Jianteng Chen

Personal Data

Name:	Jianteng Chen (陈建腾)
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Research Experience

since 04/2023	Research intern at Institute for AI Industry Research (AIR), Tsinghua University, Prof. Hao Zhao, Tsinghua University

Scientific Education

09/2021–06/2025	Bachelor of Science, in Cyberspace of Science and Technology. Beijing Institute of Technology (BIT), China GPA: 3.37 (82.33/100)

Selected Publications

Conference

[1] Z. Wu, T. Liu, L. Luo, Z. Zhong, J. Chen, *et al.*, "MARS: An Instance-aware, Modular and Realistic Simulator for Autonomous Driving," *CAAI International Conference on Artificial Intelligence (CICAI)*, Jul. 2023, Best Paper Runner-up Award. arXiv: 2307.15058 [cs].

In Proceedings

[2] J. Chen, Y. Huang, S. Xie, J. Liu, J. Zhao, *et al.*, "Bouncing into chaos: 4d global reflectance modelling for decomposed driving scenes," in *ECCV*, 2024.

[3] J. Liu, W. Hu, Z. Yang, J. Chen, G. Wang, *et al.*, "Rip-nerf: Anti-aliasing radiance fields with ripmap-encoded platonic solids," in *ACM Transactions on Graphics*, 2024.

Projects

1 NeRF-based Simulator for Complex Dynamic Outdoor Driving Scene

- Proposed a state-of-the-art solution for reconstructing complex dynamic outdoor driving scenes using compositional neural radiance fields.
- The **first** open-source NeRF-based Simulator for Outdoor Driving Scene.

- Implemented an agile code framework that built upon NeRFStudio as tech leader.
- Project Repository: https://github.com/open-air-sun/mars. The repository is under long-term maintenance and has currently gained 614 stars.
- Published a conference paper in CICAI 2023, we delivered an oral presentation and got the Best Paper Runner-up Award.
- Follow-up work includes using instance modules to represent the foreground objects for possible optimization for bounding boxes, supporting other datasets, etc.

2 Anti-aliasing NeRF with ripmap-encoded platonic solids

- Propose a novel 3D space factorization method, Platonic Solid Projection to represent 3D scene via the unparalleled faces of a Platonic Solid.
- Represent the faces of platonic solid by Ripmap Encoding to enable anisotropic area-sampling.
- Achieve higher PSNR than Zip-NeRF while maintaining efficient reconstruction on both the Blender and real-world captured dataset. Also enables a flexible trade-off between rendering quality and efficiency.

3 Decoupling Reflectance Modeling in Dynamic Scenes with Neural Radiance Fields

- Introduces a novel method for modeling reflectance in dynamic decomposed scenes using a second pass model.
- Significantly improves the reconstruction of mirror surfaces and handles reflected light rays, leading to clear performance advantages over existing methods.
- Achieves around a 3dB PSNR improvement over the baseline method MARS and demonstrates successful reflectance modeling in dynamic decomposed radiance fields.

4 Three Dimensional Lidar Scene Simulator

- Develop a Lidar-based autonomous driving scene simulator utilizing digital delay devices and an array of laser light sources to generate laser delay signals, combined with a Spatial Light Modulator (SLM) for precise control of both temporal and spatial information.
- Use SLM to allocate laser signals to different time zones, create temporal information, and control the spatial position and intensity of the laser.

5 Mininal Version of Tiktok

- Based on Gin and Gorm, using MySQL to realize the database
- Using OSS for video storage and cover extraction
- Realized the basic API and interactive API(such as video streaming API, login API, comment API, etc)

- Project Repository: https://github.com/JiantengChen/minimal_version_tiktok

6 A automatic pathfinding snake game based on pygame and BFS

- Using optimized Greedy Algorithms to achieve automatic pathfinding
- Search the shortest road with BFS
- Project Repository: https://github.com/JiantengChen/python_SnakeGame

HONORS & AWARDS

- **Second Prize** of The 10th National Undergraduate Optoelectronics Design Competition in North China 10/2022
- **Champion** of The 3rd GBA Robotics Competition and the 10th Asian-Pacific Championship trails 08/2019
- **Gold Award** of VEX Robotics World Championship 04/2016
- **First Prize** of the 15th China Youth Robotics Competition 07/2015
- **Gold Award** in Asia Pacific Robotics Championship 12/2014
- **First Prize** of the Asia Pacific Robotics Championship China Regional Qualifiers 08/2014

EXTRACURRICULAR ACTIVITIES

- MANAGER, School Coffee House 03/2022-now
- TEAM MENBER, Basketball Team

SKILLS & INTERESTS

LANGUAGES:	Chinese (native), English (fluent)
PROGRAMMING LANGUAGES:	Python, Go, C/C++, Javascript
OPERATING SYSTEMS:	Linux, Windows
MACHINE LEARNING TOOLCHAIN:	Markdown, LaTeX, NeRFStudio, PyTorch
HOBBIES:	Coffee, Basketball