Siqi Fan

Institute for AI Industry Research (AIR), Tsinghua University

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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**, 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, AI for Transportation & AI for Life Science   *Jul. 2022 – Now*
○ Working on scene understanding and cooperative perception 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] SpiderMesh: Spatial-aware demand-guided recursive meshing for RGB-T semantic segmentation, arxiv, 2023.
○ Working on pretrained foundation models for biomedical generative tasks
   [1] BioMedGPT: Open multimodal generative pre-trained transformer for biomedicine, arxiv.

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: LiDAR-based mapping and localization, Multi-sensor-based waypoints following, Camera-based lane following, Multi-modal-based object detection, V2X.

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

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

○ Safety research for intelligent vehicles
  ◆ Research on Responsibility -Sensitive Safety (RSS)
     Realized the software systems for both simulation evaluation (CARLA and MATLAB) and field test, Cross-team cooperation and academic communication
  ◆ Participated in drafting the China ITS Industry Alliance Group Standard
     "Technical Requirement of Safety Assurance of AV Decision Making"
  ◆ The participated program was 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
  ◆ LiDAR-based obstacle detection system on embedded device
     Initiated and led the "National Innovation Program for College Students".
  ◆ 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

○ **Invited talks and presentations**
  ◆ Traffic scenes understanding and simulation testing, Invited talk at IEEE International Conference on Intelligent Transportation Systems 2022 workshop, September 2022, Online.
○ **Reviewer of**
  IEEE Transactions on Image Processing (**IEEE TIP**), IEEE Transactions on Circuits and Systems for Video Technology (**IEEE TCSVT**), IEEE Transactions on Vehicular Technology (**IEEE TVT**), IEEE Transactions on Intelligent Vehicles (**IEEE TIV**), Pattern Recognition (**PR**),
  IET Computer Vision (**IET CV**), IET Cyber-Systems and Robotics (**IET CSR**),
  IEEE Intelligent Transportation Systems Magazine (**IEEE ITSM**),
  IEEE International Conference on Intelligent Transportation Systems (**IEEE ITSC2022**)
  IEEE International Conference on Robotics and Automation **(ICRA2024)**
  IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR2024)**