

# Thomas Bentivoglio

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## EDUCATION

### Case Western Reserve University

May 2027

Bachelor of Science Computer Science and Mechanical Engineering

- Minor in mathematics

Relevant Courses:

- Full-Stack, Data-structures, Algorithms, Discrete Math, Algorithms, Linear Algebra, Software Engineering, Programming Language Concepts, Databases
- Mechanical Manufacturing, Statics and Strength of Materials, Differential Equations, Thermodynamics, Fluid Mechanics, Design and Manufacturing, Heat transfer

## SKILLS/PROJECTS

- Programming: Java, Python, Java Script
  - Made the game 2048 in Java and JavaScript
  - Developed a web-app with a team that allows students to find free food
- Full Stack Development (HTML, CSS, Databases, React, MUI, etc.)
- MatLab
- SolidWorks (CSWA Certified, working towards professional)
  - Designed a water jug lift for elderly people with a team
- Certified in using lathe, mill, basics in CNC machine and water jet
  - Trained in Think[box], demonstrated skills by machining a hammer

## RESEARCH EXPERIENCE

### Cable-Driven Hyper redundant Robot Research(CyPhiLab)

March 2025-Present

- Developing and testing control strategies for a cable-driven, hyper-redundant robot (“SpiRob”) using Python, ROS2, and MuJoCo simulation.
- Integrated CAD models from Onshape into MuJoCo for physics-based simulation, defining tendon actuation and joint constraints.
- Implemented trajectory generation and Kalman filter-based state estimation for accurate robot control.
- Collaborated with faculty and graduate students on robotic manipulation and human-machine interaction experiments.

## LEADERSHIP/ACTIVITIES

### CWRUbotix (Case Western Reserve University robotics club)

Present

- MateROV(Submarine robot): Mechanical team and software team
  - Design manipulators and programming the robots autonomous functions using python
- Combat Robotics: Mechanical team
  - Manufacture and design with rapid prototyping using 3D printers

### Varsity collegiate wrestling

August 2022, November 2024

- Balance training and competing along with a double major
- Demonstrate teamwork

### Secretary of high school robotics team

November 2020-January 2021