Thomas Todaro

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EDUCATION

Lehigh University | Bethlehem, PA
Masters of Science in Mechanical Engineering | 1/2025 - 5/2026 (Expected)
Cumulative GPA: 4.00
Bachelor of Science in Mechanical Engineering, Minor in Aerospace Engineering | 8/2021- 12/2024
Cumulative GPA: 3.73

WORK EXPERIENCE

Teaching Assistant | Lehigh University | Bethlehem, PA | 8/2024 - Present
- Supported instruction of 60+ mechanical engineering students through exam grading and office hours.
- Led small-group (~10 students) review sessions to reinforce problem-solving skills in dynamic systems.

Mechanical Engineering Intern | Clear Skies Hydrogen | Northampton, PA | 5/2025 - 8/2025
- Contributed to design and testing of a high-pressure (>700 bar), low profile, liquid-to-gas hydrogen pump, to enable zero-emission heavy transport applications.
- Created P&ID diagrams for hydrogen tank units provided by a high-profile automotive company.
- Designed and operated a high-vacuum pump system to reduce convective heat transfer in the hydrogen unit.
- Developed SQL queries in Grafana to enhance real-time monitoring and data visualization for the R&D team.
- Coordinated with local suppliers and machinists to source and repair custom components under tight time frames to ensure project development continuity.

Mechanical Engineering Intern | Oldcastle APG Metro | Easton, PA | 5/2024 - 8/2024
- Led development and planning of a $440K material reclaim system, improving sustainability and efficiency within concrete paver production with an expected ROI of 3.4 years.
- Conducted research and developed detailed designs for a small-scale, pilot production machine to test new concrete mix designs and tighten adherence to ASTM standards in a collaborative group of engineering peers.

Mechanical Engineering Intern | Advanced Process Systems | Frankford, NJ | 5/2022 - 8/2023
- Supported development of a non-contact, manmade, sapphire recycling system and a high-vacuum, induction furnace for laboratory testing of super alloy casting.
- Collaborated with contractors and plant staff to assist in coordinating installation of large-scale equipment including a new, $5M, single crystal, induction casting furnace (Triax Industries) and the cooling system for a $850K, single crystal, sublimation growth unit(Crystal IS).
- Performed maintenance and assisted in testing/calibration of an ultra-high vacuum, plasma deposition chamber for the purpose of coating a 3.5 meter diameter mirror used in a high-visibility, optical, surveillance telescope (Starfire Optical Range, Kirtland Air Force Base).

SKILLS

Software: CAD (SolidWorks, Onshape) | Ansys (STK, Mechanical, Fluent) | Matlab | Python | Grafana | GMAT
Equipment & Machinery: 3D Printers | CNC Laser Cutters | Forklifts | High Vacuum Systems | Typical Shop Tools (Lathe, Drill Press, Saws, Grinders, Hand Tools) | Precision Measurement Tools (Caliper, Micrometer, Laser Level, Multimeter)
Hands-On: Plumbing | HVAC | Welding | Electrical | Ethernet Setup

Technical Coursework: , Thermodynamics, Heat Transfer, Fluid Mechanics, Vibrations, Control Systems, Manufacturing Science, Finite Element Analysis, Astrodynamics, Aerodynamics, Spacecraft Systems Engineering**,** CAD and GD&T

Technical Course Projects:
- Completed a 3 part series of graduate level, satellite constellation design and simulation projects under orbital debris expert Dr. Andrew Abraham.
- Designed and modeled analogs to the Europa Clipper mission including flight paths, subsystem requirements, and mission objectives, presented in the form of progressive design reviews under former NASA astronaut Dr. Terry Hart.
- Optimized nosecone for the Formula SAE team through running Fluent CFD simulations, informing the final design.