Brandon Wang

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Education

Duke University Durham, NC
Bachelor of Engineering in Mechanical Engineering *Aug. 2021 – May 2025*
Certificate in Robotics & Automation

GPA: 3.658

Experience

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

- Conducting research on a heterogeneous modular robotic system aimed at enhancing reconfigurability and scalability in robotics
- Implementing autonomous path tracking algorithms such as pure pursuit using Vicon data
- Iteratively prototyped various morphological features of heterogeneous modules including intermodule latching and electronics management

Undergraduate Research Assistant Sep. 2023 – Dec. 2023
Duke University - Brinson Group *Durham, NC*

- Researched dielectric response of polymer nanocomposite systems as a function of dispersion
- Implemented physics-based computational models in COMSOL and data science methods to generate data sets for machine learning methods
- Optimized existing MATLAB machine learning scripts for 2D application

Projects

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

- Implemented ROS2 navigation stack for autonomous path planning and obstacle avoidance using LIDAR and depth cameras
- Simulated A* Search and manipulation using MiR 250 mobile base and UR5e robotic arm
- Utilized OpenCV for color and object oriented manipulation tasks

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

- Independently designed an organic-looking robotic quadruped driven by Jansen linkages
- Wrote Python script to execute walking and dancing locomotion
- Animated linkage joint movement and context renderings of robot through native Fusion 360 software

Amphibious Crawler | *SolidWorks, Arduino, Microcontrollers, C++* Aug. 2022 – Dec. 2022

- Designed an amphibious crawler capable of discriminating and retrieving visually identical objects of (non)ferrous properties
- Implemented and manually waterproofed motor drivers connected to Arduino to control speed and direction of motors via external joysticks
- Collaborated with team members to integrate inductive sensors and retrieval apparatus

Technical Skills

Modeling: AutoCAD, Plant 3D, SolidWorks, Fusion 360, Revit, BIM 360
Electronics: Raspeberry Pi, Arduino, Soldering, Microcontrollers
Fabrication: Power Equipment, Machining, Woodworking, MIG/TIG Welding
Languages: Python, Java, C++

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