MAX PIERCE

EDUCATION

Massachusetts Institute of Technology
Doctoral Candidate in Mechanical Engineering — Aug 2023 – Present
Master of Science in Mechanical Engineering — Sep 2020 – Aug 2023
GPA: 5.0/5.0
Thesis: Triad interactions among surface waves propagating through an ice sheet
Advisor: Dick K.P. Yue

Webb Institute
Bachelor of Science in Naval Architecture & Marine Engineering — Sep 2016 – Jun 2020
GPA: 3.86/4.0
Thesis: An investigation into hydrofoils with bell-shaped lift distributions
Advisor: Adrian Onas

EXPERIENCE

Massachusetts Institute of Technology — Sep 2020 – Present
Research Assistant — *Cambridge, MA*
Researching the effects of large ocean waves propagating through sea ice requiring nonlinear analysis. This analysis results in qualitatively different ice breakup and wave reflection behavior than predicted by linear theory. Modified numerically-efficient spectral method to simulate nonlinear wave-wave interactions through an ice floe.

Maritime Research Institute Netherlands (MARIN) — Jun – Aug 2019 & Jan – Feb 2020
Intern — *Houston, TX & Wageningen, NL*
Incorporated wind turbine physics into MARIN's hydrodynamic software to simulate floating wind turbine seakeeping performance for comparison with experimental data. Conducted a market study of the U.S. offshore wind industry to assess in what ways MARIN's research capabilities could be applied to the new sector.

Navatek — Jan – Feb 2019
Intern — *Honolulu, HI*
Worked on a 5-person team developing a physics-based environment for testing autonomous underwater vehicle (AUV) control algorithms. On this team, I contributed a wave resistance parameterization using potential flow software to improve the fidelity of near-surface dynamics.

Practical Maritime Experience — 2017–2018
Held a series of two-month internships between semesters at Webb Institute to familiarize myself with the practical side of the maritime industry.

- Crowley Maritime — worked 50 days aboard oil tanker *American Freedom* as an engineer while transiting between Long Beach, CA and Valdez, AK
- New England Boatworks — provided production floor engineering support during the construction of a 90-ft. aluminum motor yacht
- Vigor Industrial — assisted in all aspects of large-scale shipyard operations from shipfitting on the production floor to public relations at local town hall meetings in Ketchikan, AK

TEACHING ASSISTANT ROLES

Marine Hydrodynamics *Fall 2022 & 2023* — responsible for leading weekly recitations, creating and grading homework and exams, and hosting office hours for 20-person graduate-level course

Dynamics & Control I *Spring 2023, 2024 & 2025* — responsible for course administration, quiz creation and grading, and hosting office hours for 70-person undergraduate-level course

LEADERSHIP & SERVICE

Secretary of MIT Student Chapter of Society for Industrial & Applied Mathematics (SIAM) *Jan 2022-Present* — coordinating with speakers and administrators to host multiple lecture events per semester

Instructor at Brooklyn Boatworks *2018-2019* — spent 4 hours/week leading middle school students in underprivilegd Brooklyn schools in building a wooden sailing dinghy as part of a year-long course

Co-Captain of Webb Institute Sailing Team *2018-2019* — organized annual Webb Institute regatta and assisted in team's rise to becoming a national contender. Named Academic All-American in 2019

Co-Chair of Webb Institute Student Chapter of Society of Naval Architects & Marine Engineers (SNAME) *2018-2020* — organized transportation to local section meetings and facilitated student events

HONORS & AWARDS

- Awarded SNAME William M. Kennedy Graduate Scholarship in 2020
- Received honorable mention from NSF Graduate Research Fellowship Program 2020-2021
- Awarded Lewis Nixon Memorial Prize for excellence in senior thesis upon graduation from Webb Institute
- Awarded Paul E. Atkinson Memorial Prize for demonstrated commitment to ethics upon graduation from Webb Institute
- Thesis work awarded Honorable Mention in International Hydrofoil Society's Mandles Prize for Hydrofoil Excellence in 2020

PEER-REVIEWED PUBLICATIONS

Pierce, M.W., Liu, Y., & Yue, D.K.P. (2024). Sum-Frequency Triad Interactions among Surface Waves Propagating through an Ice Sheet. *J. Fluid Mech, 980.* https://doi.org/10.1017/jfm.2024.44

Pierce, M.W., Tinnell, T.Z. and Onas, A.S. "Effect of Nonlinear Geometric Twist on Hydrodynamic Performance of Hydrofoils with Bell-Shaped Spanloads." Paper presented at the SNAME Maritime Convention, Virtual, September 2020.