Brandon Wang

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Education

Duke University — Durham, NC
Master of Science in Mechanical Engineering — *Aug. 2025 – May 2026*
GPA: 4.000

Duke University — Durham, NC
Bachelor of Science in Mechanical Engineering — *Aug. 2021 – May 2025*
GPA: 3.688

Projects

Modular Autonomous Robot System (MARS) | *ROS2, Python, MuJoCo, Fusion360* — Aug. 2024 – Present

- Designed robust and scalable module morphology using Fusion360, enabling inter-module connection via teleoperation and autonomous control
- Developed real-world control algorithms in Python assisted with Vicon motion capture system to execute precise multimodule connection behaviors
- Engineered a MuJoCo simulation framework to implement real-to-sim module dynamics, providing a strong foundation for machine learning

Hydra: Slinky Robot | *SolidWorks, CircuitPython, MuJoCo* — Aug. 2025 – Dec. 2025

- Designed and prototyped a mobile, untethered tendon-driven robot using SolidWorks and Raspberry Pi–based embedded hardware to explore lightweight, compliant actuation beyond static tendon-driven platforms
- Implemented antagonistic tendon actuation with teleoperated and closed-loop control using MuJoCo simulation and CircuitPython for real-time control, enabling stable, feedback-driven locomotion
- Led a 4-person robotics team from concept to prototype by coordinating design reviews, system integration, and instructor meetings to deliver a validated exploratory platform

Amazon Robotics Smart Storage System | *SolidWorks, Arduino, Machining* — Aug. 2024 – May 2025

- Led a 7-member team in partnership with Amazon Robotics, overseeing organization, task delegation, and documentation while driving key technical decisions
- Designed and prototyped a gantry-based robotic storage rack with modular conveyor cells to enable rapid short-term package storage and retrieval
- Served as the primary designer of the gantry system, integrating stepper motors, timing belts, and linear guides to achieve precise two-axis positioning with smooth acceleration profiles

Koda Robotic Bear | *Fusion 360, Raspberry Pi, Python* — Jan. 2024 – May 2024

- Independently designed a full-stack, bio-inspired quadrupedal walking robot using Jansen linkages from sketch to prototype
- Integrated embedded hardware and wireless control written in Python and executed on Raspberry Pi to program walking and dancing gaits
- Documented media to produce a final journey video showcasing the mechanical design and engineering process

Experience

Student Researcher — Aug. 2024 – Present
General Robotics Lab — *Durham, NC*

- Engineered a robust hardware platform for modular robotic systems end-to-end, enabling reliable and scalable docking of 8 modules using motor-actuated latching mechanisms
- Integrated ROS2 framework to synchronize inter-module proprioception and connection, enabling heterogeneous configurations for complex tasks

Technical Skills

CAD & Design: Fusion 360, SolidWorks, AutoCAD
Programming & Software: Python, Java, ROS2, MuJoCo, Docker, FEA, CFD, OpenCV, COMSOL
Electronics & Embedded Hardware: Arduino, Raspberry Pi, Soldering
Fabrication & Prototyping: 3D Printing, CNC Milling, Laser Cutting, Woodworking, TIG/MIG Welding

Activities

This Engineering Life Podcast | *Lead Sound Engineer* — Aug. 2024 – Present
Duke Men's Club Volleyball | *Libero* — Aug. 2021 – Present
Brownstone SLG (Selective Living Group) | *President* — Jan. 2023 – May 2024