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# Embedded Systems & Mechatronics, Full-Stack & Workflow Infrastructure

Education:

UW-Madison, Fall 2018 (Dean's List 5/7 Semesters, Summer 2016) GPA: 3.45

- Majors: Computer Engineering (Degree Program), Computer Science

Work:

SpaceX (Software Engineering Intern) Fall 2017, Summer 2018

- Responsive user interfaces (web stack) for next generation ground systems
- LabVIEW automation & continuous integration distributed as a Python package

Extreme Engineering Solutions (Associate Embedded Engineer) Spring - Fall 2017

- Bootloader development for non-Intel architecture systems (U-Boot)

State Farm (Software Development Intern) Summer 2016

- Web app. with Spring Framework + Maven & Angluar.js 1.X, first TDD

UW-Madison College of Engineering (ULC Campus Tutor) Fall 2016 - Present

- Intro. programming, circuits, & digital logic courses

UW Plasma Physics (Student Hourly, Computing) Spring 2015 - Spring 2016

- My introduction to web development, system administration, PHP and MySQL

#### Skills (CE):

### Schematic Design & PCB Layout, Processor Driver/Firmware Development, Verilog:

- x86/ARM/MIPS/PowerPC development in C/C++ (some asm.) with modern build+test tools
- Configuring GNU make, Bazel and custom build systems, acclimating to large codebases
- Altium & KiCad schematic and PCB layout experience, some Spice simulation exp.

Hardware Communication Protocols: U[S]ART, I2C, CAN, SPI, USB, Ethernet, PCIe

- Non-blocking I/O & RTOS, CANopen & custom application layer protocol experience

Hardware-Level Software Debugging: Logic Analyzers, Oscilloscopes, Multimeters

- Proficient with debugging tools, aware of when to use (and how to not break them!)

Math & Signal Processing: Kalman filtering & quarternions (gyro. + accel. work)

## Skills (CS):

- Web Development (Full Stack): Performant and Reliable | CI + DevOps Automation
- Frameworks: Polymer, Angular [+Material Design], Bootstrap, none / from scratch
- Java EE, JavaScript/Node.js, PHP, SQL, HTML5 & CSS3, Go, Python

DBMS & System Administration: Gentoo, Ubuntu, CentOS/RHEL, [De|Rasp]bian

- Vagrant, Ansible, Docker & Bash script automation, mailing configs
- Apache/NGINX configs (mult. vhosts), DNS with SSL administration
- [My|Postgre]SQL, MongoDB, CouchDB, Redis (as user and admin.)

**Programming:** Prefer C/C++, Python, Java | Vim+tmux @ 100% duty cycle (.vimrc)

- Avoiding concurrency pitfalls, custom HALs and drivers, coherent architectures
- Multi-platform software ecosystems, GDB-style debugging, efficient workflows (git)

#### Involvement:

Badgerloop | Software Development Club: Extremely demanding, long-term projects

- (Former) Electrical Tech Director, Software & Controls Lead | Technology Chair

Awards:

Badgerloop - Innovation Award (x2), Design Weekend 3rd Place
UW Madison - Intro to IoT Hackathon - First
HackIllinois - Best Use of Intel's Microcontrollers - Third
JP Morgan Chase Code for Good - Best overall commit
HuskieHack - CDK Evolution Award, Beyond the Assembly Line
WildHacks - Watchdogs 2 Device Security Award (MLH Sponsored)

