

# Yuqi Xiang

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No.163 Xianlin Avenue, Nanjing, Jiangsu Province, China (210023)

## EDUCATION

### Nanjing University

Sept. 2020 – June 2024 (expected)

B.S. in Computer Science and Technology, Kuang Yaming Honors School

Jiangsu, China

- **GPA:** 4.68/5.00 (93.6/100) **Ranking:** 1<sup>st</sup>/116
- **TOEFL:** 111 **GRE General:** 322
- **Highlight Courses:** Operating Systems (97), Artificial Intelligence (96), Problem Solving IV (97, 4-semester course covering Discrete Mathematics, Data Structures, Algorithm Design and Analysis etc.),
- **Teaching Assistant:** Course of Problem Solving, Fall 2022

### University of Pennsylvania

Jan. 2023 – May 2023

Exchange student of International Guest Student Program

Pennsylvania, USA

- **GPA:** 4.00/4.00
- **Relevant Courses:** Introduction to Robotics (Graduate-level, A+), Analytical Mechanics (A+), Artificial Intelligence Lab: Data, Systems, and Decisions (A)

## 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 Robotic Manipulation

Jul. 2023 – present

Visiting Research student advised by Prof. Masayoshi Tomizuka

California, USA

- Proposed a framework leveraging large language models working with a visual-language model to create 3D value maps from vision and language hints of physics, anchoring the knowledge into the agent's observation space. These value maps are then employed in a model-based planning system to produce robot trajectories.

### Diff-Transfer: Robotic Skill Transfer via Differentiable Simulation

Sept. 2022 – June 2023

Research intern advised by Prof. Lin Shao

(Remote) Singapore

- Proposed a novel framework leveraging differentiable physics simulation to transfer robotic manipulation skills.
- Introduced a path-planning method leveraging  $Q$ -learning with a task-level state and reward to generate a path of sub-tasks where known actions could be adapted from one sub-task to tackle the adjacent sub-task seamlessly.
- Verified the system in simulation with four challenging transfer tasks on robotic manipulation.

### Efficient Transformers

June 2022 – Sept. 2022

Research intern, supervised by Prof. Yang You

(Remote) Singapore

- Participated in implementing efficient large language models including transformers to increase backward speed or reduce memory usage by redesigning the self attention module.

## SELECTED HONORS

1. **National Scholarship** (top 0.2% nationwide) 2022
2. **National Elite Program Scholarship** (first prize, top 5% among elite program students) 2022, 2021
3. **People's Scholarship** (first prize, top 3% in Nanjing University) 2021
4. **Outstanding Student** (top 5% in Nanjing University) 2021

## SKILLS

<b>Programming</b>	C/C++, Python, Matlab, Assembly
<b>Tools</b>	Ubuntu, Git, Vim, PyBullet, $\LaTeX$
<b>Robotics</b>	ROS, Robot Kinematics & Dynamics
<b>Machine Learning</b>	SVM, CNN, Transformer, RL Algorithms (Q-Learning, SAC, etc), Meta Learning