Qianpu Sun

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Education

Tsinghua University |Computer Technology| M.Eng. Candidate Sep. 2023 —Present

GPA: 3.64/4.0. Focused on autonomous driving perception, especially BEV and OCC perception. Solid research and engineering background in autonomous driving algorithms with strong interest in this field. Aspired to contribute to academia or industry and explore research in end-to-end autonomous driving or embodied intelligence.

Tianjin University of Science and Technology |Computer Science | B.Eng. Sep. 2018 —Jun. 2022

Thesis: A Campus Second-hand Trading Mini Program on WeChat

Technical Skills

- **Languages:** Proficient in Python and C++, familiar with C; JavaScript, Java, WeChat Mini Program, Vue.
- **Workflow:** Skilled in Linux, Shell, Vim, Git, GitHub; familiar with ROS.
- **Others:** Proficient in PyTorch, OpenMMLab framework; familiar with CUDA programming; hands-on experience with 3D Gaussian Splatting, NeRF, VSLAM, and large model quantization (e.g., GPTQ, SmoothQuant, SpinQuant, AWQ). Currently studying reinforcement learning.
- **English:** Passed CET-4 and CET-6.

Internship Experience

Institute for AI Industry Research, Tsinghua (AIR) —DiDi |*Algorithm Intern* Mar. 2023 —Sep. 2023

- Participated in research: implemented loss functions, designed paper figures, and supported algorithm development. Developed and optimized in-house algorithms on Didi's internal dataset.

Houmo.AI |*Algorithm Intern* Jun. 2024 —Dec. 2024

- Conducted research on OCC perception for autonomous driving and participated in LLM quantization.

Deeproute.AI |*Algorithm Intern* Dec. 2024 —Apr. 2025

- Developed end-to-end algorithms for traffic light scenes in autonomous driving.

Publications

GSRender: Deduplicated Occupancy Prediction via Weakly Supervised 3D Gaussian Splatting |*Under Review at ICCV 2025, First Author*

- Tackled two challenges in weakly supervised 3D occupancy grid prediction: **(1) Sampling Dependency:** Reduced performance reliance on sampling quantity using 3D GS methods. **(2) Redundant Prediction:** Solved duplicate prediction along rays caused by 2D supervision. Improved RayIoU by 6
- Contributions: method design, code implementation, model training, paper writing, figure design, and rebuttal.

Panoptic-FlashOcc: An Efficient Baseline to Marry Semantic Occupancy with Panoptic via Instance Center |*GitHub 382 Stars, Third Author*

- Follow-up to FlashOcc. Unified semantic and panoptic occupancy tasks for improved accuracy and deployment. Built on FlashOcc, optimized with multiple loss functions, added a centerness head for panoptic occupancy prediction, achieving better performance and real-time capability than SparseOcc.
- Contributions: code development, model training, paper writing, and visualization.

LiON: Learning Point-wise Abstaining Penalty for LiDAR Outlier Detection Using Diverse Synthetic Data |*AAAI 2025, Third Author*

- Revisited outlier detection in LiDAR segmentation via selective classification. Proposed a new loss function and added synthetic ShapeNet outlier data for performance enhancement.
- Contributions: model training, paper writing, and figure design.

Personal Statement

- Idealistic, optimistic, self-driven, and a strong team player with excellent communication skills.
- Comfortable using English for work communication; a regular reader of English books and a learner of spoken English.
- Passionate about new technologies and curious about emerging trends. Enjoy building autonomous driving systems and keeping up with advances in the tech industry.