



EDUCATION

MSc. Mechanical Engineering
Cumulative GPA: 3.90 / 4.0

University of British Columbia (UBC)
Vancouver, British Columbia, Canada
Class of 2023



BSc. Aerospace and Ocean Engineering Double Major
Cumulative GPA: 3.85 / 4.0 (*Summa Cum Laude*)
Class Rank: 7 / 137

Virginia Tech (VT)
Blacksburg, Virginia, USA
Class of 2016



ACADEMIC AWARDS

- **The Gartshore Fellowship**, UBC Mechanical Engineering Department, April 2020
- **The Chester L. Long Graduate Scholarship**, The Society of Naval Architects and Marine Engineers (SNAME), May 2020

EMPLOYMENT EXPERIENCE

Freelance Consultant, Canada
Simulation Engineer

January 2024 – August 2024

- Coordinated project deliverables for and provided simulation support (dynamic loading, mooring arrangements) to energy services clients developing semi-submersible wind turbine pilot projects aimed at decarbonizing the North Atlantic's offshore oil sector.

UBC Institute of Applied Mathematics, Vancouver, BC
Visiting Research Scientist

January 2024 – July 2024

- Lead algorithm design efforts and built numerical toolboxes including state of the art reduced-order and data-driven models aimed at accelerating the run-time performance and consumer adoption rate of a leading software company's suite of simulation products.

NETSCo. Inc., Cleveland, Ohio
Naval Architect and Marine Engineer

May 2017 – August 2019

- Developed GLMs for tanker loading ops and analyzed multi-body interactions during vessel dry-dockings and load-offs using GHS.
- Developed conversion concepts through to regulatory type approval (synthesizing class rules, generating renderings, performing calcs, projecting feasibility, producing drawings and arrangements), including an OSV to both an LNG Tanker and a WT Installation Vessel.
- Lead NETSCo's engineering, coordination, technology development, and patent filing efforts in tandem with various industry partners (owners, operators, scientist, regulatory bodies, and community representatives) to bring a feasible BWMS to the Great Lakes.
- Performed structural analysis studies using Creo Simulate and ATB configuration optimization studies using Simerics-MP+.

MiNO Marine, LLC, New Orleans, Louisiana
Junior Naval Architect

October 2016 – May 2017

- Performed dynamic stability (wind, sea state) and moment calcs for the jack-up and lifting operations of a fleet of brownfield liftboats.
- Coordinated salvage and restoration efforts for a 40' steam-powered yacht aided by tools such as drone photogrammetric point clouds.
- Developed in-house tools for EPLA, preliminary weight estimating, vessel loading, and operational condition and stability analyses.
- Supported the development of CAD drawings, Ops. Manuals, Subchpt. M compliance docs, Dry-docking pre-award calculations, etc.

Tsunami Marine Ltd., Port of Spain, Trinidad
Naval Architect Intern and Extern

Summer 2014, 2015

- Participated in 3 ISM Code and SMS workshops and assisted in CMID and OVID Audits onboard 10 offshore supply vessels.
- Audited FSS and drafted Fire Control Plans for over 10 vessels of varying classification per the amended SOLAS regulations.
- Performed claims driven fire damage inspections, operations audits, cost estimates, and reconstruction recommendations for 4 gutted ships.

TEACHING EXPERIENCE

University of British Columbia, Vancouver, Canada
(Lead) Teaching Assistant*

- PHYS 159 – Physics Laboratory for Engineers
- STAT 200 – Elementary Statistics for Applications
- STAT 305 – Introduction to Statistical Inference
- MECH 325 – Machine Design: Design with Mechanical Components*

Spring 2023

Spring 2021 & 2022

Summer II 2021

Fall 2021, 2022 & 2023

COMMERCIAL SOFTWARE SKILLS

- **Design Tools:** AutoCAD, Inventor, Maxsurf, Navisworks, Rhinoceros, ShipConstructor, Solidworks
- **Simulation Tools:** ANSYS Fluent, Comsol, Creo Simulate, FEMAP, LS-DYNA, Simerics-MP+, SimScale, STAR-CCM+
- **NA&ME Tools:** GHS, HECSALV, Orca3D, OrcaFlex, MAESTRO, MOSES, NavCAD
- **Mathematics Tools:** ChatGPT, MathCAD, Mathematica, MATLAB, TensorFlow
- **Modelling Tools:** Grasshopper, LabVIEW, ModelCenter, Simulink,
- **Languages:** C++, Fortran, Julia, Python, R, Rust, VBA

