# TYLER WADEKAMPER

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## SUMMARY


- Results-oriented electrical engineer with a diverse experience in HW, SW, and PM for rugged avionics design.


## SKILLS

- **HW -** Electronics, schematic and PCB/PCA design, embedded systems, signal integrity, PCIe, ETH, USB, I2C, SPI.
- **SW -** C/C++, Linux, Bash, Python, HTML, CSS, JavaScript, Ruby on Rails, PostgreSQL, Git, SVN, Docker.
- **PM -** Schedule development, cost estimation, requirements definition, performance monitoring, leadership.
- Excellent problem-solving, communication/collaboration, initiative, motivation to learn new concepts.

## PROFESSIONAL EXPERIENCE

**Electrical Engineer** **2019 - Present**

***Astronics Advanced Electronic Systems, Everett, WA***

Embedded I/O Design: **Designed a multi-protocol I/O board** for a low SWAP military ethernet/avionics computer.

- Implemented USB, PCIe, Ethernet, multiple channels of ARINC 429/MIL-STD-1553 in a 5 $in^2$ board footprint.
- Created a highly configurable, multiplexed single board design with 32 potential HW builds and 64 SW options.
- Oversaw design and layout of PCB, wrote and executed both verification and validation plans to completion.

Computer Architecture Definition: **Defined the processor board architecture** for the next-generation avionics converter.

- Researched cost, time to market, performance, risk of chip-down vs. SoM solutions for processor, memory, ethernet.
- Recommended a chip-down architecture with 4x4G memory layout and dedicated ethernet circuit that succeeded.

Rugged Circuit Design: **Created lightning protected and high temperature avionics circuits** on a high density board.

- Introduced the first avionics protocol board that passed DO-160 level 4 lightning injection on all I/O inputs.
- Met high temperature operation at 70C with short term operating at 85C for a 6 $in^2$ avionics board design.
- Executed comprehensive testing and documentation of compliance with DO-160 environmental/electrical standards.

I/O Test SW: **Wrote native Linux software in C** to test avionics digital I/O cards in embedded computers for production.

- Wrote low-level application code to execute a DIO looptest for evaluation of PCIe slot functionality.

Data Security Test SW: **Implemented an automated data security test program in Bash** to reduce touch time by 80%.

- Proactively identified pain points in production testing outside of job description, proposed and led solution effort.
- Saved an average of 30 minutes of production time per unit and decreased technician context switching by 50%.
- Increased reliability of data security testing for unit wide write protect/enable and sanitize functionality.

Config. Management SW: **Developed an automated browser app in Python** to handle config. management for engineers.

- Recognized inefficiency of config. management document processes and initiated an app development project.
- Wrote Python program to take file system data, scrape HTML web content, upload documents without human input.
- Saved thousands of clicks with the adoption of the Python app by the engineering team to upload documents.

Program Management: **Managed and directed a ~$500K redesign program** for single protocol avionics PCIe cards.

- Finished the project 7% under budget and 3 weeks early allowing for seamless transition to new design.
- Led a team of 8 to meet requirements, schedule, and budget constraints through new design process challenges.
- Coordinated supply chain, production, component engineering, sales/marketing, EE/SWE, to meet deliverables.

## PERSONAL PROJECTS

**KidCal – Source** **2023**

- **Built a smart scale for kids with a Raspberry Pi**, HX711 ADC, load cells to view real-time weight on the web.
- Wrote a streaming app in C to read raw weight from the HX711 and open a websocket to stream it to the front-end.
- Created a React front-end that receives, converts and displays the data for network viewing on mobile or desktop.

**FBRULES – Live | Source** **2022 - 2023**

- **Constructed a social networking site for football officials** to share rules questions/answers using Ruby on Rails.
- Deployed and marketed the application to officials netting 30 user registrations in the first two weeks of operation.
- Utilized Bootstrap, JavaScript, and CSS to complete the fully-responsive, mobile first front-end.
- Implemented an end-to-end test suite, RESTful architecture, and secure user authentication system.

**Ruby Chess – Live | Source** **2022**

- **Created a fully-featured command line chess game** using object-oriented design in Ruby.
- Completed extensive Rspec test coverage using a hybrid test-driven development strategy from the outset.
- Deployed the program in a docker container in order to isolate the shell environment and minimize dependencies.

## EDUCATION

**Bachelor of Science, Electrical and Electronics Engineering** **2019**

*Seattle Pacific University*, Seattle, WA, **GPA: 3.74/4.00, Honors:** Cum Laude