Siqi Fan

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Education

University of Chinese Academy of Sciences (UCAS) **Beijing, China**

- Master of Science in Automation *Sep. 2019 – Jun. 2022*
- School of Artificial Intelligence

Shanghai Jiao Tong University (SJTU) **Shanghai, China**

- Bachelor of Engineering in Automation *Sep. 2015 - Jun. 2019*
- School of Electronic Information and Electrical Engineering

Selected Publications

- **S. Fan**, H. Yu, W. Yang, et al. QUEST: Query Stream for Practical Cooperative Perception, In Proceedings of the IEEE International Conference on Robotics and Automation, (**ICRA**), 2024.
- R. Hao*, **S. Fan***, Y. Dai, et al. RCooper: A Real-world Large-scale Dataset for Roadside Cooperative Perception, In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, (**CVPR**), 2024.
- **S. Fan**, Z. Wang, X. Huo, et al. Calibration-free BEV Representation for Infrastructure Perception, In Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems, (**IROS**), 2023.
- **S. Fan**, F. Zhu, Z. Feng, et al. Conservative-progressive collaborative learning for semi-supervised semantic segmentation. In IEEE Transactions on Image Processing, (**IEEE TIP**), 2022.
- **S. Fan**, Q. Dong, F. Zhu, et al. SCF-Net: Learning spatial contextual features for large-scale point cloud segmentation. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, (**CVPR**), 2021.
- **S. Fan**, F. Zhu, S. Chen, et al. FII-CenterNet: An anchor-free detector with foreground attention for traffic object detection. In IEEE Transactions on Vehicular Technology, (**IEEE TVT**), 2021.

Research Experience

Institute for AI Industry Research, Tsinghua University (AIR) **Beijing, China**

Researcher, Perceptual Intelligence & Cognitive Intelligence *Jul. 2022 – Now*

- Working on perceptual intelligence for complex intelligent systems

  [1] Calibration-free BEV representation for infrastructure perception, IROS, 2023.

  [2] QUEST: Query stream for vehicle-infrastructure cooperative perception, ICRA, 2024.

  [3] EMIFF: Enhanced multi-scale image feature fusion for vehicle-infrastructure cooperative 3D object detection, ICRA, 2024.

  [4] RCooper: A real-world large-scale dataset for roadside cooperative perception, CVPR,2024

[5] SpiderMesh: Spatial-aware demand-guided recursive meshing for RGB-T semantic segmentation, arxiv, 2023.

- Working on cognitive intelligence for intelligent agent

[1] BioMedGPT: An open multimodal large language model for biomedicine, arxiv, 2023

[2] End-to-End Autonomous Driving through V2X Cooperation, arxiv, 2024

Institute of Automation, Chinese Academy of Sciences (CASIA) **Beijing, China**

Student Researcher, Computer Vision & Intelligent Vehicles *Sep. 2019 – Jun. 2022*

- Research on environment perception for intelligent vehicles

[1] Conservative-progressive collaborative learning for semi-supervised semantic segmentation. IEEE TIP, 2022.

[2] SCF-Net: Learning spatial contextual features for large-scale point cloud segmentation. CVPR, 2021.

[3] FII-CenterNet: An anchor-free detector with foreground attention for traffic object detection. IEEE TVT, 2021.

[4] Improving Road Detection Results Based on Ensemble Learning and Key Samples Focusing, ITSC, 2020.

- Engineering projects for practical applications across mapping, localization, waypoints following, lane following, object detection, V2X.

Intel Labs China (ILC) **Beijing, China**

Autonomous System Research Intern, Intelligent Vehicles *Aug. 2020 – Dec. 2021*

- Safety research for intelligent vehicles

[1] Research on Responsibility -Sensitive Safety (RSS): systematic design and implementation for both simulation evaluation (CARLA and MATLAB) and field test

[2] Participated in drafting the China ITS Industry Alliance Group Standard: "Technical Requirement of Safety Assurance of AV Decision Making"

[3] Program is awarded **Intel's highest honor "Intel Achievement Awards"**

Intelligent Vehicle Lab, Shanghai Jiao Tong University **Shanghai, China**

Student Researcher, Computer Vision & Intelligent Vehicles *Jul. 2017 – Jun. 2019*

- Worked on object detection for intelligent vehicles

[1] LiDAR-based obstacle detection system on embedded device: lead a group for "National Innovation Program for College Students".

[2] 3D object detection via multi-modal fusion

Honors and Awards

- National Scholarship, 2021
- CASIA 'Pan Deng' First-class Scholarship, 2022
- Shanghai Jiao Tong University Excellent Scholarship, 2018
- China Industrial Intelligence Challenge, Outstanding Award (State Level), 2018

Academic Services

- **Program committee of**

[1] 1st Workshop on Cooperative Intelligence for Embodied AI, ECCV, 2024.

- **Journal reviewer of**

[1] IEEE Transactions on Image Processing **(IEEE TIP)**

[2] IEEE Transactions on Circuits and Systems for Video Technology (**IEEE TCSVT**)

[3] IEEE Transactions on Vehicular Technology (**IEEE TVT**)

[4] IEEE Transactions on Intelligent Vehicles (**IEEE TIV**)

[5] Pattern Recognition (**PR**)

[6] IET Computer Vision (**IET CV**)

[7] IET Cyber-Systems and Robotics (**IET CSR**)

[8] IEEE Intelligent Transportation Systems Magazine (**IEEE ITSM**)

- **Conference reviewer of**

[1] IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR 2024**)

[2] European Conference on Computer Vision (**ECCV 2024**)

[3] IEEE International Conference on Robotics and Automation (**ICRA 2024**)

[4] IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS 2024**)

[5] IEEE International Conference on Intelligent Transportation Systems (**ITSC 2022**)

- **Invited talks and presentations**

[1] Traffic scenes understanding and simulation testing, Invited talk at IEEE International Conference on Intelligent Transportation Systems 2022 workshop, September 2022, Online.