Hongru Yan

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EDUCATION BACKGROUND

Tsinghua University (Bachelor) **Beijing, China** **09/2021-06/2025**

Major: Mathematics and Physics + Measurement Control Technology and Instruments

Overall GPA: 3.94/4.0

Rank: 4 in the major

RELEVANT COURSES

Programming Fundamentals (A 4.0), Fundamentals of Physics (1) (A+ 4.0), Mathematical Physics Equations (A+ 4.0), Data Structures and Algorithms (A+ 4.0), Design and Practice of Circuit System (A+ 4.0), Probability Theory (A 4.0).

PUBLICATIONS

1. Yu Zheng, Yueqi Duan, **Hongru Yan**, Jiaxin Li, Jiwen Lu. BenightNeRF: Learning Neural Radiance Fields via Medium Homogenization, IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2024). (Under Review)
2. Yu Zheng, Yueqi Duan, Kangfu Zheng, **Hongru Yan**, Jiwen Lu. OPONeRF: One-Point-One NeRF for Robust Neural Rendering. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI). (Under Review)

RESEARCH EXPERIENCES

●**Neural Rendering based on One-Point-One NeRF (OPONeRF), Tsinghua University** **09-11/2023**

Advisor: Professor Yueqi Duan, Department of Electronic Engineering at Tsinghua University

Position: Group major member

Responsibilities / Activities:

- Proposed OPONeRF to address the limitations of Neural Radiance Fields (NeRF) in handling scene changes.
- Introduced a point-to-point NeRF approach for improved stability and rendering accuracy in dynamic scenes.
- Developed a variational inference method to overcome computational and spatial resource challenges.
- Conducted independent experiments, including perturbation tests, cross-scene rendering, and validation on simulated datasets.

●**BenightNeRF-Learning Neural Radiance Fields via Medium Homogenization, Tsinghua University** **05-09/2023**

Advisor: Professor Yueqi Duan, Department of Electronic Engineering at Tsinghua University

Position: Group major member

Responsibilities / Activities:

- Proposed a method for medium homogenization in neural rendering through pre-training and fine-tuning.
- Contributed to the idea, illustrations, code development, and experiment validation.
- Experimentally validated the effectiveness of the proposed method in downstream tasks like segmentation, detection, and rendering.

●**Construction of Multimodal System and Annotation of Multimodal Dataset, Tsinghua University** **04/2023-present**

Advisor: Department of Precision Instruments at Tsinghua University

Position: Group major member

Responsibilities / Activities:

- Constructed a multimodal system combining Dynamic Vision Sensor (DVS) and RGB camera to capture events triggered by object motion.
- Simultaneous annotation of datasets containing event and color images from different cameras.

- Played a crucial role in scene capture, algorithm optimization, and dataset annotation.
- Significant workload in manual dataset annotation.
- Research results intended for submission to TIP journal.

EXTRACURRICULAR ACTIVITIES

Head of Technological Innovation Department of Weixian College at Tsinghua University	09/2023-present
Class League Secretary	09/2023- present
Student Union Officer at Tsinghua University	09/2021-08/2023
Officer of the science and technology association of the Department of Precision Instrument at THU	09/2021-08/2023

HONORS & AWARDS

Third Prize in Electronic Design Competition at Tsinghua University	04/2023
First Prize in National College Student Mathematics Competition, China	12/2022
Second Prize in the National College Student Physics Experiment Competition, China	10/2022
Third Prize in the Mechanical and Electrical Design Competition of the Department of Precision Instrument at THU	12/2021

SKILLS & QUALIFICATIONS

Language: Fluent English Speaker (TOELF 105, GRE 323)

Skills: Proficient in Origin, MATLAB, Python, Pytorch, C Language