Joseph Wahlstrom
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117 Countryside Dr, Bowling Green, KY | Willing to Relocate

SUMMARY

Detail-oriented and innovative Mechanical Engineering student with hands-on experience in CAD modeling, mechanical design, and robotics. Demonstrated success in collaborative engineering projects involving gear systems, 3D printing, and motorized assemblies. Adept at using SolidWorks and troubleshooting mechanical systems. Passionate about designing reliable and efficient mechanical components and mentoring future engineers.

EDUCATION

Western Kentucky University, Bowling Green KY, 2022-2025

Bachelor of Science in Mechanical Engineering with a minor in Systems Engineering

Senior Capstone Project One, Spring 2025

I worked over the course of a semester within a team of six engineering students to develop a system that could take the kinetic energy from wind and transfer it directly to thermal energy via a turbine turning an array of magnets without any sort of electrical interface, called a wind heater. This project involved Pugh Matrices to select initial designs. Then, several QBlade simulations were run on different airfoils to find an optimal option and math was conducted within Mathcad to find an appropriate number of magnets for the chosen turbine.

Senior Capstone Project Two, Summer 2025

During the first five weeks of summer in 2025, I worked with a team of two other senior engineers to implement an associated flow rule for plasticity on two selected metals within ANSYS. The stress-strain data for both metals was taken from the internet and there were three loading conditions for the plate, uniform biaxial loading, non-uniform biaxial loading, and uniform biaxial loading with a compression force applied through the plate's thickness. A stress strain curve was thus found for each loading condition and for each material and compared with available tensile testing data for validity.

Sophomore Design Project, Spring 2024

For this project I worked with four other team members to design and build a golfing robot that could both chip and putt a golf ball three separate distances as well as hold several balls and load them by itself. The robot was built using wood, 3D printed parts, and some custom metal parts made by me on a lathe and manual mill. It was run via several DC motors that were controlled by an Allen Bradley PLC that we programmed. The robot featured a revolving ball feeder, a wooden arm that would be raised and released by a slip gear mechanism to hit the loaded ball, and a retractable ramp that would allow the ball to be hit in the air or along the ground.

Florida College, Temple Terrace FL, 2020-2022

Associate of Arts in General Studies

EXPERIENCE

VEX Robotics Competition – Team Member & Engineering Mentor

Indianapolis, IN | Aug 2014 – Apr 2020

- Designed, built, and programmed competitive robots from the ground up to meet event-specific design challenges.
- Used CAD modeling tools to iterate on robot subsystems and drive mechanisms.
- Collaborated with team members to improve overall efficiency and modularity.
- Recognized as Division Finalist at the 2018 VEX World Championship.
- Mentored younger team participants in design principles, gear ratios, motor control, and autonomous logic.
- Continuously improved autonomous logic to maximize efficiency and points scored.

TECHNICAL SKILLS

- **Engineering Software:** SolidWorks (including Toolbox), Autodesk, ANSYS, FEA, QBlade
- **Fabrication:** 3D Printing (PLA), Prototyping
- **Programming (Basic):** C++, Web VPython, HTML, Allen Bradley PLC
- **Engineering Tools:** Gear Design, Torque Calculations, Mechanical Assembly
- **Soft Skills:** Team Collaboration, Mentorship, Problem Solving, Attention to Detail
- **Project Management:** Excel / Word, Gated Design Review, Status Presentations