

Ethan Barlow

Clinton, UT

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(Portfolio) [ethanbarlowhq.com](#)

EDUCATION

B.S. Mechanical Engineering w/ a minor in Mathematics (3.8/4.0 Cumulative GPA)

Weber State University – Ogden, Utah

Graduating April 2023

Technical Electives: Robotics, FEA, GD&T, Compressible Fluids

WORK EXPERIENCE

CAD Designer

Petrus Solutions – Clinton, Utah

July 2019 – Present

Created patent drawings for 18 commercial products using SolidWorks, including:

- [Culinesco® Ergo Spout](#): Mason jar attachment for comfortable storage/dispense of liquids.
- Drone Delivery Basket: Exterior mounted container for remote package delivery via drone.
- Caulk Gun Holster: Waist attachment for easy storage/transport of caulk gun during use.
- Language Translator: Graphical User Interface (GUI) for language translator device.

Mechanical Engineering Co-op

Bechtel (Defense & Space Division) – Ogden, Utah

June 2022 – Present

Aided in creation of Sentinel ICBM for the Ground Based Strategic Deterrent (GBSD) program.

- Designed selection of air filters to clean radioactive dust particles.
- Originated 9 plumbing & instrumentation diagrams (P&ID's).
- Performed calculations for HVAC loads & head loss in plumbing systems.

RESEARCH EXPERIENCE

Research Assistant

Weber State University – Ogden, Utah

Sept 2020 – Present

Conducted research for WSU Mechanical Engineering Department. Research/tasks included:

Robotics

- Created variation of open-source *InMoov* robotic arm for teleoperation of a ball using data glove interface, master-slave control, and a new algorithm for computing robot kinematics.

Fluid Dynamics

- Spearheaded rapid design & prototyping of experimental setups for multiple studies concerning droplet impingement and splatter mitigation in a fluid.
- Wrote grant/scholarship proposals and journal papers.
- Automated collection of high-speed footage using Photron Fastcam.
- Assisted in classroom laboratory experiments and lectures.

TECHNICAL SKILLS

Software: Python, MATLAB/Simulink, Arduino, SolidWorks, ANSYS, Inventor

Fabrication: 3D-Printing, Soldering, Milling, Lathework, MIG Welding, Waterjet Cutting.

SCHOOL PROJECTS

Please go to my project portfolio/website ethanbarlowhq.com to see more.

- **2 DOF Drawing Robot:** Robot arm that draws shapes on paper using inverse kinematics.
- **3D LED Cube:** 3-dimensional light up display cube composed of 64 LEDs.
- **Hydroelectric RC Car:** Water-powered robot for *ASME H2Go Student Design Competition*.
- **Whipper Trebuchet:** Steel trebuchet capable of throwing a softball 73 ft.
- **Clay Ball Minigun:** 3D printed rapid-fire clay ball toy gun (in progress).

SCHOLARSHIPS & AWARDS

Weber State Undergraduate Research Travel Grant

Office of Undergraduate Research – Ogden, Utah

June 2022

George S. Eccles Undergraduate Research Scholarship

Office of Undergraduate Research – Ogden, Utah

Feb 2021

Regents' Scholarship

Utah System of Higher Education – Kaysville, Utah

Aug 2016

Eagle Scout Award

Boy Scouts of America – Kaysville, Utah

June 2016

RESEARCH

Journal Papers

1. **Barlow, E.**, Arif, T., “An Iterative Actuation Method for Precise Telemanipulation by Humanoid Robot Arm,” ASME International Mechanical Engineering Congress & Exposition. **(In Preparation – 2023 submission target)**
2. Pan, Z., **Barlow, E.**, Hurd, R. C. “Urinal Design Optimization,” Experiments in Fluids. **(In Preparation – 2023 submission target)**

Conference Presentations

1. **Barlow, E.**, Hurd, R. C., Pan, Z., Speirs, N. B., Belden, J., Truscott, T.T., “Eliminating Urine Splatter Through Fluid Dynamics,” WSU Office of Undergraduate Research Spring Symposium, Ogden, UT. April 10, 2023.
2. Thurairajah, K. A., Song, M., Zhu, J.D., **Barlow, E.**, Hurd, R.C., Pan, Z., “Splash-free Urinals Inspired by Nautilus Shells and Dogs.” 75th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Indianapolis, IN. November 20-22, 2022.

Conference Posters

1. **Barlow, E.**, Bentley, P., Call, C., Hiatt, H., Arif, T., “Master-Slave Telemanipulation of Humanoid Robotic Arm Using Data Glove,” WSU Office of Undergraduate Research Spring Symposium, Ogden, UT. April 10, 2023.
2. Hurd, R. C., **Barlow, E. A.**, Pan, Z., Speirs, N. B., Belden, J., Truscott, T.T. “Urine Splatter Patterns. American Society of Mechanical Engineers – Fluids Engineering Division Summer Meeting. August 3-5, 2022.