

DREW VILLANI

Buffalo, NY — Rochester, NY

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Education

University at Buffalo

B.S. Mechanical Engineering, GPA: 3.42/4.00

May 2028 (Expected)

Buffalo, NY

Technical Skills

CAD and Design: SolidWorks, Fusion360, Inventor, AutoCAD, Generative Design

Simulation/Analysis: MATLAB, Excel, FEA

Manufacturing: DFMA & DFAM, Mechanical Drawings & GD&T, Machining

Programming: Python, Arduino, LaTeX, Intel Quartus Prime

Experience

On Top Safety Co.

Mechanical & Product Engineering Intern

Aug. 2025 – Present

Cheektowaga, NY

- Reduced modeled arrest force in a fall-arrest prototype by **33%** through spring and housing design optimization.
- Supported iterative design updates across **2** patented safety-devices, completing **5+** design revisions over **14 weeks**.
- Derived and evaluated **20+** ideal spring configurations in MATLAB to define required force, stroke, and size parameters.
- Verified prototype structural performance under load through FEA to support design decisions.

American Society of Mechanical Engineers (ASME): UB Chapter - IAM3D

Subsystem Team Lead: Chassis

Aug. 2025 – Present

Buffalo, NY

- Led the chassis subsystem for UB's ASME/IAM3D rover project, coordinating design tasks across **10+** team members.
- Contributed to a national engineering competition (**EFx**) representing the University at Buffalo.
- Documented project progression, stress & vibration analysis, and all design considerations in a **170 page** progress report.
- Helped organize project work and on-boarding for new club members.

Self Employed Automotive Work

Mechanical/Electrical Diagnosis and Repair

Jun. 2023 – Aug. 2025

Rochester, NY

- Bought, repaired, and resold **11** vehicles over **2** years, generating **5-figure** profit.
- Diagnosed suspension, engine, and electrical issues with OBD2 and visual inspection.
- Managed full sales process including budgeting, marketing, and negotiation.

Abbott's Frozen Custard

Store Supervisor

Jul. 2020 – Aug. 2025

Rochester, NY

- Supervised a location with **2-8** coworkers ensuring proper food safety and efficient operation.

Projects

3D Printed Payload Rover - IAM3D Project (ASME)

Mar. 2026

- Modeled and optimized a chassis system containing **30+** components, using generative design and FEA-driven iteration.
- Collaborated with **4** team members to complete and integrate the payload subsystem into the chassis.
- Compiled a **170 page** team design report, covering all design considerations, testing, and simulation results.

ANSI-Compliant Wire Protector Clamp

Dec. 2025

- Modeled a **13 part** assembly in CAD containing a clamping mechanism, based on a secured patent.
- Printed **5** iterations, optimizing design and minimizing excess material usage.
- Created manufacturing drawings with GD&T callouts for fabrication and assembly.

Fall Arrest System - Spring Housing Prototype

Sept. 2025

- Designed and iterated a multi-part housing unit for a fall arrest safety device through 3D printing.
- Conducted force simulations and analysis in SolidWorks to determine ideal print materials and design changes.
- Collaborated with an engineer and faculty mentor to review relevant research and identify target spring parameters.