

Molly Boerner

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Education **Carnegie Mellon University**, Pittsburgh, PA 2019
Bachelor of Science in Mechanical Engineering

Projects **Auto-leveling and Pitch-changing Pinball Machine**, 2018

Designed a closed-loop electromechanical system to auto-level a custom-made pinball machine to a user-specified angle of play via a PID controller and electric motors

Won “Best Prototype” and “Overall Best” after presenting to judges, students, and other attendees at the Mechanical Engineering Design Expo

College Piano Toy, 2019

Created a 12 key, Arduino-powered toy piano played with one hand on the keys and one hand controlling the octave via a pressure sensor

Programmed a song-following option that controlled LEDs corresponding with the next note the user should play

Raindrop, 2019

Built an inflatable raindrop with an interior dome that viewers could walk into

Patterned, tie-dyed, and sewed segments of rip-stop nylon to create a two-chambered sculpture that gave the audience an underwater experience

Other Projects

- Swinging Gripper that used a motor to hold onto an object through one full swing
- Toy Robot that walked over different obstacles such as rocks, stairs, and hurdles
- Hammered-Dulcimer case with internal padding and pocket for music storage
- Robotic Hand built out of clay and then cast in silicone
- Inflatable Monster that transformed when unzipped

Experience **Prototype Fabricator**, Inventionland, Pittsburgh PA, 2021 - present

Responsible for assembling and finishing working prototypes for product design clients

Work with various fabrication techniques, including laser cutting and 3D printing, with many different materials, including plastics, wood, metal, fabrics, and rubbers

Teaching Artist, MuseumLab in The Children’s Museum of Pittsburgh, 2019 - 2020

Developed and facilitated creative and project-based experiences with teens, families, and groups

Worked with many different physical and digital disciplines of creation, design, art, and craftwork

Teaching Assistant, DIY: Design and Fabrication, 2019

Helped graduate and undergraduate students learn fabrication processes such as laser cutting, 3D printing, and silicone mold making

Collaborated with peer TAs and professor to offer feedback, grade, and assist students in designing projects

Skills Software: Solidworks, MATLAB, Python, Arduino, Illustrator, InDesign, Photoshop
Machines: Basic Shop Tools, Sewing Machine, Laser Cutter