GREGORY GOLONKA

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EDUCATION AND SCHOOL HONORS

University of Notre Dame, South Bend, IN — **August 2021 – May, 2025**

- GPA: 3.53
- Major: Aerospace Engineering, College of Engineering

Relevant Coursework: Intermediate Thermodynamics, Fluid Mechanics, Differential Equations I & II, Heat Transfer, Theoretical Aerodynamics, Compressible Aerodynamics

Fall 24 Coursework: Aerospace Dynamics, Gas Turbines and Propulsions, Flight Mechanics and Intro to Design, Mechanisms and Machines

Montpelier High School, Montpelier, VT — **August 2017 – May, 2021**

- GPA: 3.99 (unweighted)
- Member of Valedictorian group, Rensselaer Polytechnic Medal Award, Montpelier Rotary Cohen Merit Scholarship

SKILLS

SolidWorks, MATLAB, Excel, Python, Autodesk Fusion 360, Mathematica, Arduino IDE, C++, Office 365, XFLR5, XFoil, Aerospace Design, Fluid Dynamics, Structural Analysis, CAD, Aerodynamics, Propulsion Systems, Systems Engineering, Project Management, Technical Documentation, Team Collaboration, Problem Solving, Data Analysis

Projects & Research

1D Viscous Shock Wave Analysis with Molecular Dissociation. **Undergraduate Research** — **August 2024**

- Conducted a study to advance the understanding of shock wave structure and its interaction with reactive systems, with applications in propulsion, detonation physics, and high-speed flow analysis. Focused on analyzing the dissociation of diatomic molecules across a viscous shock structure, with a goal of understanding molecular bond behavior under extreme temperatures in shock waves

Reengining the BGM-109A Tomahawk Cruise Missile. **Gas Turbines and Propulsions Design Project** — **August 2024**

- Developed a flight performance simulation code to analyze the BGM-109A Tomahawk missile's mission profile and thrust requirements, utilizing the Williams F107-WR-402 engine's on-design and off-design performance data. Optimized a new turbofan engine design to increase the missile's stand-off range, performing an analysis to improve efficiency and performance across varying flight conditions.

Accessibility Robot Design Challenge. **Design Tools II Final Project** — **Spring 2024**

- Engineered a prototype RC delivery robot to address accessibility issues, including navigation on diverse terrains and improve payload delivery mechanisms for users with disabilities. Designed and implemented a robust drive and steering system to efficiently traverse grass, and gravel. Conducted SolidWorks Motion analysis for DC motor selection and SolidWorks Simulation for finite element analysis.

Experimental Aerodynamics Lab. — **Spring 2024**

- Gained hands on experience using the wind tunnel through a series of experiments at Hessert Laboratories on Notre Dame Campus. Examples of these experiments include the calibration of a pressure transducer to convert pressure measurements into digital recordings, and the use of a force balance to calculate the different drag contributions.

ADDITIONAL WORK EXPERIENCE

Movie Theater Projectionist. **Capitol Theater** — **May 2023 – August 2024**

- Experienced projectionist adept at setting up, operating, and troubleshooting digital projection equipment.

Dorm Help. **Dunne Hall, University of Notre Dame** — **August 2022 – May 2023**

- Work two shifts a week, acting as both front desk help and chef for the in-dorm food service provided to fellow students.

Junior Landscaper. **C. Michaud Landscaping** — **April 2021 – August 2024**

- Operated consistently in a group to complete three different routes every week. These routes consisted of over 150+ lawns, with the extra two days of the week allowing for specialized yardwork.

LEADERSHIP, CAMPUS INVOLVEMENT, AND SERVICE

Spring Vice President – Dunne Hall - Hall Presidents Council

In charge of planning, funding and running all dorm wise events over the course of the semester. Additionally, sat on the Hall Presidents council weekly to ensure the most effective practices and collaboration with other leaders within the community.

Saint Andre Committee Member - Welcome Weekend

The Saint Andre Committee is a unique group of individuals for each dorm on campus with the goal of welcoming the incoming freshmen to the university.