Casey T. Morris

casey@caseytmorris.com

EDUCATION

UNIVERSITY OF WISCONSIN-MADISON Madison, WI
Master of Science in Electrical Engineering, GPA: 3.8/4.0 May 2016

UNIVERSITY OF NOTRE DAME Notre Dame, IN
Bachelor of Science in Electrical Engineering Magna Cum Laude, GPA: 3.800/4.000 May 2014

EXPERIENCE

ORRO Charlotte, NC/Remote
Senior Embedded Engineer / Program Manager July 2018-Present

- PM for Orro S new product launch, overseeing all efforts from EVT through launch, reporting to CEO
- Coordinated internal engineering and business team deliverables and managed build schedules with CM
- Created custom Java/Kotlin application for core architecture implementation on custom hardware
- Defined and implemented core lighting controls, Orro REST and PubSub API, and OTA update processes
- Led new SW/FW feature development, working with design, product, engineering, QA and support
- Using Yocto, built custom Linux OS, various drivers, U-boot customizations, SensorHAL layers, JNI libraries
- Developed firmware for PIC16, Cortex M0/M4/M7, and Cypress PSoC processors for features incl.: multi-phase dimming, voltage, current, power sensing and calculation, and novel multiway toggle support
- Maintained and supported Android and Yocto build system CI/CD, utilizing Jenkins, Docker, and GitHub Actions
- Designed custom APIs and data pipelines utilizing AWS API Gateway, Lambda, S3, Kinesis, Elastic Search
- Ported audio recognition library tensorflowlite to ARM core with custom JNI wrapper for use in JVM app
- Designed, implemented, and supported system level manufacturing tests and processes to facilitate production
- Represented Orro at trade shows and industry events, networking with potential customers and partners

RAYTHEON (DoD Clearance: Secret, Inactive) Various, USA
Member, Rotational Engineering Leadership Development Program (RELDP) June 2016-June 2018

- Program lead overseeing product from design through production, customer management and integration effort
- 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
- Created and implemented software services for real-time embedded application utilizing Agile Framework
- Primarily responsible for design of guidance, telemetry, and payload delivery functionality using RTI DDS

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 I^2C 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. Sarlioglu, "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. Sarlioglu, "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)