Qianjun Xia

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Education

Columbia University, MS in Mechanical Engineering — Sept 2024 – Present
- GPA: 4.12/4.3
- Concentration: Robotics and Control

Shanghai Jiao Tong University, BS in Mechanical Engineering — Sept 2020 – Jun 2024
- GPA: 82.76/100
- Double Major: Mathematics and Applied Mathematics

Internship

Shanghai ABB Engineering Co., Ltd, Vision Algorithm Intern — Jun 2023 – Sept 2023
- Assisted algorithm engineers with vision algorithm development and experiment.
- Completed a demo of a binocular vision system with Halcon used for completing the work of auto tire assembly; achieved a positioning accuracy of 1mm.

Research Experience

Video-Based Parameter Estimation, Creative Machine Lab — Mar 2025 – Present
Supervisor: Jiong Lin, Hod Lipson
- Designed and implemented simulation environments to model the motion of elastic objects under gravity and actuator forces.
- Generated large-scale datasets from simulation, incorporating varied object geometries, actuation patterns.
- Applied the TimeSformer video understanding model to predict object physical parameters from multi-frame visual data.

Magnetic Wire-Guiding Robot, – Shanghai Jiao Tong University — May 2023 – Aug 2024
Supervisor: Dong Wang
- Led a team of three members to design a magnetic wire-guiding device to help doctors in interventional surgeries. The guide wire's is made up of magnetic material and soft material. A robotic arm is used to control the magnet and drive the rotation of the guide wire's head to guide the direction
- Used SolidWorks to design and model the wire-guiding device;coded with Python to control the robot arm and two motors with a Xbox controller
- Used PNP algorithm to calibrate the the tip of the wire with a monocular camera; achieved a position accuracy less than 1mm.
- Based on the Cosserat Rod Theory, developed a Finite Element Algorithm to anticipate the Deformation of an elastic rod under a certain magnetic field.

Extracurricular Activity

Shanghai Jiao Tong University Racing Car Team, Car body Group — Sept 2021 – Dec 2022
- Took charge of the manufacture of the monocoque shell and the rest of the body-related components, such as seat belts and seat fixtures.
- Drew machining drawings; participated in car body making and assembly; conducted car maintenance and repairing.

Technologies

Languages: Python, C++, MATLAB, R

Technologies: Solidworks, Fusion360, UG, Catia, Adams, Ansys