Yuchen (Iris) YANG

yyc0o9i8u@sjtu.edu.cn +86-17852292197 yuchen10101.github.io/website/ Yuchen10101

Education

Shanghai Jiao Tong University (SJTU) *Sept. 2021 – Jun. 2025 (Expected)*

Bachelor of Science in Mechanical Engineering

- GPA: 3.49/4.3 (84.4/100), Junior GPA: 3.77/4.3 (88.2/100)
- A/A+ Courses: Robotics (95), Design and Manufacture II (92), Engineering Materials(90), Manufacturing Process (91)

Experience

JAKA Robotics *Jun. 2024 – Present*

Research Intern, Robotics Division Research and Development Center *Shanghai, China*

- Architected a MuJoCo simulation environment for dual-arm robots, encompassing multiple task scenarios.
- Constructed a demonstration collection pipeline using a data glove to map motions, yielding a dataset of more than 30 demonstrations for stacking tasks.
- Designed and implemented a demonstration-based deep reinforcement learning framework specialized in long-horizon stacking tasks, featuring an innovative reward function that effectively captures key frames to enhance learning efficiency.

Publications

Characterizations of Voluntary and Involuntary Imagery in Aphantasia (Under Review) *May. 2024*

Suna Duan*, ***Yuchen Yang***, Kangxin Li, and Binglei Zhao

- Designed sophisticated experimental paradigms to explore imagery presence and duration effects on grating rotation judgments, clarifying the functions of voluntary and involuntary imagery.
- Implemented the experimental paradigms as an interactive interface using MATLAB Psychtoolbox, ensuring high fidelity in stimulus presentation and response collection.

Projects

A Self-Designed 6-DoF Robot Arm *Mar. 2024 - Jun. 2024*

Group Leader | Advisor: Prof. Zhenhua Xiong, Dr. Jianhua Wu (Institute of Robotics, SJTU)

- Led the entire design and development process, covering modeling, kinematics, dynamics, and other advanced functions.
- Orchestrated an in-depth kinematic analysis with formula derivation and code implementation, including forward kinematics, inverse kinematics and Jacobian matrix.
- Implemented a function for workspace visualization feature and an obstacle avoidance function using the Rapidly-exploring Random Tree (RRT) algorithm.

A Frog-like Bionic Amphibious Robot (Excellence Award, Top 20%) *Oct. 2023 - Dec. 2023*

Group Leader | Advisor: Prof. Xinjun Sheng (Meta Robotics Institute, SJTU)

- Orchestrated the design, modeling, and manufacturing of a bionic frog robot.
- Built the Energy Storage and Release Module, integrating a cam and torsion spring system to enable powerful and sustainable jumping and swimming motions.
- Created the Mode Switching System, allowing the efficient transition between jumping and swimming modes.

Machining Process Plan for an Irregular Part *Apr. 2024 - Jun. 2024*

Researcher | Advisor: Assoc. Prof. Jingyu Pei (Institute of Manufacturing Technology and Equipment Automation, SJTU)

- Enhanced the part structural processability through iterative design, achieving stringent precision requirements of 0.1mm.
- Designed detailed process procedures for mass production, incorporating dimensional chain analysis.

Exploring the Neural Correlates of Visual Imagery Vividness: A fMRI Study Utilizing BC-GCN *Jul. 2022 - Aug. 2023*

Researcher | Advisor: Dr. Binglei Zhao (Institute of Psychology and Behavioral Science, SJTU)

- Built Brain Connectivity Graph Convolutional Network (BC-GCN) for predicting Vividness of Visual Imagery Questionnaire (VVIQ) scores from brain functional connectivity, with a prediction error of 8.7% relative to the actual scores.
- Employed BackTracking to pinpoint brain areas linked to visual imagery vividness.

Skills

Languages: Mandarin (native), English (TOEFL 102, with Speaking 25)

Programming: Python (Pytorch), C++, JavaScript, HTML, Astro

Professional Tools: SolidWorks, MATLAB, MuJoCo, Adams, Ansys, COMSOL, LabVIEW