ROBERT M. LILLY

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SUMMARY

Honors Mechanical Engineering junior at the University of Connecticut concentrating in Dynamic Systems and Control. Hands-on experience in robotics, sensor prototyping, engineering simulation, and MATLAB/Python programming. Strong foundation in mechanical systems, analytical problem-solving, and engineering fundamentals, with an interest in applying these skills to mechatronics, precision motion, controls, and system integration.

EDUCATION

UNIVERSITY OF CONNECTICUT | Storrs, CT | *B.S. Mechanical Engineering* | May 2028

- Pursuing Honors Scholar in the Major | **Cumulative GPA: 3.61/4.00** | Dean's List, Spring 2025
- **Relevant Coursework:** CAD and Manufacturing, Mechanics of Materials, Materials Science, Applied Mechanics I and II, FEA, Introductory CFD, Engineering Data Analysis.
- **Planned Spring 2027:** Design of Machine Elements, Electrical and Computer Engineering Principles.

TECHNICAL SKILLS

- **Programming & Electronics:** MATLAB, Python, Arduino IDE, GitHub, ultrasonic sensors, microcontrollers, basic circuit design.
- **Engineering Analysis & Simulation:** ANSYS Workbench, Finite Element Analysis (FEA), structural analysis, stress and deformation evaluation, material properties, kinematics and dynamics, reaction-force calculations, first-principles engineering calculations, introductory Computational Fluid Dynamics (CFD).
- **Mechanical Design & CAD:** SolidWorks, 3D part modeling, engineering drawings, mechanical design principles, introductory manufacturing processes.

ENGINEERING PROJECTS

UNDERWATER ROBOTICS CLUB — FLOAT TEAM | UConn | 2026–Present

- Collaborate with UConn Underwater Robotics teammates on the development of a sensor-equipped robot intended to maintain controlled underwater depths and collect measurements.
- Evaluate a proposed bladder-and-pump variable-buoyancy system to control ascent and descent, considering mechanical design, water displacement, and sensor integration.

PROGRAMMING AND SENSOR PROTOTYPING | Course and Independent Projects

- Designed, built and programmed an Arduino ultrasonic-distance sensing prototype integrating a microcontroller, sensor and LED feedback; published code to GitHub.
- Developed Python and MATLAB tools for engineering calculations, including mechanics and robotics analysis.

ENGINEERING SIMULATION — ANSYS Workbench, FEA, and CFD | UConn Coursework

- Modeled mechanical systems in ANSYS Workbench, applying material properties, boundary conditions and loading to evaluate stress, deformation, reaction forces, and structural response.
- Analyzed introductory CFD simulation results to assess fluid behavior and engineering applications.

VEX ROBOTICS CHAMPIONSHIP | Ridgefield High School | 2023

- Designed, built, programmed, and troubleshot competition robots with teammates, applying mechanical design principles and collaborative problem-solving.
- Earned 3rd place at the Southern New England Regional VEX Robotics Championship, March 2023.

AWARDS AND LEADERSHIP

- **UConn VEX Robotics Club — Co-Founder and Secretary (2026–Present):** Played a key role in the club's launch, establishing its social media and communication platforms, coordinating recruitment, and supporting club operations.
- **U21 Sustainable Micro-Internships (2026):** Selected to represent UConn in an international collaborative program focused on Industry, Innovation and Infrastructure.
- **UConn Engineering Ambassadors:** Represent the College of Engineering during prospective student events, communicating academic program information and engaging with students and families.
- **Tech4Tots Internship (2024):** Contributed to the development of STEM activities for educational programs.
- **Kempo Academy of Martial Arts (2021–2024):** First-degree black belt and Sempai (Assistant Instructor); mentored and instructed younger students, developing leadership, communication, and teaching skills.
- **Renewable Energy Proposal Initiative (2025):** Conducted an independent study of solar infrastructure opportunities at UConn and submitted a proposal to University President Radenka Maric.
- **Certifications and Academic Recognition:** IBM AI Fundamentals and AI Ethics Certifications (2025); Recipient Teachers' Appreciation Financial Scholarship (2024).