Trevor Yates

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EDUCATION

University of Florida - Bachelor of Science - Mechanical Engineering - Honors   **May 2026**
- Recipient of the Benacquisto Scholarship and Herbert Wertheim College of Engineering Dean's List.
- Associate member of Sigma Xi Scientific Research Honors Society.
- Member of UF University Scholars Program, University Research Scholars Program, and Research Excellence Program for Undergraduates.
- Junior with **121** credits earned and a **4.0 GPA**.
- Relevant Coursework: SOLIDWORKS, Design and Manufacturing Lab, Numerical Methods, Autonomous Vehicles, Mech. of Materials, C++, Vibrations, Fluid Mechanics, Mech. of Materials Lab, Control.

SKILLS

- **Design and Manufacturing:** SOLIDWORKS CSWA, Autodesk Fusion360, PTC Creo, OnShape, Blender, FDM additive manufacturing, small-scale CNC milling, manual milling and turning, silicone molding, STK Level 1.
- **Computer Science and Web Design:** C++, MATLAB, Java, C#, Python, ROS2, Debian Linux (Ubuntu), JavaScript, HTML and CSS.
- **General:** Microsoft Word, Microsoft Excel, LaTeX.

WORK EXPERIENCE

NSWC PCD - NREIP Intern   **June 2024 - August 2024**
- Developed a bioinspired thunniform propulsor design for a low-cost UUV with the aim of achieving steady cruising speeds of up to 1.5 m/s, leveraging experience with bioinspired propulsion from FASt Lab and mechanical design experience.
- Performed hand calculation and FEA-based static analyses of the propulsor to inform design decisions.
- Wrote MATLAB scripts to calculate thrust output and evaluate gearbox stresses using the Lewis equation.
- Maintained a design process journal, BOM, PMS, and used Microsoft Excel for drag estimate calculations based on multiple approaches.
- Presented the goals of my work for base personnel at the NREIP QuadChart presentation day.

CLAS Mathematics Tutor - Calculus 1, 2, 3, Physics 1, 2, Other Math   **December 2023 - Present**
- Group tutoring university students in Calculus and other mathematics subjects.
- One-on-one tutoring in Physics, mathematics, MATLAB, and assorted topics.

RESEARCH EXPERIENCE

FASt Lab, Dr. Patrick Musgrave - Undergraduate Researcher   **July 2023 - Present**
- Designed and manufactured a modular bioinspired aquatic propulsor with compliant actuators to serve as an educational demonstration of bioinspired swimming.
- Fabricated fast Pneu-Net pneumatic compliant actuators for the propulsor.
- Presented the work at SMASIS 2024, in the bioinspired symposium and at the hardware showcase.
- Advanced public interest in bioinspired propulsion with presentations of the work at Cade Museum in Gainesville and the U.S. Senate Robotics Demo Day 2024.
- Currently designing a pneumatic control system for a sensitivity analysis of design parameters utilizing the next version of the modular propulsor.

GatorKits Lab, Dr. Matthew Traum - Undergraduate Researcher   **January 2023 - May 2024**
- Prototyped a tensile testing kit from off-the-shelf components for 10% of the cost of lab UTMs using SOLIDWORKS and knowledge of programmable microcontrollers.

- Led a group of freshman undergraduate researchers in the development of the tensile tester and instructed them in the application of the design process and the conducting of academic research.
- Presented at the Spring 2023 and Spring 2024 University of Florida Undergraduate Research Symposia.

LEADERSHIP AND TEACHING EXPERIENCE

University Research Scholars Program - Peer Mentor   **August 2023 - December 2023**
- Mentored a small group of first-year students in engaging in undergraduate research opportunities.

FTC Robotics Team 21588 - Team Mentor   **July 2022 - Present**
- Instructed members in team management, Autodesk Fusion360, and the design process

CURTA Type I Model and Function Animation - Designer and Animator
- Coordinated small team to design a 601-component assembly using SOLIDWORKS and animated a 10-minute video to demonstrate the function of a CURTA Mechanical Calculator.

MANUFACTURING AND DESIGN EXPERIENCE

Swamp Launch Rocket Team - Spaceport Structures Sub-Team   **December 2023 - Present**
- Collaborated on the design, FEA, and fabrication of a modular aft for a 2023-24 Spaceport America competition rocket.
- Introduced to FEA with Ansys, PCB design with Altium.
- Iterating on the design of the first modular aft to reduce unnecessary weight and improve ease-of-assembly.

Swamp Launch Rocket Team - NASA SL Payload Mechanics Sub-Team   **August 2024 - Present**
- Developing a pneumatic locking and antenna deployment system for a submission the 2024-25 NASA SL Challenge.

UF Real World Engineering - 6-Axis 3D Printer - Lead Manufacturing Engineer   **May 2024 - Present**
- Designing a lightweight and compact FDM extruder for use on a 6-axis robotic arm with OnShape.
- Producing subsystem design documentation and ensuring compliance with the project's part management system.
- Coordinating collaborative design efforts within the manufacturing subsystem team and with other subsystems.

GATR VEX Robotics - Design   **August 2023 - May 2024**
- Designed a competition robot for VEXU 2023-24 - Over Under using Fusion360.