

Yuantao Chen

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EDUCATION

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: 3.8/4.0

Awards: 2022 National Scholarship (Top 0.2% national-wide), The First Prize Scholarship $\times 2$

Relevant Coursework: Advanced Mathematics (92), Programming Fundamentals (99), Algorithm design and analysis (95), Software Development with C++ (94), Concurrent Programming(92).

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>).

**Equal contribution, †Corresponding author*

RESEARCH EXPERIENCE

DISCOVER Lab, Institute for AI Industry Research, Tsinghua University

Beijing, China

Research Intern, Advised by Prof. Guyue Zhou

Aug 2022-Present

➤ 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 Enigen4.
- 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 top-tier academic conference.

➤ 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 Enigen4.
- 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. Guyue Zhou

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.

Xi'an University of Architecture and Technology

Xi'an, China

Programs of School of information and control engineering

Jan 2021-Apr 2022

➤ SLAM and robot vision system design based on Stanford Pupper V1

- Designed and implemented a SLAM system based on ROS and cartographer with a 2D Lidar on Stanford Pupper V1 (a small robot dog with Raspberry Pi4 computing board).
- Implemented a lot of computer vision algorithms including gesture interaction, fire monitoring, face-

mask detection, and helmet detection with YOLOV5 and MediaPipe.

- Helped design a PCB board for Raspberry Pi4 computing board to carry the high current of the steering gear.
- Project repository: https://github.com/Tao-11-chen/pupper_ros.git

➤ **Development of Fluid Mechanics Teaching Website**

- Developed the first real-time Computational Fluid Dynamics (CFD) simulation website using the lattice Boltzmann method (LBM) algorithm and ASP.NET framework.
- Involved in the design of a high-speed parallel computing system of CFD simulation.
- The site has been available now and is already used for teaching on my campus.

➤ **Non-destructive BCI System for music therapy based on Machine Learning**

- Preprocessed the EEG data and used LSTM to analyze the user's emotions.
- Designed a music generation network based on the output of LSTM to create music according to the user's emotions.
- Won many business competition awards at school and produced a utility model patent.

HONORS & AWARDS

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| ➤ 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 |
| ➤ Second Prize in 2021 National English Competition for college students | May 2021 |
| ➤ Second Prize in 2021 China Undergraduate Computer Design Competition(Northwest Regional) | May 2021 |

ACTIVITIES & STUDENT ORGANIZATIONS

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| ➤ 18-day volunteering in the battle of epidemic prevention and control | Feb 2021 |
| ➤ The chief leader of the innovative and entrepreneurial department in the students' union | Sep 2021-Sep 2022 |
| ➤ Delivered more than 10 speeches about AI, research methods, and study methods on campus | Jan 2021-Present |

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, ROS1, Isaac-sim, MeshLab

Hobbies: basketball, table tennis