Yuantao Chen

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EDUCATION

The Chinese University of Hong Kong, Shenzhen(CUHK(SZ)) **Sep 2024-Jul 2026**
Degree: Master of Philosophy(Exp. Jul 2026), Major: Computer Science and Technology
Xi'an University of Architecture and Technology (XAUAT) **Sep 2020-Jul 2024**
Degree: Bachelor of Science (Exp. Jul 2024), Major: Computer Science and Technology, GPA: 87.3/100

PUBLICATIONS

Zirui Wu*, **Yuantao Chen***, Runyi Yang, Zhenxin Zhu, Chao Hou, Yongliang Shi†, Hao Zhao, Guyue Zhou. AsyncNeRF: Learning Large-scale Radiance Fields from Asynchronous RGB-D Sequences with Time-Pose Function. (https://arxiv.org/abs/2211.07459. Nov 2022).

Zhenxin Zhu*, **Yuantao Chen***, Zirui Wu, Chao Hou, Yongliang Shi†, Chuxuan Li, Pengfei Li, Hao Zhao, Guyue Zhou. LATITUDE: Robotic Global Localization with Truncated Dynamic Low-pass Filter in City-scale NeRF. International Conference on Robotics and Automation 2023 (https://arxiv.org/abs/2209.08498).

Yuantao Chen, Zhuo Yang, Ming Gao, Songen gu, Nana Wang, Liyi Luo, Hao Zhao†. Dagger: Densely Anchored Gaussian Fields for Geometry-informed Neural Digital Cities.

Zirui Wu, Tianyu Liu, Liyi Luo, Zhide Zhong, Jianteng Chen, Hongmin Xiao, Chao Hou, Haozhe Lou, **Yuantao Chen**, Runyi Yang, Yuxin Huang, Xiaoyu Ye, Zike Yan, Yongliang Shi, Yiyi Liao, Hao Zhao†. MARS: An Instance-aware, Modular and Realistic Simulator for Autonomous Driving. CICAI 2023 Oral.

Chongjie Ye, Yinyu Nie, Jiahao Chang, **Yuantao Chen**, Yihao Zhi, Xiaoguang Han†. Gaustudio: A modular framework for 3d gaussian splatting and beyond. (https://arxiv.org/abs/2403.19632)

**Equal contribution, †Corresponding author*

RESEARCH EXPERIENCE

GAP Lab, The Chinese University of Hong Kong, Shenzhen **Shenzhen, China**
MPhil Student, Advised by Prof. Xiaoguang Han *Jul 2024-Present*
Research Intern, lightwheel AI, Advised by Prof. Hao Zhao *Jul 2024-Present*

- **Generative large reconstruction model**
  - Design algorithms based on Dust3R for generalizable object and scene reconstruction from RGB inputs.
- **Optimizing Bilateral Grid for autonomous driving scenes**
  - Design algorithms based on bilateral grid for better appearance and geometry modeling for autonomous driving scenes.

DISCOVER Lab, Institute for AI Industry Research, Tsinghua University **Beijing, China**
Research Intern, Advised by Prof. Hao Zhao *Aug 2022-Jul 2024*

- **Large scale Gaussian Splatting for urban scene reconstruction**
  - Made two real-world and one synthesis dataset for urban scenes.
  - Optimized Gaussian Splatting with dense initialization from MVS and anchoring technology for large-scale scene reconstruction.
  - Finished the paper, Dagger: Densely Anchored Gaussian Fields for Geometry-informed Neural Digital Cities as the first author.

- **Learning Large-scale Neural Implicit Fields from asynchronous RGB-D Sequence**
  - Made an Asynchronous Urban Scene dataset composed of 18 trajectories on 6 realistic scenes using AirSim and Unreal Engine4.
  - Engaged in the system design, helped tackle several technical problems in pose optimization, and finished the main experiments of the time-pose function.
  - As the co-first author, helped finish the paper writing and submit it to a CVPR 2023.
- **Neural Implicit City-scale Scene Mapping and Localization**
  - Proposed the initial idea of pose-regressor using Mega-NeRF and implemented it, which is the first part of the two-stage location mechanism.
  - Made a virtual-scene dataset on 2 realistic scenes using AirSim and Unreal Engine4.
  - As the co-first author, completed a conference paper accepted by ICRA 2023.

DISCOVER Lab, Institute for AI Industry Research, Tsinghua University **Beijing, China**
Summer program, Advised by Prof. Yongliang Shi *May 2022-Aug 2022*

- **Multi-scene Camera Re-localization**
  - Implemented a simple bundle adjustment system with C++ to optimize the output of the pose-regressor at runtime.
  - Engaged in the design of camera re-localization regressor with transformer.

HONORS & AWARDS

- 2022 **National** Scholarship — Dec 2022
- **Second Prize** in the final of the 2022 China Undergraduate Computer Design Competition — Jul 2022
- **Second Prize** in the RoboMaster University Sim2Real Challenge at ICRA 2022 — May 2022
- **Second Prize** in National Undergraduate Mathematical Contest in Modeling(Shan'xi site) — Dec 2021
- **First Prize** in "SIEMENS Cup" China intelligent manufacturing challenge (Northwest Regional) — Jul 2021

SERVICES & STUDENT ORGANIZATIONS

- GAMES Webinar online operation — Jun 2024-Present
- Chief leader of the innovative and entrepreneurial department in the students' union — Sep 2021-Sep 2022

SKILLS & LANGUAGE

Programming language: C/C++, Python, Java, MATLAB, Web (C#+JavaScript+html5)
Languages: Chinese (native), English (fluent)
Operating system: Linux, Windows
Software: PyTorch, Unreal Engine 4/5, ROS, Isaac-sim, Matlab
Hobbies: basketball, cycling