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, The First Prize Scholarship × 2

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

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. (under double-blind peer-review, 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 (Accepted by ICRA 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 Standford Pupper V1**
- Designed and implemented a SLAM system based on ROS and cartographer with a 2D Lidar on Standford 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 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

➢ **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

➢ 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, MeshLab, Multisim
Hobbies: basketball, table tennis