

Justin Steenstra

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Education

Northeastern University, *Bachelor of Science in Mechanical Engineering, cum laude*

September 2022 – December 2025

GPA: 3.50

Boston, MA

Relevant Courses: Aeronautical Propulsion, Computational Fluid Dynamics, Fluid Mechanics, Heat Transfer, Material Science, Measurements, Systems and Control, ME Design, Electrical Engineering, Thermodynamics, Dynamics, Mechanics of Materials

Global Learning Experiences: Northeastern University London UK Campus, Northeastern University Seattle WA Campus

Skills

Software: Ansys Fluent, MATLAB, SolidWorks, AutoCAD, Arduino, Microsoft Suite

Programming Languages: C++, Java, Python

Fabrication: SLA/FDM 3d printing, laser cutting, waterjet, drill press, standard power tools

Projects

Powder Feeder for a Wire Arc Additive Manufacturing (WAAM) Robot, *Capstone*

June 2025 – December 2025

- Designed and tested a powder feeder attachment for a WAAM robot arm to produce large ceramic metal matrix composites quickly
- Designed and 3D-printed mounting components to mount the powder feeder onto the WAAM and performed a full assembly FEA
- Performed heat transfer calculations to verify optimal distance between the powder feeder's ceramic nozzle and melt pool
- Conducted research on current additive manufacturing techniques using powder systems and on contemporary methods for producing metal matrix composites

LOX/Kerosene Liquid-Propellant Rocket, *Aerospace NU*

September 2023 – December 2025

- Designed, simulated, and water-flow tested a triplet-impinging fuel injector for integration on an ablative LOX/Kerosene liquid rocket engine
- Performed CFD analysis using ANSYS Fluent to evaluate internal flow behavior, pressure drop, and injector performance
- Designed a pressure vessel capable of withstanding 2000 psi working pressure for integration into a 7 second burn time flight vehicle
- Calibrated pressure transducers on a test stand to obtain accurate pressure drop measurements for sizing the correct orifice of a LOX pneumatic actuator used in a liquid rocket engine
- Replaced and tested back pressure regulators and pressure gauges on a nitrogen-to-LOX line to ensure correct LOX downstream pressure

Fully Autonomous Unibots Robot, *NU London Robotics*

March 2023

- Winner of the University of Cambridge Unibots UK and awarded £500
- Designed housing for an autonomous robot proof-of-concept and prototype with a team of 4, within 3 weeks, to compete at Unibots UK
- Designed and 3D-printed a battery holder in Fusion 360 to securely house an 11-volt lithium polymer battery within the robot

Work Experience

Project Engineer Co-Op, *Barletta Heavy Division, Canton, MA*

January 2024 – June 2024

- Designed an AutoCAD layout for removable safety railings on a train wash system, incorporated survey data to provide the manufacturer with accurate drawings for fabricating the correct number and size of railings
- Planned the placement and backfill process of a T-shaped retaining wall to ensure proper installation according to design drawings, thus securing the approach embankment for a railway bridge
- Compiled and organized \$34 million in construction change orders for additional work beyond the original Massachusetts Bay Transit Authority (MBTA) contract scope, ensuring the project's completion is aligned with the contract owner's requirements
- Performed quality assurance checks on mechanical and infrastructural systems at a train maintenance facility and railroad bridges to ensure they remained on schedule and met MBTA contract requirements
- Communicated with vendors and manufacturers to acquire samples and product details in accordance with MBTA contract specifications, ensuring accurate project execution and on-time completion
- Conducted detailed reviews of contract specifications and multidisciplinary drawings to ensure compliance and proper installation of all equipment and structures

Dishwasher, *Mattakeese Wharf Restaurant, Barnstable, MA*

July 2022 – August 2022

- Maintained kitchen cleanliness and organization by disposing of garbage, washing dishes, restocking supplies, and ensuring compliance with health standards
- Performed Prep Cook duties such as preparing shellfish, washing, chopping, and portioning vegetables, all in a manner to prevent cross-contamination

Interests

- Maintaining cars, such as replacing brakes, air filters, spark plugs, and oil changes
- Traveling at every opportunity to experience new things, meet people, and explore different cultures- including learning Japanese