RESEARCH EXPERIENCE

UBC Computational Multiphysics Laboratory (CML)

August 2020 – December 2023

Graduate Research Assistant – Dr. Rajeev Jaiman

- Developed a novel quasi-Newton coupling methodology to stabilize and accelerate the convergence rate of once prohibitively challenging fluid-structure interaction (FSI) simulations based on a regularization and eigenmode filtering strategy.
- Developed from scratch [my own suite of parallelized high-fidelity FSI software packages](#) - optimized to run on high-performance computing (HPC) clusters - to investigate the numerical properties of partitioned multiphysics simulations.
- Supported the data (numerical and empirical) analysis efforts for the lab's Intelligent and Green Marine Vessels (IGMVs) project; mainly our investigation into the intentional manipulation of cavitation and vortex shedding frequencies to control ship radiated propeller noise.

Virginia Tech Experimental Aero/Hydroacoustics Laboratory

Spring 2016

Undergraduate Researcher- Dr. William Alexander

- Designed and conducted a set of experiments using the Anechoic Wall-Jet Wind Tunnel to characterize the unsteady aerodynamic properties of near-wall flows over canopy shrouded surfaces as part of a larger effort to understand roughness noise suppression.

RESEARCH SOFTWARE SKILLS

- **OpenSource Physics:** FEniCS, Calculix, SU2
Abaqus, deal.ii, OpenFOAM, Kratos
- **HPC Dev:** Open MPI, OpenMP, CUDA,
PETSc, Trilinos, MUMPS, METIS
- **Pre/Post & Coupling:** GMSH, Pointwise, GiD,
Paraview, Tecplot, OpenFAST, preCICE

TECHNICAL EXPERIENCE

Technical & Research (T&R) Program Involvement (SNAME)

Contributing Member

- M – 16 Panel: Propulsion Shafting
- SC – 2 Panel: Sailing Craft
- HS – 4 Panel: Design Procedure and Philosophy
- SD – 5 Panel: Advanced Marine Vehicles

Spring 2018 – Present
Fall 2018 – Spring 2020
Spring 2019 – Present
Fall 2019 – Fall 2023

SailBOT @ Virginia Tech

August 2013 – June 2016

Project Manager (Commodore) - Robotic Sailing Regatta

- Grew the team's size (27 → 40) and budget (\$25k → \$30k), negotiated for academic credit and research opportunities, increased sponsorship and community outreach participation, implemented documentation procedures, and redesigned the leadership structure.

Future Guided Missile Trimaran Corvette Design Team

Fall 2015 – Summer 2016

Team Member – 1st AOE senior design competition

- Detailed concept exploration and development engaging the full design spiral from PSO informed hullform selection to lifecycle cost and risk analyses. Presented our work to DOD stakeholders and won an honorable mention in SNAME's Lisnyk ship design competition.

PROFESSIONAL SOCIETY MEMBERSHIP

- The Society of Naval Architects and Marine Engineers (SNAME)
- The Pacific Institute for the Mathematical Sciences (PIMS)
- The American Society of Mechanical Engineers (ASME)
- American Physics Society (APS)
- U.S. Association for Computational Mechanics (USACM)
- American Society of Naval Engineers (ASNE)

LEADERSHIP EXPERIENCE (SELECT)

President	MECH Graduate Student Association	Spring 2022 – Spring 2023
Executive Council Member	UBC Graduate Student Society	Fall 2021 – Spring 2022
Graduate Student Body Representative	MECH Sustainability Committee	Fall 2021 – Spring 2022
Executive – Faculty of Applied Sciences	CUPE 2278	Fall 2022 – Fall 2023
SMC Short Course Planning Committee	SNAME Young Professionals Section	Spring 2019 – Fall 2019
Communications Chair	SNAME Great Lakes Section	Fall 2017 – Fall 2019
Commodore	VT SailBOT	Fall 2015 – Spring 2016
Vice-President and Service Chair	VT Caribbean Student Organization	Spring 2014 – Spring 2016
Student Engineering Council Representative	SNAME VT Student Section	Spring 2015 – Spring 2016
Treasurer	Tau Beta Pi Engineering Honors Society	Fall 2015 – Spring 2016
Senior Global Ambassador	VT Cranwell International Center (CIC)	Fall 2014 – Spring 2016
Student Ambassador	Aerospace and Ocean Engineering Department	Spring 2015 – Spring 2016
Undergraduate Student Body Representative	CIC Program Review Committee	Fall 2014 – Spring 2015