

XIAOMENG XU

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EDUCATION

Stanford University 09/2023-now

PhD Student in Electrical Engineering

GPA: 4.00/4.00

Tsinghua University 08/2019-06/2023

Bachelor of Engineering in Automation, Bachelor of Arts in Product Design

GPA: 3.96/4.00, Rank: 1/21

PUBLICATIONS

1. **Xiaomeng Xu***, Yanchao Yang*, Kaichun Mo, Boxiao Pan, Li Yi, Leonidas Guibas, *JacobiNeRF: NeRF Shaping with Mutual Information Gradients*. Conference on Computer Vision and Pattern Recognition (CVPR 2023). [Paper]
2. Yun Liu*, **Xiaomeng Xu***, Weihang Chen, Haocheng Yuan, He Wang, Jing Xu, Rui Chen, Li Yi, *Enhancing Generalizable 6D Pose Tracking of an In-Hand Object with Tactile Sensing*. Robotics and Automation Letters (RAL 2023), IEEE International Conference on Robotics and Automation (ICRA 2024). [Paper]
3. Xueyi Liu, **Xiaomeng Xu**, Anyi Rao, Chuang Gan, Li Yi, *AutoGPart: Intermediate Supervision Search for Generalizable 3D Part Segmentation*. Conference on Computer Vision and Pattern Recognition (CVPR 2022). [Paper]
4. Guanhong Liu, Tianyu Yu, Zhihao Yao, Haiqing Xu, Yunyi Zhang, Xuhai Xu, **Xiaomeng Xu**, Mingyue Gao, Qirui Sun, Tingliang Zhang, Haipeng Mi, *ViviPaint: Creating Dynamic Painting with a Thermochromic Toolkit*. Multimodal Technologies and Interaction (MTI 2022). [Paper]

* authors with equal contribution

RESEARCH EXPERIENCES

Dynamics-Guided Diffusion Model for Robot Manipulator Design 09/2023-02/2024

Robotics, Machine Learning

Supervisor: Prof. Shuran Song, Stanford University

- Proposed a data-driven framework for generating manipulator geometry designs for a given manipulation task. Instead of training different design models for each task, our approach employs a learned dynamics network shared across tasks.

Hand-Deformable Object Interaction Capturing 02/2023-07/2023

3D Vision, Graphics

Supervisor: Prof. Li Yi, Tsinghua University

- Proposed a novel hardware system and annotation algorithm that enable the capture of high-quality hand-deformable object interaction data.

NeRF Shaping with Mutual Information Gradients 06/2022-11/2022

3D Vision, Machine Learning

Supervisor: Prof. Leonidas Guibas, Stanford University

- Chinese Undergraduate Visiting Research Program (UGVR)
- Proposed shaping a NeRF to encode mutual correlations of a scene via aligning jacobians. And demonstrated applications in label propagation for semantic and instance segmentation.

Enhancing 6D Pose Tracking of an In-Hand Object with Tactile Sensing 12/2021-09/2022

3D Vision, Robotics

Supervisor: Prof. Li Yi, Tsinghua University

- Presented a tactile-enhanced 6D pose tracking framework to track previously unseen in-hand objects.

Generalizable 3D Part Segmentation

09/2021-11/2021

3D Vision, Machine Learning

Supervisor: Prof. Li Yi, Tsinghua University

- Proposed a generic method that improves the generalizability of 3D part segmentation networks by searching for optimal supervisions automatically.

Thermochromic Toolkit for Creating Dynamic Painting

10/2020-04/2021

Human Computer Interaction

Supervisor: Prof. Haipeng Mi, Tsinghua University

- Presented a toolkit consisting of a design tool and a set of hardware components that assists artists and enthusiasts in creating thermochromic paintings.

AWARDS

Outstanding Graduate of Tsinghua University (Awarded to top 2% Tsinghua graduates)	06/2023
Outstanding Graduate of Beijing (Awarded to top 5% Beijing graduates)	06/2023
Academic Contribution Award (Awarded to graduates with academic achievements, top 5%)	06/2023
Comprehensive Excellence Award (Scholarship awarded by Tsinghua University, top 5%)	10/2022
National Scholarship (Highest scholarship awarded by Chinese Government, top 0.1%)	10/2021
129 Scholarship (Highest scholarship for sophomores in Tsinghua University, top 1%)	10/2020
Innovation Award of Science and Technology (Awarded to undergraduates with excellent research potentials, top 5%)	10/2020-2022

EXTRACURRICULAR ACTIVITIES

Drop-in Tutoring	10/2020-10/2022
Tutoring volunteer for engineering drawing, programming, electric circuits, physics, calculus, etc.	
Siyuan Leadership Program	10/2020-07/2023
A leadership program that selects the top 1% Tsinghua undergraduates, emphasizing the cultivation of social practice abilities and international perspectives.	

TECHNICAL SKILLS

Computer Languages	Python, C/C++, MATLAB, Verilog/VHDL
Software	SolidWorks, AutoCAD, Rhino, Qt Creator, Multisim, Quartus
Hardware	3D Printing, FPGA, Microcontroller, mechanical design, woodcraft
Tools	PyTorch, ROS, MuJoCo, IsaacGym, Git, Linux, L ^A T _E X