POWER ELECTRONICS CONSORTIUM

Madison, WI

Graduate Student/Research Assistant

September 2014-May 2016

- Developed novel three phase inverter topology to reduce common mode EMI in motor drives using WBG devices
- Performed analytical calculations, simulations, schematic capture, PWB design, build and test for whole system

EXTRACURRICULAR PROJECTS

SparkDirector Android App (*Personal Project*)

Spring 2020

- Built Android app to control smart switches (e.g. Orro) and lights (e.g. Phillips) via IFTTT from one central UI
- Implemented the MVVM architecture with a Firebase backend for real-time database and authentication

Various Raspberry Pi Projects (*Personal Projects*)

Spring 2018-Present

- Developed RPi based PhotoBooth used at my wedding. Guests text to snap (via Twilio), replied with picture
- Implemented a backup camera to retrofit any car using RPi to stream live video to smartphone via WiFi AP mode

Various Web App Projects, College Football/Fantasy Baseball (*Personal Projects*)

Spring 2016-Present

- Devised an analytical model to rank college football teams and to predict game scores based on past performance
- Designed a Django web app where users predict CFB game results, competing against the predictive model
- Created Korean fantasy baseball site using a VueJS frontend, Firebase backend, and custom python web scrapper

Automated Lighting and RFID Locking System (*Two Member Personal Project*)

Fall 2015-Spring 2016

- Implemented an Arduino based locking and lighting system using IR & RFID receivers, servo motors, relays, etc.
- Designed PCB daughter layout, developed control system, and implemented project in personal apartment

SKILLS

Technical: Windows, Mac, and Linux OS, Microsoft Office, MATLAB/Simulink, C, C++, Python, Java, Kotlin, HTML, SQL, Groovy, Bash, Altium Board Designer, LTSpice, Mentor Graphics Xpedition, HyperLynx, Oscilloscopes, Spectrum Analyzers ARM, PIC, Cypress uC, SPI and I²C Protocols, Git, SVN, Agile Frameworks, Python Web Frameworks, VueJS, Firebase

SELECTED PUBLICATIONS*

***Fifteen other publications in IEEE journals and proceedings**

[1] C.T. Morris, D. Han, and B. Sarioglu, "Reduction of Common Mode Voltage and Conducted EMI Through Three Phase Inverter Topology," *IEEE Transactions on Power Electronics*, vol. 32, no. 3, pp. 1720-1724, 2017.

[2] C.T. Morris, D. Han, and B. Sarioglu, "Comparison and Evaluation of Common Mode EMI Filter Topologies for GaN-Based Motor Drive Systems," *in Proc. Applied Power Electronics Conference (APEC)*, Long Beach, March 20 – 24, 2016. (Won Best Presenter Award)