

Oscar Lechner

Full-Stack Software Engineer

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PROFILE

I build production web systems end to end, from database schema through REST APIs to the interface on top of them. I'm a CU Boulder Creative Technology and Design graduate, and most of what I know about backend engineering came from building systems that had to run unattended, under real load, in front of people who would have noticed if something broke.

EXPERIENCE

Founding Engineer — Boulder Alleycat Oct 2023 – Present

Boulder, CO

- Built the REST API behind boulderalleycat.com and the checkpoint timing tool at alleycat-tool.vercel.app: Node.js serverless functions on Vercel, backed by Supabase and Postgres, running across 10+ live races and 100+ racers.
- Designed the scoring algorithm: normalizes finish times with a median and MAD statistic, then maps the result through a normal CDF so racers on different course difficulties are ranked fairly against each other.
- Built the live dashboard to poll the API every 5 seconds and fall back to the last known snapshot on connection loss, so results never disappear mid-race.
- Shipped a 3D route visualizer that rebuilds each race's winning route as an interactive model directly from field-collected checkpoint and timestamp data.

Freelance Web Developer — CU Club Ultimate Websites Dec 2025

Remote

- Built one shared, dependency-free JavaScript core powering three separate team sites (mamabird.com, CKFT, quandaryultimate.me) while keeping each team's branding distinct.
- Kept payloads under 200KB and animation at a steady 60fps by structuring content as plain data objects and writing a small hash-based router instead of reaching for a framework.

Learning Assistant — Design Foundations, CU Boulder Jan 2026 – Present

Boulder, CO

- Support core Creative Technology and Design coursework through recitations, grading, and one-on-one mentoring, focused on explaining why a fix works rather than just supplying it.

PROJECTS

Data Forest — Real-Time Sensing Pipeline 2025 – 2026

ATLAS Institute Capstone

- Built the sensor server: multi-threaded Python and FastAPI running GPU-accelerated YOLOv8 detection (ONNX Runtime, CUDA) across four networked camera zones, with per-camera tracking and smoothed output feeding the render layer.
- Built the aggregator on top of it: an async FastAPI service polling every sensor node across two machines every 500 milliseconds, merging feeds and reconnecting a dropped camera automatically so the system ran unattended for the full length of the ATLAS Expo.

Smaller projects: Generative Dots, a 16-mode procedural rendering engine with seeded, reproducible export; Infinite Automatic UNO, four agents playing a full rules engine continuously; and a Solar System Visualizer with accurate orbital mechanics. p5.js and JavaScript, 2024 to 2025.

SKILLS

Languages & Web	JavaScript, Node.js, React, HTML, CSS, Python
Backend & Data	REST APIs, FastAPI, Supabase/Postgres, real-time systems
Tools	Git, Vercel, VS Code

EDUCATION

University of Colorado Boulder May 2026

B.S. Creative Technology and Design, Minor in Business

Focus: full-stack web development, backend systems, data visualization.

Coursework: Data Structures & Algorithms (TypeScript) – graphs, hashing, finite state machines, collision detection.

Certified Scrum Product Owner (CSPO)