

# NATHAN P. PETERSEN

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[nathanpetersen.com](http://nathanpetersen.com)

[github.com/npetersen2](https://github.com/npetersen2)

## EDUCATION

UNIVERSITY OF WISCONSIN - MADISON

Madison, WI

**B.S. in Computer Science with Distinction**, expected May 2019

*CS*: Data Structures, Operating Systems, Database Systems, Artificial Intelligence, Algorithms

● Major GPA: 4.0/4.0

*ECE*: DSP, Computer Architecture, Digital Design and Synthesis, Circuits, Electric Machines

● Overall GPA: 3.72/4.0

*Math*: Calculus III, Linear Algebra, Differential Equations, Discrete Math

● Men's Rowing

## RESEARCH, INTERNSHIPS & EXPERIENCE

**Undergraduate Research Assistant**: SEVERSON RESEARCH GROUP, Madison, WI

January 2018 - Present

- Created initial design for Advanced Motor Drive Controller ([AMDC](#)): PCB carrier card for [PicoZed System-On-Module](#) with 80 dedicated digital I/Os, 24 GPIOs, 16 analog inputs, encoder input, USB OTG, USB UART, Ethernet, and JTAG

**Firmware Engineer Intern**: SILICON LABS, Austin, TX

Summer 2017, Summer 2018

- Projects for Digital Radio team developing embedded firmware running on radio tuner/demodulator/coprocessor [devices](#)
- Optimized memory utilization of module using pool-based allocation, created system tracing framework and visualization
- Designed and built PCB for customers that enables easily interfacing host system to embedded devices over SPI

**Web Developer**: UW-MADISON COMPUTER SYSTEMS LAB (CSL), Madison, WI

March 2016 - September 2018

- Worked with other students and full-time staff to create modern web apps for internal and external use

**Software Development Intern**: INTEL CORPORATION, Champaign, IL

Summer 2013, Summer 2014

- Automated testing of mobile performance tool, developed Android app to visualize device metrics & [Qt](#) GUI for [Pintool](#)

## PERSONAL PROJECTS (see [nathanpetersen.com](http://nathanpetersen.com) for more)

**Razzler: LED POV Top**

- Embedded system with MCU, IMU and LEDs
- Circuit design, PCB design, assembly, testing
- Custom firmware for POV animations while spinning

[team4096.org](http://team4096.org) ([FIRST](#) robotics team website)

- Uses [ProcessWire CMS](#) on [AWS EC2](#)

[nathanpetersen.com](http://nathanpetersen.com) (personal website)

- Uses [Hexo](#) static site building and [GitHub Pages](#)

**Project Airis: Algorithmic Trading Engine**

- A.I. techniques applied to technical and fundamental analysis used for automated "short-term" investing

[nppictures.net](http://nppictures.net) (personal photography portfolio)

- Custom caching system & [dynamic album generation](#) from Picasa Web Albums

**FIRST FRC Team 4096: Ctrl-Z**

- Lead web development mentor
- Developed custom attendance tracking web app with financial system for crediting volunteer hours

[cs.wisc.edu/~npetersen](http://cs.wisc.edu/~npetersen) (college class projects)

- Custom file system browser using AJAX

[livemadisonweather.com](http://livemadisonweather.com)

- Custom view of UW-Madison [SSEC weather data](#)

## TECHNICAL SKILLS & ABILITIES

**C/C++ (GCC, STL, Eclipse, Qt GUIs)**

**HTML5, CSS3, JavaScript, PHP, MySQL**

**EDA Environments**

- Silicon Labs (real-time embedded)
- Intel internship, classwork

- Web servers ([Apache](#) on [AWS EC2](#))

- Altium Designer schematic / layout

**Java (Eclipse plugins, Android)**

- [ProcessWire CMS](#), [Ember JS](#)

- Autodesk Eagle schematic / layout

- Silicon Labs / Intel internships

- [Hexo](#), [Jekyll](#) static site frameworks

- Mentor Graphics PADS layout

- (see college class projects website)

- [Bootstrap](#), [Foundation](#) front-end

- OrCAD Capture schematic

**Python, Tcl**

- Silicon Labs internship, Project Airis

- LTspice, Digital Oscilloscopes

**Hardware Platforms**

- PicoZed SoM, STM32 MCU