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

- Solely designed, engineered, and assembled the 49x49x49 twisty puzzle, requiring ~3000 hours of CAD modeling, 3D printing, and part processing.
- The puzzle has been recognized by Guinness World Records and currently holds the record for the highest-order twisty puzzle ever made, consisting of 13,827 pieces.
- Created a YouTube announcement video that garnered over 320,000 views.
- Completed the project independently, without external collaboration, funding, or compensation.

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
- Developed skills in soldering and circuit design

My work was prominently featured in our most recent scientific publication, with additional publications forthcoming. The project has been recognized as highly innovative within the scientific community, and several psychology labs have already adopted the nose port I designed for use in their own independent studies.

Delta-V Energetics

📅 August 2024 - May 2024   📍 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)