

Oscar Lechner

Creative Technologist

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PROFILE

I design real-time, sensor-driven installations that turn physical presence into something you can see and hear. I'm a CU Boulder Creative Technology and Design graduate working across computer vision, Unity and C#, physical computing, and generative coding. I build for the exhibition floor, not the laptop screen.

EXPERIENCE

Founder & Engineer — Boulder Alleycat Oct 2023 – Present

Boulder, CO

- Designed a 3D route visualizer that turns each race's winning route into an interactive generative model, built directly from live checkpoint and timing data instead of modeled by hand afterward.
- Founded and continue to run a multi-race underground cycling series (10+ races, 100+ racers), handling technical systems, branding, and race-day logistics.
- Built the real-time QR checkpoint system that feeds live leaderboards on race day and becomes part of the permanent results archive.

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

Boulder, CO

- Mentor students in Creative Technology and Design coursework through recitations, grading, and one-on-one guidance, focused on helping people find their own creative voice inside a technical constraint.

PROJECTS

Data Forest — Real-Time Interactive Installation 2025 – 2026

ATLAS Expo, CU ATLAS Institute

- Designed and built an installation that turns crowd activity into a generative digital forest rendered live in Unity, shown at the ATLAS Expo.
- Wrote the full Unity and C# visualization layer: sensor-driven tree growth, per-tree animation through MaterialPropertyBlocks for performance, canopy sway driven by optical flow over UDP, and a browser-based audio layer that reacts to visitors' poses.
- Built the sensing pipeline underneath it: multi-threaded Python and FastAPI running GPU-accelerated YOLOv8 detection (ONNX Runtime, CUDA) across four camera zones, aggregated across two machines with automatic reconnection so it could run the full exhibition unattended.

Parametric Race Trophy — Generative Design 2025

Advanced Computational Fabrication

- Built a Grasshopper and Rhino system that generates a one-of-a-kind 3D-printed trophy for every racer, mapping their actual route onto a topological terrain model of the course, then placing bib number, race ID, and final time on the model. Printed on a Bambu Labs printer.

SillBot — Temperature-Reactive Kinetic Sculpture 2024

Object, CU Boulder

- Built a window that opens and closes itself: an Arduino reads ambient air temperature and drives a lead-screw linear actuator built from scratch, with fans for active regulation.

Also worth a look: Infinite Automatic UNO, four autonomous p5.js agents playing a full rules engine (draw, skip, reverse, wild cards) forever with live win and loss stats; Glyphs & Gravity, physics-driven typography in p5.js; a 16-mode Generative Dots engine; and a Solar System Visualizer. 2024 to 2025.

SKILLS

Creative & Visualization	Unity (C#), p5.js, OpenCV
Fabrication & CAD	Rhino, Grasshopper, Arduino, SolidWorks, SketchUp
Programming	JavaScript, Python, C#

EDUCATION

University of Colorado Boulder May 2026

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

Focus: creative programming, computational fabrication, data visualization.

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

Certified Scrum Product Owner (CSPO)