

TYLER WISNIEWSKI

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Ithaca, NY | New York, NY

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EDUCATION

Cornell University | M.Eng. Mechanical Engineering

Dec 2025 | GPA: 3.80

Cornell University | B.S. Mechanical Engineering

May 2025 | GPA: 3.42

WORK EXPERIENCE

SpaceX | Graduate Propulsion Manufacturing Engineer

Summer 2025 | Hawthorne, CA

- Designed and Manufactured Electro-Mechanical Pattern Transfer Cart, reducing weight by 40% and cost 45% over previous solution.
- Introduced new Cart with versatile capability, deleting 4 existing specialized carts, and integrating into production with 0 downtime and increased Foundry Print Lab pattern throughput speed by over 50% and saving over \$30,000/year in technician labor.
- Screened all Raptor V2 Engines using Polyworks and Ansys to validate part thicknesses and cleared 92 engines for Flight 10 and 11.

Cornell Electric Vehicles | Technical Full-Team Lead; Chassis Lead

9/2022 - 5/2025 | Ithaca, NY

- Directed 65-person self-driving, electric car team; designing, analysing, and manufacturing vehicle systems and components.
- Achieved the team's highest-ever competitive performance, placing 5th out of 27 international teams at the Shell Eco-Marathon, earning awards (1st in Communication, 2nd in Data Analysis), and securing \$4,500 in prize funds.
- Designed and Manufactured the chassis Master Model to optimize aerodynamics, reduce weight, and create stiff vehicle structure.
- Utilized Ansys Fluent (Computational Fluid Dynamics) to iterate aerodynamic design, reducing drag by 6% over previous car design.
- Optimized Structural Components using Ansys (ACP, Mechanical) and Generative Design to reduce weight by 12% and cost by \$500.
- Led a record-breaking fundraising campaign, raising \$12,000+ from 173 donors in just 24 hours, setting a project team record.

General Motors | GMD Hardware Integration & Test Intern

Summer 2024 | Milford, MI

- Designed, Manufactured, and Integrated Electric Light Reconnaissance Vehicle eMotor Housing for the United States Army.
- Utilized Design for Additive Manufacture techniques to reduce eMotor Housing part count by 87% over previous design.
- Ran Articulation and Tramp studies in NX to validate clearance of Rear Axle assemblies, motivating design changes in 3 components.

Cornell MAE Emerson Machine Shop | Shop Supervisor

11/2023 - 5/2025 | Ithaca, NY

- Provided comprehensive safety guidance and technical support to student machinists during 3 to 4-hour machining shifts in the shop.
- Ensured strict adherence to safety protocols, imparting detailed instructions on utilizing mills, lathes, and CNC machines in the shop.

PROJECTS

Low-Cost Carbon Fiber Surfboard Fin Design & Manufacturing

- Led the end-to-end product development of high-performance carbon fiber surfboard fins, achieving a 93% cost reduction over retail.
- Conducted Computational Fluid Dynamics analysis in Ansys Fluent to optimize lift-to-drag ratios across 16 design iterations.
- Validated structural integrity using Ansys Static Structural by mapping fluid pressure loads to the mechanical model; MOS=1.73.
- Characterized material properties of chopped tow carbon fiber via ASTM D3039 tensile testing; verified ultimate strength of 358 MPa.
- Fabricated final components using a "forged" chopped tow carbon fiber compression molding process with 3D-printed PETG tooling

High-Speed Autonomous Mobile Robot

- Engineered a fully autonomous mobile robot on an Artemis Nano (Cortex-M4F), developing C-based firmware for real-time mapping and navigation while utilizing Python for data analysis and system tuning.
- Overcame sensor latency constraints by implementing a Kalman Filter to fuse low-frequency ToF data with high speed IMU data, maintaining precise localization despite hardware lag and high robot speeds.

Nuclear Fission Reactor Simulator on RP2040

- Engineered a real-time reactor simulator in C, utilizing dual-core processing to model complex fission physics while simultaneously driving 30FPS VGA output and synthesized audio.
- Fabricated a laser-cut acrylic and plywood control board, integrating a custom-soldered electrical subsystem to route power and data between the MCU and 9 discrete physical inputs, achieving both functional and aesthetic goals.

SKILLS

Design: CAD (Siemens NX, Inventor, Fusion 360, Alias), Master Modeling, CAM, Altium, DFM, DFAM, GD&T, Modular Design

Fabrication: Machining(Mill, Lathe, CNC), 3D Printing, Carbon Fiber(Vacuum Infusion, Wet Layup, Forged), Hand Tools

Analysis: Ansys FEA(Mechanical, ACP, Fluent CFD, Thermal, Granta), Simcenter NASTRAN, Tolerance Stackup Analysis

Computer Literacy: MATLAB, C, Arduino, C++, Python, HTML/CSS, G-Code, LaTex, Microsoft Office, Confluence

Additional Involvements: Orientation Leader, Der Hexenkreis, CU EMpower, CTC, ΦΣΚ, ΘΤ, Rock Climbing, Snowboarding, Surfing