Melana Ly

646-705-8605 | melanaly04@gmail.com | Bronx, NY
linkedin.com/in/melana-ly/ | melana-ly.com

Education

Northeastern University, Boston, MA *September 2022 - December 2025*

Bachelor of Science in Mechanical Engineering | Minor in Math
GPA: 3.95/4.0, University Honors Program, Dean's List, Summa Cum Laude
Activities: ASME, SASE, Events Coordinator – Astronomy Club (SEDS)

Technical Skills

Software: SolidWorks (CSWP), SolidWorks FEA, Abaqus, OnShape, AutoCAD, Minitab, Adobe Suite, LaTeX
Programming: MATLAB/Simulink, Python, C++
Fabrication: Arduino, 3D Printing, Manual Mill and Lathe, Machine Shop Tools, Water Jet

Work Experience

Product Engineering Co-op *January 2025 - June 2025*
MilliporeSigma, Danvers, MA
Port Snapping Defect Project

- Analyzed the top customer-reported defect (port breakage in single-use bioprocessing bags) by designing a custom vacuum test fixture, testing 114 samples across 5 assembly parameters, and evaluating alternative plastic materials
- Remodeled barb geometry in SolidWorks and analyzed improvements through FEA, increasing factor of safety by 2.5x
- Presented risk assessment findings to Head of Quality and senior management based on FMEA of change risks and mitigation priorities

Additional Projects

- Authored an SOP for new bag folding procedure designed to reduce leaks and ensure consistency
- Investigated fastening interference in an ISO Class 7 cleanroom and evaluated ergonomic impact on operators

Quality Assurance Engineering Co-op *January 2024 - December 2024*
Ginger Labs, San Francisco, CA

- Validated cross-platform alpha builds of the Notability app, identifying and documenting 30+ bugs, while working closely with developers, product managers, and UX/UI designers to refine performance
- Crafted technical documents, including bug reports, test run summaries, and product documentation, to facilitate cross-team communication and address beta feedback for user-facing updates

Undergraduate Researcher *December 2022 - May 2023*
Northeastern University, Boston, MA

- Designed and 3D printed 4 microfluidic channel prototypes using SolidWorks and SLA printers to support research on diffusiophoresis
- Conducted flow visualization experiments using salt and food dye solutions, successfully demonstrating laminar flow behavior in fabricated microfluidic channels
- Presented weekly findings via PowerPoint to communicate experimental progress and guide team decisions

Relevant Projects

Volunteer Mechanic *May 2026 - Present*
Time's Up! Bike Co-op, NYC, NY

- Teach patrons hands-on bicycle repair and maintenance for two 3-hour shifts weekly at a community bike co-op

Senior Capstone Project *July 2025 - December 2025*
Flywheel Energy Recovery Bicycle, Northeastern University

- Developed dual-clutch planetary gear system enabling selective energy capture during braking and controlled deployment during acceleration, optimizing gear ratios for maximum efficiency across varying cycling speeds
- Projected ~10% energy recovery efficiency through flywheel sizing analysis, balancing rotational inertia against weight constraints to optimize system performance
- Fabricated and assembled flywheel and drivetrain components, validating design through exercise bike test setup to simulate braking and acceleration load conditions

Mentor *September 2022 - June 2024*
AerospaceNU: Introduction to Propulsion, Northeastern University

- Instructed 20 students in CAD, shop machine operation, and 3D printing, fostering design and fabrication competency
- Mentored 4 students on ablative nozzle design and safe assembly for small-scale propulsion systems