

PRESTON ALDEN

Mechanical Engineer

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- 📍 Logan, UT
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EDUCATION

UTAH STATE UNIVERSITY

B.S.

Mechanical Engineering Major
Computer Science Minor

FE Certified

📅 2019 - 2024

📍 Logan, UT

Interests

- Puzzle Designing/Collecting
- Studying Polyhedra/Geometry
- Mechanical Toy Design
- General Mathematics
- 3D Modeling
- 3D Printing

DESIGN PORTFOLIO



prestonalden.github.io

ENGINEERING ACHIEVEMENTS

World Record 49x49x49 Twisty puzzle

- Current world record holder for the highest-order twisty puzzle ever created (49x49x49 Rubik's Cube) with over 13,827 pieces.
- Solely designed, engineered, and assembled the 49x49x49 twisty puzzle, requiring ~3000 hours of CAD modeling, 3D printing, and part processing.
- Completed the project independently, without external collaboration, funding, or compensation.
- Created a YouTube announcement video that gathered over 320,000 Views.
- The record was recognized and accepted by *Guinness World Records*.

WORK EXPERIENCE

Animal Research Lab Engineer

📅 December 2021 - Present

📍 USU Odum Lab, Logan, UT

- Designed a custom apparatus to **train rats to vape** for psychology research purposes
- Designed a **custom electronic** photodetector, light, and solenoid
- Served as the lead engineer, responsible for end-to-end design, prototyping, and deployment
- Practiced iterative design work through **CAD** and peer feedback
- Used **resin printing** to fabricate the apparatuses
- Soldering and circuit design

My work has been featured prominently in our most recent **scientific publication** with many more publications to come. This project has been considered highly innovative in the scientific community. Other psychology labs have already begun using the nose port I designed for their own independent studies.

Delta-V Energetics

📅 August 2024 - May 2025

📍 Utah State University, Logan, UT

- Senior Capstone Project
- Designed an **explosive drop release mechanism** for a drone for avalanche prevention purposes
- Worked in a group of five other senior engineers
- Developed integrated remote control and telemetry systems

SKILLS

3D Printing

- Accumulated over 12,000 hours of print time
- FDM (Traditional Filament Extrusion Printing)
- SLA (Resin Printing)

Designer

- World record holder for the 49x49x49 twisty puzzle
- Regularly use CAD to design and and print solutions for any issue
- Designed or reverse engineered over 30 unique twisty puzzles and mechanical puzzles

Coding Languages

- Python
- Java
- C++
- C# (Created an entire video game in C#)

Software Proficiencies

- Solidworks (CAD)
- Fusion 360 (CAD)
- Blender (CAD)
- Maya (CAD)
- Prusa Slicer (FDM 3D Printing)
- Chitubox (SLA 3D Printing)
- Unreal Engine (Game Engine)
- DaVinci Resolve (Video Editing)
- Git (Version Control)
- Unix (Command-Line OS)
- Numerous Different Compiling Softwares (Coding)