XIAOMENG XU

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EDUCATION

Tsinghua University 08/2019-07/2023 (expected)

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

GPA: 3.94/4.00, **First Degree GPA:** 3.97/4.00, **Rank:** 1/21

Major Courses:

- **Mathematics:** Calculus (4.0/4.0) | Linear Algebra (4.0/4.0) | Complex Analysis (4.0/4.0) | Stochastic Mathematics and Statistics (4.0/4.0) | Numerical Analysis and Algorithms (4.0/4.0)
- **Computer Science:** C++ Programming (4.0/4.0) | Computer Languages and Programming (4.0/4.0) | Data Structure and Algorithms (4.0/4.0) | Fundamentals of Computer Graphics (4.0/4.0)
- **Electrical Engineering:** Physics(2) (4.0/4.0) | Electric Circuits (4.0/4.0) | Analog Electronics (4.0/4.0) | Signals and System Analysis (4.0/4.0)
- **Mechanical Engineering:** Physics(1) (4.0/4.0) | Engineering Drawing (4.0/4.0) | Engineering Mechanics (4.0/4.0) | Mechanical Design (4.0/4.0)

PUBLICATIONS

1. **Xiaomeng Xu***, Yanchao Yang*, Kaichun Mo, Boxiao Pan, Li Yi, Leonidas Guibas, *JacobiNeRF: NeRF Shaping with Mutual Information Gradients.* Submitted to CVPR 2023.
2. **Xiaomeng Xu***, Yun Liu*, 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.* Submitted to ICRA 2023. [arXiv]
3. Xueyi Liu, **Xiaomeng Xu**, Anyi Rao, Chuang Gan, Li Yi, *AutoGPart: Intermediate Supervision Search for Generalizable 3D Part Segmentation.* CVPR 2022. [Paper] [Project Page]
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.* MTI 2022. [Paper]

* authors with equal contribution

RESEARCH EXPERIENCES

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.

· My contribution: Algorithm development and implementation, theoretical derivation, experiments.

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.

· My contribution: Algorithm development and implementation, main experiments, synthetic and real data generation.

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.
· My contribution: Domain generalization and 3D part segmentation baselines implementation.

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.
· My contribution: CAD tool design, GUI software development.

AWARDS

Comprehensive Excellence Award (Scholarship awarded by Tsinghua University, top 1%) 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 1%) 10/2020-2022

VOLUNTEER EXPERIENCES

Drop-in Tutoring 10/2020-Present
Tutoring volunteer for engineering drawing, programming, electric circuits, physics, calculus, etc.

LANGUAGE SKILLS

TOEFL iBT 111/120 (Reading 29, Listening 29, Speaking 25, Writing 28)
IELTS 8.0/9.0 (Reading 9.0, Listening 9.0, Speaking 7.0, Writing 7.5)

TECHNICAL SKILLS

Computer Languages Python, C/C++, MATLAB, Verilog/VHDL
Software SolidWorks, AutoCAD, Qt Creator, Multisim, Quartus
Hardware 3D Printing, FPGA, Microcontroller
Tools PyTorch, ROS, Git, Linux, OpenCV, LaTeX, Markdown