Sebastian Talarek

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EDUCATION

Purdue University, College of Engineering — **West Lafayette, IN**
Bachelor of Science, Mechanical Engineering, Minor in German and Economics — **May 2028**

- Cumulative GPA: 3.7; Dean's List & Semester Honors (Fall 2024, Spring 2025, Fall 2025)
- Relevant Coursework: Lin. Algebra & Diff Eqs., Statics, Dynamics, Thermodynamics, Electricity & Magnetism

PROFESSIONAL EXPERIENCE

Aeroconcept — **Aachen, Germany**
Mechanical Engineer Intern — **July 2023 – Aug 2023**

- Produced reverse molds for 2 ailerons and rudders with epoxy/fiberglass enabling precise composite repairs.
- Manufactured a carbon fiber LS4 winglet from layup through cure and finish in collaboration with supervisors.
- Fabricated 10+ airfield markers in polyester resin and FRP, improving airport ground traffic flow and safety.

CERN – European Organization for Nuclear Research — **Geneva, Switzerland**
Shadowing Intern — **July 2023**

- Mentored by ISOLDE's head of operations, observing complex decision-making and day-to-day management.
- Produced concise meeting summaries and provided technical support for Future Circular Collider Chairman.
- Audited 5+ graduate-level particle physics lectures to deepen technical foundation.

LEADERSHIP AND INVOLVEMENT

Purdue Electric Racing — **Aug 2024 - Present**
Vehicle Dynamics Prototyping Engineer

- Designed terminal busbar supports for an EV battery on Siemens NX, meeting clearance and load constraints.
- Modeled and developed a closed-loop battery water cooling system in ANSYS, optimizing channel dimensions and flow rates for peak thermal performance.
- Prototyping custom brake calipers to reduce weight and size while enhancing braking characteristics, overseeing the full development cycle from initial design (concept, CAD, FEA) through validation and competition.

Boilermaker Consulting — **Aug 2025 - Present**
Project Manager

- Led a team of 7 in designing a market entry and pricing strategy to expand children's literacy access.
- Advised the energy division of a leading global construction manufacturer on fuel source projections for powering data centers.
- Conducted comprehensive market research on fuel sources to analyze regulations, sizing, and infrastructure.
- Evaluated natural gas, diesel, and nuclear fuel options leveraging Pugh matrices to guide strategic planning.

Aviation — **Oct 2019 - Present**
Private Pilot

- Completed first solo flight at 14; earned FAA Private Pilot Glider at 16 and Private Pilot Single Engine Land at 18; logged 140+ flight hours.
- Led and mentored junior pilots in flight operations and ground school across multiple glider camps.
- Studied aircraft systems/mechanics, meteorology, and FAA regulations; scored 94% on the FAA written exam.

PETase – Independent Research Team — **Oct 2021 - June 2024**
Team Lead

- Led a team of 6 student researchers, improving organizational efficiency and developing detailed action plans.
- Designed and executed a PETase activity assay, delivering the program's first positive enzyme readouts in 5 years.
- Presented research findings to 100+ student researchers and faculty as well as to the general student body.

SKILLS AND INTERESTS

- Software Tools: Python, Java, C Language, Fusion 360, NX, MATLAB, AutoCAD, Microsoft Office Suite (Excel, Word, PowerPoint)
- Skills/Materials Experience: Woodworking, Steel welding, Lathe, Solder, Concrete, Carbon fiber, Epoxy resin
- Languages: German (intermediate); Cantonese (basic)
- Interests: Running, Skiing, Hiking, Soccer, Piano, Cooking

LICENSURE AND CERTIFICATIONS

- FAA Private Pilot License, Categories: Glider & Single Engine Land