





OWEN ZELLER


Software Developer


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SUMMARY

Software developer with experience in fullstack applications, machine learning, and firmware design. Looking to grow and gain experience as a contributing member to a flexible, dynamic development team. Currently a Senior attending the University of Minnesota for computer science.

SKILLS

Languages:

C++, C, Java, Python, x86, JavaScript, HTML, CSS, OCaml, Matlab, SQL

Technologies:

SQL, NoSQL, React, Next.js, Docker, MongoDB, MapReduce, Keras, TensorFlow, Jira

Methodologies:

Agile, Kanban, Scrum, Software Design Patterns

- PROJECTS
- Machine Learning

Image Compression Using K-Means Clustering

github.com/Kasaar/KPress

An app that implements k-means clustering in C to provide fast lossy image compression. Designed to give the user control over the compression/loss ratio, and uses a single-header library for image I/O to optimize portability.
- Language Parsing

Custom Parser and Prover With OCaml

github.com/Kasaar/ProveML

An OCaml application that parses equalities in the OCaml programming language and writes proofs of their correctness. Handles both direct and inductive proofs based on user input.
- Database and Web

Web Crawler & Indexer With Python & MongoDB

github.com/Kasaar/zcrawler

An indexer for use in search engines and similar applications. Crawls a specified subset of the web, and uses MongoDB to store the collected data.
- Fullstack

Drone Package Delivery Simulation

hub.docker.com/r/zeller7/drone\_sim

A web simulation for package delivery via drone. Written in C++ showcasing creational, structural, and behavioral design patterns. Finds paths via graph traversal, uses a queue to handle multiple deliveries, and features smart decision making for drone charging.

- EXPERIENCE
- 4/2024-Present

Electrical Team Lead

Solar Vehicle Project

- Responsible for the design and manufacture of an electric vehicle's electrical systems, including custom firmware, PCBs, lithium-ion batteries, motors, and wiring.
  - Manage several development teams consisting of over 20 members.
  - Track work using kanban within the DevOps framework.
  - Write C++ firmware for a variety of custom PCBs.
  - Oversee design reviews for firmware and hardware systems.
  - Lead weekly stand-up meetings to discuss organizational objectives and inter-team co-operation.

C++ / C / PCB Design

- |                |   |                               |
|----------------|---|-------------------------------|
| 9/2021-4/2024  | <b>Firmware Developer</b>   | <b>Solar Vehicle Project</b>  |
|                | <ul style="list-style-type: none"> <li>• Owned and developed embedded firmware for the control system of an electric car.</li> <li>• Delivered a major feature allowing the driver to switch from dual-motor drive to single-motor drive.</li> <li>• Structured the codebase to follow SOLID principles, allowing new features to be added without significantly modifying existing classes.</li> <li>• Led an initiative to fix a problematic FreeRTOS implementation. Significantly reduced unnecessary abstraction and improved run-time.</li> <li>• Updated the team's custom CAN library to fix a critical issue with handling repeated packets. Accomplished by rewriting a Python script that generates a C++ library.</li> <li>• Represented my sub-team in weekly sprint meetings. Shared our objectives with the larger firmware team and provided insight about how our system affected design decisions.</li> </ul> |                               |
|                | C++ / C / Python  |                               |
| 8/2021-Present | <b>Systems Administrator for Charter Schools</b>  | <b>JR Computer Associates</b> |
|                | <ul style="list-style-type: none"> <li>• Built 2 pfSense networks for two charter schools, and currently maintain them.</li> <li>• Manage the firewall and router for dozens of access points and cameras with high availability.</li> <li>• Replaced and configured 6 Cisco managed switches to route traffic between 6 floors in 2 buildings.</li> <li>• Responsible for annual inventory of hundreds of student devices. Automated using a PHP application to communicate with an SQL DB containing information relating to device status.</li> <li>• Regularly meet with client school administrators and staff to ensure client needs are being met and provide technical advice.</li> </ul>   |                               |
|                | Linux / SQL   |                               |

## EDUCATION

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### **Bachelor of Science in Computer Science**

GPA 3.9

*College of Science and Engineering*

Expected May 2025

University of Minnesota - Twin Cities, Minneapolis, MN

**Relevant coursework:** Fundamentals of Machine Learning, Algorithms & Data Structures, Machine Architecture, Advanced Programming Principles, Software Engineering.