Olga Severdenko

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Education

University of Washington - Bothell, Bothell, WA — Sept 2025 – June 2027
Bachelor of Science in Mechanical Engineering

Edmonds College, Lynnwood, WA — Sept 2021 – June 2025
Associate in Science - Mechanical/Civil Engineering

Projects

International Rocket Engineering Competition 2025 , Midland, TX — March 2025 – June 2025
Documentation Lead and Structures/Recovery Support for Team 116

- Modeled rocket airframe components in SolidWorks and validated OpenRocket simulations with $< 5\%$ difference between predicted and actual altitudes, confirmed by a prototype rocket flight (4,316 ft) and full-scale launch (11,674 ft); gave the team confidence in flight stability and supported safety review approval.
- Ran CFD simulations to analyze drag and fin stability; verified structural safety with a 25% safety margin below maximum load capacity, which helped the team demonstrate compliance during structural safety checks.
- Performed pre-flight recovery inspections (parachute packing, hardware checks, deployment readiness) for dual-deploy recovery, ensuring safe descent (~ 16 ft/s), hardware reuse, and successful recovery certification.
- Coordinated with six subsystem leads (propulsion, avionics, recovery, payload, design, manufacturing) and authored/edited a 70+ page technical report, meeting ESRA compliance for launch approval.

Aerodynamic Characteristics of a Forward-Swept Wing, Edmonds College – Lynnwood, WA — November 2024 – Present
Independent Researcher

- Designed a forward-swept wing with NACA 23012 using SolidWorks CAD; performed CFD analysis to evaluate pressure distribution, lift, and drag performance.
- Fabricated a 3D printed model and tested it in the wind tunnel at 26 m/s and 0-25° angles of attack, generating lift/drag curves for CFD comparison.
- Observed induced-drag reduction from inboard spanwise flow and improved lift-to-drag ratio at moderate angles of attack, guiding next-phase wing design refinements.
- Quantified discrepancies (CFD underpredicted drag at higher angles of attack) and provided validated data and a follow-on test plan for the next phase.
- Currently expanding to aeroelastic analysis (flutter/divergence) using FEA, composite layup modeling, and wind tunnel tests with strain gauges; preparing Level 2 High Power Rocketry flight with instrumented fin for structural data.

Vortex Generators Research, Edmonds College – Lynnwood, WA — March 2023 – June 2023
Project Lead

- Led a team in designing and modeling leading-edge vortex generators in SolidWorks, integrating them onto cambered NACA 0012/4412 airfoils to study stall performance and flow separation.
- Conducted wind tunnel tests at 30 m/s and 15–25° angles of attack, analyzing aerodynamic data in Excel to generate lift/drag curves for comparison with CFD simulations.
- As a team, demonstrated a 35.6% lift improvement for cambered airfoil with vortex generators at 20° angle of attack; validated experimental data for CFD correlation, and co-authored a research paper at Edmonds College.

Experience

Order Processor, Compendium Inc. - Everett, WA — April 2021 – Present

- Operated and troubleshot high-volume packaging machinery (alignment, sensors, jam clears), minimizing downtime and keeping production on schedule.
- Ensured quality control and compliance with shipping requirements by coordinating order flow between production and shipping teams.
- Maintained accurate inventory and shipping documentation, preventing processing errors and supporting smooth order fulfillment across teams.
- Balanced full-time work with engineering coursework, building persistence, resilience, and discipline under pressure.

Certifications

Level 1 High Power Rocketry Certification (TRA #35687) - Tripoli Rocketry Association September 2025

Skills

CAD & Simulation: SolidWorks (3D modeling, Flow Simulation/CFD), OpenRocket
Programming & Analysis: Python, Excel
Testing & Instrumentation: AF-100 Wind Tunnel, Strain Gauges, Sensor Integration & Data Acquisition
Prototyping & Fabrication: 3D Printing, Water Jet Cutting