Yuqi Xiang

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Education

Nanjing University Sept. 2020 – June 2024 (expected)
B.S. in Computer Science and Technology, Kuang Yaming Honors School *Jiangsu, China*
- **GPA:** 4.70/5.00 (94.0/100) **Ranking:** 1st/116

University of Pennsylvania Jan. 2023 – May 2023
Exchange student of International Guest Student Program *Pennsylvania, USA*
- **GPA:** 4.00/4.00

Publications and Manuscripts

[1] **Y. Xiang**, F. Chen, Q. Wang, G. Yang, X. Zhang, X. Zhu, X. Liu, Lin Shao "Diff-Transfer: Model-based Robotic Manipulation Skill Transfer via Differentiable Physics Simulation ", *in submission*

Selected Research Experience

Language-driven and Physics-informed Bimanual Robotic Manipulation Jul. 2023 – present
Visiting Research student, advised by Prof. Masayoshi Tomizuka *California, USA*
- Proposed a framework to produce contact-aware manipulation policies for robotic execution via the integration of large language models and visual-language models, provided with language instruction and 3D models.
- Built a dataset(500k+ instances) for language-driven and physics-informed robotic manipulation and trained a bridge model to compute affordance map from language and vision features for bimanual manipulation.
- Aim to contribute to the development of efficient and general robotic manipulation, specifically tailored to address the complexities and demands of industrial parts.

Diff-Transfer: Robotic Skill Transfer via Differentiable Simulation Sept. 2022 – June 2023
Research intern, advised by Prof. Lin Shao *(Remote) Singapore*
- Proposed a framework to transfer robotic manipulation skills via differentiable physics simulation by generating a path of sub-tasks where known actions could be adapted from one sub-task to tackle the adjacent other.
- Introduced a path-planning method leveraging Q-learning with a task-level state and reward as well as an approach using contact point search which avoids intricate mesh deformation problems.
- Contributed to efficient robotic skill learning by avoiding training for every distinct object and task from scratch.

Efficient Transformers June 2022 – Sept. 2022
Research intern, advised by Prof. Yang You *(Remote) Singapore*
- Implemented efficient large language models including transformers to increase backward speed or reduce memory usage by redesigning the self-attention module with approximate matrix multiplication.

Selected Honors

National Scholarship *(top 0.2% nationwide)* 2022
Alishan Scholarship *(2 students in Nanjing University)* 2023
People's Scholarship *(first prize, top 3% in Nanjing University)* 2023
National Elite Program Scholarship *(special prize, top 5% in elite program students)* 2023

Skills

Programming & Tools	C/C++, Python, Java, Matlab, Assembly, Ubuntu, Git, Vim, LaTeX
Machine Learning	SVM, CNN, Transformer, RL Algorithms (Q-Learning, SAC, etc), Meta Learning
Robotics	ROS, Robot Kinematics & Dynamics, PyBullet, Mujoco, Differentiable Sim.
Language	Chinese (Native), English (TOEFL: 111)

Community and Leadership

Teaching Assistant: Course of *Problem Solving, Fall 2022*
Peer Mentor: Freshman Students of *Kuang YaMing Honors School* in 2022
Outstanding Volunteer: Nanxing Dream Project