

# Yuqi Xiang

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## EDUCATION

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- 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:** 1<sup>st</sup>/115
- University of Pennsylvania** Jan. 2023 – May 2023  
*Exchange student of International Guest Student Program* Pennsylvania, USA
- **GPA:** 4.00/4.00

## PUBLICATIONS AND MANUSCRIPTS

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- [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*

## RESEARCH EXPERIENCE

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- 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.

## AWARDS AND HONORS

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- 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
- National Scholarship** (top 0.2% nationwide) 2022
- Outstanding Student** (top 5% in Nanjing University) 2021

## COMMUNITY AND LEADERSHIP

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- Teaching Assistant:** Course of *Problem Solving*, Fall 2022
- Peer Mentor:** Freshman Students of *Kuang Yaming Honors School* in 2022
- Outstanding Volunteer:** Nanxing Dream Project in 2021

## SKILLS

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- 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)