Brandon Wang

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Education

Duke University — Durham, NC
Bachelor of Engineering in Mechanical Engineering — *Aug. 2021 – May 2025*
GPA: 3.658

Duke University — Durham, NC
Master of Science in Mechanical Engineering — *Aug. 2025 – May 2026*
Certificate in Robotics & Automation

Experience

Undergraduate Research Assistant — Aug. 2024 – Present
Duke University - General Robotics Lab — *Durham, NC*

- Engineered a robust mechanical interface for modular robotic systems, enabling reliable and repeatable docking using a motor-actuated hook mechanism with integrated alignment features
- Integrated control logic in ROS2 to synchronize motor actuation with latching behavior, ensuring secure mechanical coupling across heterogeneous modules under varying loading conditions

Mechanical Engineering Intern — Jun. 2023 – Aug. 2023
Stantec — *Lexington, KY*

- Standardized engineering drawings and documentation for FGD wastewater treatment systems, developing consistent templates and equipment lists used across company-wide projects
- Drafted detailed hydraulic profiles and annotated plant piping isometrics using Plant 3D and Bluebeam Revu, ensuring accuracy and compliance with project specifications

Projects

Mobile Manipulator | *ROS2, Python, Gazebo* — Aug. 2024 – Dec 2024

- Developed and tested a mobile manipulation system by integrating the ROS2 Navigation Stack with LIDAR and depth cameras for autonomous path planning and obstacle avoidance
- Simulated coordinated motion between a MiR250 base and UR5e robotic arm in Gazebo to perform dynamic pick-and-place tasks using A* search algorithms
- Implemented vision-based manipulation using OpenCV, enabling color and object-specific detection and grasping for adaptive handling in unstructured environments

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

- Independently designed and built a bio-inspired quadrupedal robot, gaining hands-on experience in mechanical design, motion planning, and system integration
- Self-taught linkage-based locomotion using Jansen mechanisms, and implemented walking and dancing gaits using Python scripts on Raspberry Pi
- Created animated mechanical simulations and rendered visuals in Fusion 360, developing both technical understanding and design communication skills

Technical Skills

CAD & Design: Fusion 360, SolidWorks, AutoCAD, Plant 3D, Revit, BIM 360
Programming & Software: Python, C++, Java, Git, LabVIEW, OpenCV, COMSOL, ROS2, Gazebo
Electronics & Embedded Systems: Arduino, Raspberry Pi, Microcontrollers, Soldering
Fabrication & Prototyping: Machining, CNC Milling, Laser Cutting, Woodworking, TIG/MIG Welding, 3D Printing

Activities

This Engineering Life Podcast | *Junior Sound Engineer* — Aug. 2024 – Present
Brownstone | *President* — Jan. 2023 – May 2024
Duke University Theta Tau | *VP Technology* — Jun. 2022 – May 2024
Duke Men's Club Volleyball | *Libero* — Aug. 2021 – Present
Lakewood Elementary School Tutor — Sep. 2023 – Dec. 2023