NATHANIEL SIH

Mechanical Engineering / Product Design Student-Athlete, Yale University

CONTACT

nathan.sih995@gmail.com

(949)557-7557

San Francisco, CA 94115

linkedin.com/in/nathansih

nathansih.com

SKILLS

- SOLIDWORKS CAD
- Rhino/Grasshopper
- Additive Mfg.
- Design for Mfg.
- Injection Molding
- 3D Printing
- Adobe InDesign
- Adobe Illustrator
- MS Office Suite
- LabVIEW
- Matlab
- Power/Shop Tools
- C, Arduino, html
- Intermediate Mandarin

- Creative Thinking
- Problem Solving
- Teamwork
- Project Mangement
- Time Mangement

EDUCATION

Mechanical Engineering, BS (ABET Accredited)
Yale University
New Haven, CT

2021-2025
GPA: 3.76

High School Diploma
Corona Del Mar High School
Newport Beach, CA

2017-2021
GPA: 4.45

design

ABOUT NATHAN

Dedicated varsity sailor, innovative mechanical engineer, passionate product designer.

Empathetic teammate, inquisitive problem solver, lifelong learner.

EXPERIENCE

Wilson Sporting Goods Mechanical Engineering Co-Op

Wilson Sporting Goods / Chicago, IL / June 2024 – December 2024

Designed and engineered "Factory of the Future" projects for the innovation of basketball manufacturing, including the Wilson 3D-printed Airless Basketball.

- Routinely worked across 3+ individual product lines and collaborated with 5+ different external vendors to develop targeted solutions for each product.
- Created a new unique ball design and manufacturing process that allows for significant increases in high-volume additive manufacturing efficiency.
- Designed and tested 100+ unique prototype basketballs for lamination, 3D printing, injection molding, reaction injection molding, and rotational molding.
- Created complex and intensive CAD using SolidWorks, Rhino 3D, Grasshopper, and nTop, with exposure to NX and Catia.
- Developed teamwork, project management, creative thinking, and problem solving skills through working with a close-knit multidisciplinary engineering/design team.

The Lee Company Mechanical Engineering Internship

The Lee Company / Westbrook, CT / June 2023 – August 2023

Extreme testing and product design for aluminum and steel Lee Plugs.

- Tested Lee Plugs for space application feasibility at 250% higher pressures than standard, while maintaing zero leak measurements with helium leak tests.
- Designed and analyzed a new custom manifold for impulse testing at 150% increased pressures and 2.5x greater efficiency.
- Developed critical thinking skills while working with Solidworks CAD and analysis, and high precision testing equipment.

ProjectLine TS Mechanical Engineering Internship

ProjectLine TS Inc. / Costa Mesa, CA / June 2022 – August 2022

Renewable energy source reasearch for Metabolic Studio's BRBC Project.

- Researched and compiled a technical memorandum of the physics of photovoltaic solar panels and battery energy storage systems, comparing Si versus CdTe solar panels for potential use in the BRBC Project.

Varsity Sailing Captain, Student-Athlete, Academic All-Ivy Team

Yale University / New Haven, CT / August 2020 – May 2025

Captain of and competed on the Yale Varsity Sailing Team (Ranked 1st nationally and awarded top overall collegiate sailing team for 2021–22 season).

- Elected captain for Spring 2024 - Fall 2025 season.
- Awarded 2025 At Large Academic All-Ivy Team honors.
- 1st place 2024 NEISA Open Team Race Championship.
- 2nd place 2025 ICSA Open Team Race National Championship.
- Developed leadership, time management, teamwork, and critical thinking skills through working as a liaison between my coaches and teammates.

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Education

Yale University **August 2021 – May 2025**

B.S. Mechanical Engineering with Distinction, ABET Accredited, GPA: 3.76 *New Haven, CT*

Relevant Coursework: Mechanical Design, Advanced Design and analysis of Machine Elements, Machine Elements and Manufacturing Processes, Strength and Deformation, Fluid Mechanics, Dynamics, Fluid and Thermal Energy Science, Thermodynamics, Materials Science, Mechatronics, Electronics, Computer-Aided Engineering, Graphic Design, Scales of Design, The Future of Creativity, Behavioral Economics.

Organizations: Varsity Sailing (Captain), Bulldogs Racing.

Experience

Wilson Sporting Goods Co. **June 2024 – December 2024**

Mechanical Engineering Co-Op *Chicago, IL*

- Designed and engineered "Factory of the Future" projects for the innovation of basketball manufacturing, including the Wilson 3D-printed Airless Basketball.
- Routinely worked across 3+ individual product lines and collaborated with 5+ different external vendors to develop targeted solutions for each product.
- Created a new unique ball design and manufacturing process that allows for significant increases in high-volume additive manufacturing efficiency.
- Designed and tested 100+ unique prototype basketballs for lamination, 3D printing, injection molding, reaction injection molding, and rotational molding.
- Created complex and intensive CAD using SolidWorks, Rhino 3D, Grasshopper, and nTop, with exposure to NX, Catia.
- Developed teamwork, project management, creative thinking, and problem solving skills through working with a close-knit multidisciplinary engineering/design team.

