Jing-Yuan (Kevin) **Huang**

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Specialization

Electromechanical Design | Actuators & Sensor Integration | Robotics Mechanisms | CAD | GD&T | Prototyping & Manufacturing (DFM/DFA)

Skills

Programming	Python, MATLAB/Simulink, C/C++, ROS2, Shell script
Hardware & Prototyping	PCB design, Soldering, 3D printing (FDM/SLA), Testing (oscilloscope, logic analyzer)
Mechanical & CAD	SolidWorks, Fusion360, GD&T, DFM/DFA, FEA, Mechanism design, Materials & manufacturing methods
Electronics & Embedded	Altium Designer, KiCad, Power electronics, sensor integration, PCBA & rigid-flex basics, CAN/I2C/SPI
Robot Software & Simulation	ROS2, Gazebo, Isaac Sim, Mujoco, Real-time control, kinematics/dynamics, state estimation

Education

University of California, Los Angeles (UCLA)

Sep. 2024 - Now

Ph.D. in Mechanical Engineering

- **Advisor** : Tsu-Chin Tsao (Mechatronics and Controls Lab)
- **Research** : Magnetic resonance imaging (MRI) surgical robotics / Hydraulic Actuators / Hybrid hydraulic transmission / Over-actuated drone

National Taiwan University (NTU)

Sep. 2019 - Jun. 2023

B.S. in Electrical Engineering

- **Advisor** : Cheng-Wei Chen (Next-generation Automated Surgical Apparatus Lab)
- **Research** : Dual-arm robotic surgical system / Robot arm development and planning algorithms / Mechatronics system design

Work Experience

Mechanical Engineer Intern @ Zebra Tech.

Jul. 2022 – Sep. 2022

- Integrated mechanical, electrical, and sensor modules for a gesture-controlled wearable scanner.
- Developed a UWB indoor-positioning system, including PCBA bring-up, enclosure design, and calibration.
- Collaborated with industrial design, firmware, and electrical teams to refine system-level electromechanical design.

Hardware Engineer Intern @ Tensor Tech.

Feb. 2022 – May. 2022

- Designed and built a 3-axis Helmholtz coil system with thermal considerations and integrated power electronics for sensor calibration.
- Developed a high-precision 2-axis rotary calibration platform, integrating modules; conducted mechanical analysis and validation testing.

Publications

[1] Chen, P. C., Hsieh, P. A., Huang, **J. Y., Huang**, S. C., & Chen, C. W. (2022, October). Design and Evaluation of the infant Cardiac Robotic Surgical System (iCROSS). In 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (pp. 413-418). IEEE.

[2] Hsieh, **J. H., Huang**, J. Y., Yen, T., Lee, S., Chang, A., & Hou, L. (2022). Attitude Control Calibration and Experiment Testbed to Characterize Attitude Determination and Control System Performance.

[3] Chan, V. H., Fang, C., Hung, Y., **Huang, J. Y.**, & Cheng, L. P. (2023, October). Chandelier: Interaction Design With Surrounding Mid-Air Tangible Interface. In Adjunct Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology (pp. 1-3).

[4] Magnetic Resonance Imaging Robotics System (Manuscripts Submitted, Under Review)

Project Experience

Sand-Art Robot

A robotic system that replicates human techniques to generate artistic patterns

- Designed custom STM32 driver PCB and mechanical housing, and integrated multi-axis stepper actuation.
- Implemented vision-guided control and performed mechanical tolerance checks for repeatability of sand patterns.

Itamae Sushi Robot

A robotic system bringing the artistry of sushi chefs to automated dining

- Engineered novel four-plate folding mechanism, iterating through CAD, rapid prototyping, and mechanical testing.
- Designed and tested soft gripper combining PLA and TPE for compliance and manufacturability.