







# 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.

**Methodologies:** Agile, Jira, Kanban, Software Design Patterns.

### PROJECTS

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|------------------|--|
| Machine Learning | <b>Image Compression Using K-Means Clustering</b> <a href="https://github.com/Kasaar/KPress">github.com/Kasaar/KPress</a><br>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 | <b>Custom Parser and Prover With OCaml</b> <a href="https://github.com/Kasaar/ProveML">github.com/Kasaar/ProveML</a><br>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 | <b>Web Crawler &amp; Indexer With Python &amp; MongoDB</b> <a href="https://github.com/Kasaar/zcrawler">github.com/Kasaar/zcrawler</a><br>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        | <b>Drone Package Delivery Simulation</b> <a href="https://hub.docker.com/r/zeller7/drone_sim">hub.docker.com/r/zeller7/drone_sim</a><br>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

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|----------------|--|
| 4/2024-Present | <b>Electrical Team Lead</b> <a href="#">Solar Vehicle Project</a> <ul style="list-style-type: none"><li>Responsible for the design and manufacture of an electric vehicle's electrical systems, including custom firmware, PCBs, lithium-ion batteries, motors, and wiring.</li><li>Manage several development teams consisting of over 20 members.</li><li>Track work using kanban within the DevOps framework.</li><li>Write C++ firmware for a variety of custom PCBs.</li><li>Oversee design reviews for firmware and hardware systems.</li><li>Lead weekly stand-up meetings to discuss organizational objectives and inter-team co-operation.</li></ul> C++ / C / PCB Design |
|----------------|--|

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|----------------|---|-------------------------------|
| 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.