The Lee Co. **June 2023 – August 2023**

Mechanical Engineering Intern *Westbrook, CT*

- Tested Lee Plugs for space application feasibility at 250% higher pressures than standard, while maintaining zero leak measurements with helium leak tests.
- Designed and analyzed a custom manifold for impulse testing at 150% increased pressures and 2.5x greater efficiency.
- Developed critical thinking skills working with SolidWorks CAD and analysis, and high precision testing equipment.

ProjectLine Technical Services. **June 2022 – August 2022**

Mechanical Engineering Intern *Costa Mesa, CA*

- Researched and compiled a technical memorandum of the physics of photovoltaic solar panels and battery energy storage systems, comparing Si versus CdTe solar panels for potential use in the BRBC Project.

Yale University Varsity Sailing Team **August 2020 – May 2025**

Varsity Sailing Student-Athlete, Captain, Academic All-Ivy Team *New Haven, CT*

- Captain of and competed on the Yale Varsity Sailing Team (Ranked 1st nationally and awarded top overall collegiate sailing team for 2021–22 season).
- Elected captain for Spring 2024 - Fall 2025 season.
- Awarded 2025 At Large Academic All-Ivy Team honors.
- 1st place 2024 NEISA Open Team Race Championship, 2nd place 2025 ICSA Open Team Race National Championship.
- Developed leadership, time management, teamwork, and critical thinking skills through working as a liaison between my coaches and teammates.

Coyote Point Yacht Club **June 2025 – Current**

High Performance Sailing Coach *San Mateo, CA*

- Coaching and mentoring the Optimist Race Team of junior sailors.

Newport Harbor Yacht Club **March 2021 – May 2021**

Sailing Instructor *Newport Beach, CA*

- Coordinated and managed drills and training programs, designed efficient rigging systems consisting of various blocks and cleats, completed fiberglass, aluminum, and wood repairs and maintenance.

Projects

ASML Nanoscale Tribometer

Partners: Jonah Heiser, Dylan Sevinikar, Wade Wahlig, Yale University, ASML

- Designed, built, and tested a nanometer precision wear tester, or tribometer, for our client, ASML.
- Designing, engineering, and manufacturing for precise flat on flat contact while minimizing vibration noise was the largest goal in this project. Successful system readings were able to be captured with 40 nm accuracy. Due to in-house manufacturing precision constraints, full wear tests were able to be captured with 10 μm accuracy.
- Custom component manufacturing was primarily done by lathe, mill, and CNC in the machine shop. System integration, programming, and data collection was done with a custom created LabVIEW VI.

Guggenheim Scale Model

Partners: Nayan Birnbach, Willa Hawthorne, Laura Zeng, Yale University, Guggenheim NYC

- Through a course taught by Dr. Joe Zinter at Yale, we were able to partner with the Guggenheim Museum of NYC to design a tool to ease wayfinding in Frank Lloyd Wright's unique and complex Guggenheim.
- Intensive CAD modeling in Rhino 3D, and manufacturing with 3D printing and lasercut acrylic was done to realize a 1:80 scale model of the Guggenheim. This scale model offers a simple and effective way to allow visitors of the Guggeheim to develop a more intuitive sense of the building's unconventional architecture. In addition to the transparent acrylic walls, this model features a linear actuation and targeted internal LED lighting to further assist visitors as a wayfinding tool.

Snow and Satisfaction Logo Design

Client: Yale Corinthian Yacht Club (YCYC)

- I designed a series of logos for the 47th and 48th annual Snow and Satisfaction Regatta run by Yale Corinthian Yacht Club. This is an annual event where undergraduates, alumni, and guest sailors are all invited to compete against each other at the beginning of winter. The logos were commissioned to be placed on T-shirts and pint glasses as regatta memorabilia.
- Sketches were hand-drawn and then realized using Adobe Illustrator. Shirts and glasses were custom ordered using the Illustrator graphic.

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Skills

Computer Programs: SolidWorks CAD, Rhino 3D, Grasshopper, Matlab, LabVIEW, Adobe InDesign, Adobe Illustrator, Microsoft Office Suite (Word, Excel, Powerpoint).

Engineering Skills: Design for Manufacturing, Spherical Mapping, 3D Printing, Injection Molding, Reaction Injection Molding, Rotational Molding, Additive Manufacturing, Laser Cutter, Waterjet Cutter, Milling Machine, CNC Mill, Lathe, Saws, Sanders, Power/Shop Tools.

Languages: C, Arduino, .HTML, Intermediate Mandarin.

Soft Skills: Creative Thinking, Problem Solving, Teamwork, Leadership, Project Management, Time Management, Dedicated, Innovative, Passionate, Empathetic.

Awards

- At Large Academic All-Ivy Team, 2025, Yale Varsity Sailing
- Distinction in the Major, BS Mechanical Engineering (ABET), 2025, Yale University