Yu Zhao

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Education

University of Science and Technology of China(USTC)

Heifei, China

Master of Computer Science and Technology

Sep. 2021 - Present

- Advised by Prof. Mingjun Xiao
- GPA: 3.81(Ranking Top 10%, 11/116)
- Relevant Course:
  Combinatorial Mathematics(95), Applied Mathematics for Computer Science(93), Advanced Computer Netwroks(95), Edge and Cloud Computing(91)

Chongqing University(CQU)

Chongqing, China

Bachelor of Finance

Sep. 2017 - Jun. 2021

- GPA: 3.59(Ranking Top 20%)
- Relevant Course:
  Advanced Mathematics(90), Linear Algebra(91), Probability Theory and Mathematical Statistics(92), Java & Mobile App Development(91), Database Principles & Applications(92)

Research Experience

Edge-assisted Multi-vehicle Cooperative Perception: An Approach Based on Relative Pose Estimation

USTC

IEEE Transactions on Mobile Computing (TMC), under review;

2023

- Proposed a novel approach to estimate relative poses without any pre-constructed 3D maps or roadside infrastructures.
- Adopted a hierarchical registration module to speed up 6 DOF pose estimation.
- Designed a regions of interest prediction module based on Dlinear to reduce the computation latency.
- Evaluated this system on a CARLA-based dataset and demonstrated that it can perform multi-vehicle cooperative perception in real-time and maintain centimetre-level accuracy in pose estimation.

Accelerate Point Cloud Registration for Connected Vehicles with Density-Consistent Partition (Renamed for fairness)

USTC

IEEE International Conference on Distributed Computing Systems (ICDCS 2024), under review;

2023

- Developed an innovative initial positioning based on point cloud distributions and a density-consistent partition strategy to ascertain valid points within possible overlapping regions.
- Integrated virtual geometric features into these point clouds enhancing correspondences between the two point clouds to ensure the accuracy of registration.
- Implemented the system on four state-of-the-art point cloud registration methods and compared their performance with the raw methods without incorporating the system.

Cooperative Traffic Signal Online Control Using Game Theory and Contextual Bandit

USTC

IEEE Transactions on Services Computing (TSC), under review;

2023

- Introduced a fairness consideration into the traffic signal control problem, ensuring a more equitable distribution of waiting times for vehicles across all lanes.
- Proposed the Game-FLinUCB algorithm that combines LinUCB with game theory techniques to enable cooperation between intersections with limited communication between neighboring intersections.
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Video Streaming Caching and Transcoding for Heterogeneous Mobile Users

USTC

IEEE Conference on Parallel and Distributed Systems (ICPADS 2023);

2023

- Investigated how to cache and transcode video chunks for mobile users to maximize their QoE, while taking the cooperation between edge servers, users' mobility, and heterogeneous preferences into consideration.
- Employed a Multi-Agent Reinforcement Learning (MARL) framework and proposed a MARL- based Cache replacement and Transcoding (MACT) mechanism.

Competition Experience

Huawei Code Craft Contest 2023: Second Prize *Shanghai, China*

Group Leader *2023*

- The contest required a program to allocate robots' tasks in real-time with limited computing resources, while the robots' movements are also managed.

CCF Computational Economics Competition 2023: Ranked Fifth *China*

Track Two *2023*

- This competition involves training agents to determine the behaviour of individuals to increase rewards, while government's decisions need to be taken into account.

Huawei Code Craft Contest 2024: already in the rematch *Shanghai, China*

Group Leader *2024*

- This competition requires solving the navigation problem of multiple robots in real time.

Skills

Programming Python, C/C++, JAVA
Frameworks Pytorch, Open3D, ORBSLAM, LOAM, Carla
Languages Chinese, English(IELTS:6.5), GRE(313+3.0)
Sensors RGB Camera, Stereo Camera(ZED2), LiDAR, IMU

Honors & Awards

Mar.2024	Outstanding Graduates in USTC	*Hefei, China*
Oct.2023	Postgraduate Academic Scholarship in USTC: First Prize	*Hefei, China*
Oct.2022	Postgraduate Academic Scholarship in USTC: First Prize	*Hefei, China*
Oct.2021	Postgraduate Academic Scholarship in USTC: Second Prize	*Hefei, China*
2018,2019	Comprehensive Scholarship in CQU, Twice	*Chongqing, China*
2017	Outstanding Students in Shandong Province	*ShanDong, China*