

Qiyu Dai

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📄 <https://daiqy.github.io/>

Education

- Sept. 2024 – **Peking University**, Beijing, China
Present **Ph.D. in Intelligence Science and Technology**
Advisor: Prof. Baoquan Chen
- Sept. 2019 – **Peking University**, Beijing, China
Jun. 2022 **M.Eng. in Computer Technology**
Advisors: Prof. He Wang, Prof. Qi Jing
- Sept. 2015 – **Wuhan University**, Wuhan, China
Jun. 2019 **B.Eng. in Energy Chemical Engineering with Minor in Computer Science**
Advisor: Prof. Qin Zou

Research Interests

3D/4D Reconstruction, Neural Rendering, World Simulator

Publications

* denotes equal contribution, † denotes corresponding author.

Representative Publications

- 2025 **RainyGS: Efficient Rain Synthesis with Physically-Based Gaussian Splatting**
Qiyu Dai*, Xingyu Ni*, Qianfan Shen, Mengyu Chu†, Wenzheng Chen†, Baoquan Chen†
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)
- 2024 **4D-Rotor Gaussian Splatting: Towards Efficient Novel View Synthesis for Dynamic Scenes**
Yuanxing Duan*, Fangyin Wei*, **Qiyu Dai**, Yuhang He, Wenzheng Chen†, Baoquan Chen†
ACM SIGGRAPH Conference Papers
- 2023 **GraspNeRF: Multiview-based 6-DoF Grasp Detection for Transparent and Specular Objects Using Generalizable NeRF**
Qiyu Dai*, Yan Zhu*, Yiran Geng, Ciyu Ruan, Jiazhao Zhang, He Wang†
IEEE International Conference on Robotics and Automation (ICRA)
- 2022 **Domain Randomization-Enhanced Depth Simulation and Restoration for Perceiving and Grasping Specular and Transparent Objects**
Qiyu Dai*, Jiyao Zhang*, Qiwei Li, Tianhao Wu, Hao Dong, Ziyuan Liu, Ping Tan, He Wang†
European Conference on Computer Vision (ECCV)

All Other Publications

- 2024 **Open6DOR: Benchmarking Open-instruction 6-DoF Object Rearrangement and A VLM-based Approach**
Yufei Ding*, Haoran Geng*, Chaoyi Xu, Xiaomeng Fang, Jiazhao Zhang, Songlin Wei, **Qiyu Dai**, Zhizheng Zhang, He Wang†
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), **Oral**
- 2024 **STOPNet: Multiview-based 6-DoF Suction Detection for Transparent Objects on Production Lines**
Yuxuan Kuang*, Qin Han*, Danshi Li, **Qiyu Dai**, Lian Ding, Dong Sun, Hanlin Zhao, He Wang†
IEEE International Conference on Robotics and Automation (ICRA)
- 2021 **Edit Like A Designer: Modeling Design Workflows for Unaligned Fashion Editing**
Qiyu Dai, Shuai Yang, Wenjing Wang, Wei Xiang, Jiaying Liu†
ACM International Conference on Multimedia (MM)
- 2019 **Robust Lane Detection From Continuous Driving Scenes Using Deep Neural Networks**
Qin Zou, Hanwen Jiang, **Qiyu Dai**, Yuanhao Yue, Long Chen, Qian Wang†
IEEE Transactions on Vehicular Technology

Selected Research Experience

- Jun. 2023 – **Visual Computing and Learning (VCL) Lab, Peking University**
Present Ph.D Student, Research Assistant
Advisors: Prof. Baoquan Chen, Prof. Wenzheng Chen, Prof. Mengyu Chu
Research: Building world simulators with 3D/4D reconstruction, physics, and generative models, including **4DRotorGS** [SIGGRAPH'24] for dynamic novel view synthesis, and **RainyGS** [CVPR'25] for realistic dynamic rain effects in real-world scenes.
- Nov. 2022 – **Embodied AI Center, Beijing Academy of Artificial Intelligence**
Jun. 2023 Research Intern
Advisor: Prof. He Wang
Research: Worked on Neural Radiance Fields for robotics, developing **GraspNeRF** [ICRA'23] for material-agnostic grasp detection in 90ms from sparse multi-view images.
- Mar. 2021 – **Embodied Perception and Interaction (EPIC) Lab, Peking University**
Jun. 2023 Research Assistant
Advisor: Prof. He Wang
Research: Proposed **DREDS** [ECCV'22], demonstrating that active stereo depth sensor simulation and domain randomization significantly reduce the sim-to-real gap in depth restoration, perception, and grasping of specular and transparent objects.

Services

- Conference Reviewer CVPR, ECCV, ICCV, AAAI, ICRA, IROS

Journal SIGGRAPH, IEEE Robotics and Automation Letters
Reviewer

Invited Talks

- Jan. 2025 **Enhancing Gaussian Splatting with Dynamics**
Tsinghua AGI Seminar
- Dec. 2024 **Physics-based Open-World Rain Synthesis**
Huawei Cloud
- Aug. 2022 **Depth Simulation and Restoration for Specular and Transparent Objects**
ECCV Pre-Workshop, China Society of Image and Graphics (CSIG)

Awards and Honors

- 2022 **Outstanding Master's Thesis**, Peking University
- 2021 **Social Work Award**, Peking University
- 2020 **Merit Student Award**, Peking University
- 2019 **Excellent Graduate Award**, Wuhan University
- 2018 **The Beijing CM Scholarship**, Wuhan University
- 2017 **The Goaland Scholarship**, Wuhan University
- 2017 **Merit Student Award**, Wuhan University
- 2016 **The Cnhili Scholarship**, Wuhan University
- 2016 **The Relations Instruments Scholarship**, Wuhan University
- 2016, 2018 **Excellent Student Award**, Wuhan University
- 2016 – 2018 **Excellent Student Scholarship**, Wuhan University