



ICIRA 2024 Special Session Proposal

Title of the Proposal: Robust Perception for Safe Driving

Technical Outline of the Session and Topics:

Outline of the Session: Autonomous driving systems (ADS) have attracted extensive attention in the academic and industrial fields. The fast development of ADS drives this field to change the configurations of financial and labor investment. The advanced companies of Waymo, Huawei, Baidu, Tesla, Xiaomi, etc., all devote vast investments to developing the ADS and some successful applications have been achieved. In the context of this progress, the robust perception of ADS under the severe, biased, rare observations is still with large space for safe driving. The encountered traffic accidents exhibit worldwide influence from the researchers to the whole of society, and many accidents are caused by the perception bias of ADS. To facilitate the robust perception of safe driving, we are preparing this special session in ICIRA, and call for edge-cutting works to be shared in this session. Hope this session will successfully demonstrate a positive role for this field.

Topics of the Session:

- *Traffic participant behavior understanding.*
- *Traffic participant detection, tracking, and segmentation.*
- *Trajectory prediction under biased observation.*
- *Dataset bias estimation in ADS perception.*
- *Attack and defense for ADS perception.*
- *Risk object identification in ADS.*
- *Observation and model Uncertainty estimation in ADS perception.*
- *V2X and V2V perception in dynamic driving scenes.*
- *Traffic accident scenario understanding.*
- *End-to-end perception-planning models in ADS.*
- *Collision avoidance in ADS.*
- *Human-vehicle collaboration for safe driving.*
- *Geography-Vehicle collaboration for safe driving.*

Contact details of the Session Organizers

- *Organizer 1: Jianwu Fang, Xi'an Jiaotong University, Xi'an, China, fangjianwu@mail.xjtu.edu.cn.*

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- Organizer 2: Hongkai Yu, Cleveland State University, Cleveland, USA, h.yu19@csuohio.edu.
- Organizer 3: Jingliang Duan, University of Science and Technology Beijing, Beijing, China, duanjl@ustb.edu.cn.
- Organizer 4: Yachao Zhang, Tsinghua University, Shenzhen, China, yachaozhang@sz.tsinghua.edu.cn.