

Experience

NAVSEA, Naval Surface Warfare Center (NSWC) Carderock Division

Jul 2021 - Present

Deputy Design Integration Manager

Bethesda, MD

- Collaborate with working group leads to gather tasking updates, track key metrics and task completion timelines, and oversee the preparation and delivery of progress insights to senior engineers.
- Model and balance ship concept designs using Rhino 3D and Navy-developed software. Develop and organize a ship concept database comparing the characteristics of ship concept design excursions.
- Support early-stage design-for-manufacturing initiatives for future concept naval projects, collaborating with specialized teams to ensure affordability, maintenance, modernization, and producibility with system requirements.

Team Lead

- Led systems integration study during rotation at NAVSEA Headquarters. Wrote a project study guide and project schedule. Ensured integration compliance with military standards and good engineering practices. Briefed project findings to NAVSEA technical director and senior engineers.
- Led engineering design team on a future concept ship design. Utilized a "clean sheet" approach iterating through the ship design spiral from: parent hull, 2D stack-up, 3D modeling, A/V, weights, EPLA, resistance, power est., machinery, fuel est., stability, and seakeeping. Coordinated working relationships with technical warrant holders and subject matter experts.

Naval Architect / Engineer

- Leading hand on a formalized "General Arrangements Best Practices Handbook" promulgated across NSWC Carderock.
- Supported systems integration feasibility studies. Applied Navy-developed software to model ship concepts, conduct seakeeping, and load calculations. Authored technical reports.

NAVSEA, NSWC Carderock Division, Naval Research Enterprise Internship Program

Jun - Aug 2020

Concept Design Intern

Bethesda, MD

- 3D modeled boat to International Maritime Organization stability standards. Estimated boat fuel consumption.

Virginia Tech, Hydrodynamics and Hydroelasticity Research

Aug 2018 - May 2020

Undergraduate Researcher

Blacksburg, VA

Control Surfaces: Control Surface Geometry and Hydrodynamic Performance, VT HPS

- Coded MATLAB script to run performance tests on airfoils using Xfoil. Used comparative naval architecture and fluid dynamic principles to calculate desired actuation range, stall angle, and pivot location, span, and chord.

Hull Slamming: Pressure Distribution on Rigid Wedge Hulls, Sponsored by the Office of Naval Research

- Conducted experiments studying the effects of hull slamming on the pressure distribution across rigid hullforms.
- Analyzed the peak pressure exerted on rigid hulls to improve construction methods.

Dominion Mechanical Contractors Inc, Construction Management

Jun - Jul 2018

Engineering Intern

Springfield, VA

- Reviewed mechanical and architectural drawings to identify change orders. Presented findings to senior engineers.

Education

Bachelors of Science Ocean Engineering - Virginia Tech

Aug 2017 - May 2021

Naval Engineering (Minor)

Blacksburg, VA

Software Tools/Languages

Rhino 3D, Navy Software, Autodesk Fusion 360, Autodesk Inventor, SolidWorks, Microsoft Office Suite, MATLAB, Python, LaTeX

Projects

South Lakes Boat Company, Owner

May 2025 - Present

- Founded and currently operate a small boat design company, creating and selling personally designed DIY boat plans.

Gas Powered Wood Boat, Refabricator

Jan 2023 - Present

Journal of Scientific Reports, Co-author, Published

Apr 2023

Transient use of Hemolymph for Hydraulic Wing Expansion in Cicadas

Mary K. Salcedo, Tyler E. Ellis, Michael L. Madigan, John J. Socha, Et Al.

- Tracked hydraulic process of wing unfurling during cicada wing expansion.
- Promising area of study for bio-inspired microfluidic devices and soft deployable robotics.

Electric Powered Plywood Boat, Designer/Builder

May - Jul 2022

- Designed, modeled, and constructed a 6.5 ft flat bottom plywood inboard electric boat.

Seafloor Mapping UUV, Virginia Tech Senior Design Project

Aug - May 2021

Design Team Member - Virginia Tech (VT) Human Powered Submarine (HPS), Blacksburg, VA

Sep 2017 - Jun 2021