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Dechao JIANG

Education

University of California, Berkeley — M.Eng. in **Mechanical Engineering** — Aug 2024 – May 2025

University of Macau — B.Sc. in **Electromechanical Engineering** — Aug 2020 – Jul 2024

Skills

Programming: C++, C#, Embedded C, Python, MATLAB, Git

Mechanical Design: SolidWorks, AutoCAD, FEA, GD&T

Robotics: Robot Operating System (ROS/ROS2), Gazebo, RViz, Linux, Docker, URDF

Additive Manufacturing: CNC, G-Code, Ultimaker Cura, Slic3R

Professional Experience

Robotics Engineer, Mechanical Systems Control Lab, UC Berkeley — Sep 2024 – Present

- Designing and iterating on a flexible Degrees of Freedom (DoF) robot prototype using SolidWorks.
- Developed URDF models from CAD designs for software simulation in Timor/Gazebo to optimize design iterations and predict performance.
- Fabricating prototypes using 3D printing, validating concepts of flexible DoF by modularized design.

Mechanical Design Engineer Intern, SUIRUI Technology Group, Beijing — Jun 2024 – Jul 2024

- Perform FEA using SolidWorks Simulation to analyze and optimize motor thermal performance.
- Employed GD&T principles to create motor enclosure design drawings, minimizing tolerances and ensuring assembly accuracy.
- Developed a detailed Bill of Materials (BOM) for the on-site installation of a rail inspection robot, streamlining the procurement process and ensuring component availability.

Advanced Manufacturing Researcher, Center for AI & Robotics, Macao — Jun 2023 – Jun 2024

- Led Procurement and Vendor Management: Sourced and collaborated with vendors to optimize design for desired printing volume and resolution. Sized motors and drives through electrical load calculations.
- Established precise feedback control for ABB PWM servo-driven positioning systems.
- Synchronized the control of positioning system and a pneumatic extrusion outlet.
- Developed a custom 3D printing application in Visual Studio to control and integrate both the positioning and pneumatic embedded systems.

Project Experience

3D FDM Printer for Advanced Functional Material Fabrication — Jun 2023 - May 2024

- Developed a 3-axis motion system with 10 micrometers resolution for 3D FDM Printing.
- Designed G-Code parsing algorithms, successfully converting G-Code to 3D-Printing motion commands.
- Utilized industrial DLL to synchronize control of pneumatic extruder and motion system in control software.

Libot: Autonomous Mobile Manipulation Robot for Libraries — Sep 2023 - May 2024

- Simulated and controlled robotic operations in Gazebo with a ROS network.
- Achieved object detection and grasp pose recognition using computer vision.
- Integrated MoveIt path planning framework to UR5 Manipulator.
- Implemented localization and navigation with hector-mapping SLAM algorithm to achieve indoor navigation.