Heidi Thiele

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EDUCATION

Oregon State University June 2026

Honors Bachelor of Science in Applied Physics | GPA 3.97

Accelerated Masters Program in Mechanical Engineering (ME) | Completing Graduate-Level ME and Physics Coursework

PROFESSIONAL EXPERIENCE

3D Printing Lab Researcher, *Oregon State University* July 2024 - Present

- Developed a novel 3D-printable building material demonstrating faster cure time (3 days vs. 28 days) and increased sustainability (70-80% biobased materials) relative to conventional concrete without loss of strength
- Adapted an existing Ender 3 V2 3D printer to extrude the novel material by designing custom syringe-based nozzles and modifying print setup parameters and calibration at various scales
- Designed and conducted experiments to optimize material properties, 3D printing process, and mechanical performance of developed sustainable "concrete" for large-scale building applications
- Co-authored a paper published in *Advanced Composites and Hybrid Materials* on this work

Construction Science Research Internship, *Texas A&M University* May - August 2025

- Led a research project with first-author conference publication by iteratively adapting a machine learning framework to predict energy consumption and associated costs, saving up to 70% of baseline energy consumption in U.S. homes with precise, targeted renovations

Semiconductor Immersion Paid Program, *Analog Devices* June 17 - 28 2024

- Designed a biomimicry-inspired robotic arm with a group of 6 using CAD from idea to 3D prototype print
- Assembled an RC robot without an instruction manual, involving hands-on experimentation and proficiency with soldering, stripping, and crimping wires for a final speed and precision competition
- Completed 90 hours of semiconductor immersion training through fab tours, lectures (photolithography, vacuums, thin films, etc.), and engaging with materials and processes

PROJECTS

Senior Thesis | In-progress design of an auger system for a 3D printer with focus on mechanical design, electrical wiring, and flow analysis equations to improve usability and lower cost of 3D printing sustainable "concrete" for construction | *Sep 2025 - June 2026*

Team Engineering Design Project | Designed and prototyped a functional mechanically-operated knife sharpening block in a 4-person engineering team, translating customer requirements into CAD geometry and validating calculations and fit through 3D-printed iterations | *Sep - Dec 2025*

Independent Graphic Design Project | In-progress design and prototype of a consumer card-based product, using user testing and iterative layout/visual refinement to optimize usability and engagement | *August 2025 - Present*

SKILLS

Engineering Coursework | Statics, Dynamics, Strength of Materials, 3D Modeling (CAD), Mechanics of Materials, Engineering Design, Design for Manufacturing (DFM)

Physics Coursework | Thermodynamics, Electronics Lab, Periodic Systems, Oscillations and Waves, Quantum Mechanics

Programming + Simulation | Python, Siemens NX, Onshape, SketchUp, MATLAB, Cura Slicing, EnergyPlus

Data Analysis | OriginPro, R, Gradient Boosting Regressor, Data Visualization, Sensemaking

Leadership | OSU Table Tennis Club Officer, Current Swim Instructor Leading Classes of 8 Students Aged 6 - 18

Communication | Chinese (Mandarin), Microsoft Office, Scientific Writing, Technical Presentation, Graphic Design, Toastmasters Member (Public Speaking)