

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 Junior 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 cooperation.

C++ / C / PCB Design

- 9/2021-4/2024 **Firmware Developer** **Solar Vehicle Project**
- Owned and developed embedded firmware for the control system of an electric car.
 - Delivered a major feature allowing the driver to switch from dual-motor drive to single-motor drive.
 - Structured the codebase to follow SOLID principles, allowing new features to be added without significantly modifying existing classes.
 - Led an initiative to fix a problematic FreeRTOS implementation. Significantly reduced unnecessary abstraction and improved run-time.
 - 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.
 - 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.
- C++ / C / Python

- 8/2021-Present **Systems Administrator for Charter Schools** **JR Computer Associates**
- Built 2 pfSense networks for two charter schools, and currently maintain them.
 - Manage the firewall and router for dozens of access points and cameras with high availability.
 - Replaced and configured 6 Cisco managed switches to route traffic between 6 floors in 2 buildings.
 - 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.
 - Regularly meet with client school administrators and staff to ensure client needs are being met and provide technical advice.
- Linux / SQL

EDUCATION

Bachelor of Science in Computer Science

GPA 3.9

College of Science and Engineering

Expected May 2026

University of Minnesota - Twin Cities, Minneapolis, MN

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