

Call for Papers

Feature Topic on Robust and Certifiable Perception System for Intelligent Vehicles

The perception system is one of the most important parts of intelligent vehicles and has developed rapidly in recent years. Accuracy, efficiency, and robustness of perception algorithms like object detection and scene parsing have been greatly improved.

However, developing a robust and certifiable perception system is still challenging. Most perception systems can only work in relatively simple traffic scenarios, such as highways or closed environments, and would possibly fail in extreme conditions with the presence of extreme amounts of outliers due to false detection or sensor malfunction. Hence, the correctness and stability of the perception system in changeable and unseen environment is still not well-solved. Besides, most of the perception systems are evaluated offline on the given dataset; however, they lack verification in actual scenarios in real time, which significantly limits the reliability of the perception system. The certifiable perception system is emerging, which can provide formal performance guarantees and real-time assessment of the correctness.

In this Special Section, we hope to bring together experts from the intelligent vehicle community to discuss the progress of the latest works in this feature topic on Robust and Certifiable Perception System for Intelligent Vehicle and to give readers a clear picture of the advances that are to come. Welcome topics include, but are not strictly limited to, the following:

- Probabilistic Object Detection in Autonomous Driving
- Deep Multi-modal Object Detection for Autonomous Driving
- Robust Real-Time 3D Object Detection
- Trustworthy Autonomous Driving
- Unconventional Sensing for Autonomous Driving
- Interactive Driving Perception
- Validation and Testing of Perception System for Autonomous Driving
- Situation Assessment for Autonomous Driving
- Provably Safe Perception System for Automated Vehicle

Important Dates

2021.06.01: Deadline for Initial Paper Submission

2021.08.01: Notification of First Round Decision

2021.09.01: Deadline for Revised Paper Submission

2021.10.15: Final Decision Due

2021.11.15: Final Manuscript Due

Guest Editors

Prof. Guang Chen, ¹Tongji University, China; ²Technische Universität München, Germany;

Prof. Alois Knoll, Technische Universität München, Germany;

Prof. Zhihua Zhong, ¹Tongji University, China; ²Chinese Academy of Engineering, China.



Submission Guidelines

The paper submission & review process will be handled through Automotive Innovation

1. Please submit online via www.springer.com/42154, be sure to select Topical Collection: **Robust and Certifiable Perception System**
2. Papers should be submitted in two separate .doc files: 1) Blinded Manuscript (paper title, abstract, keywords, and full text); 2) Title Page (paper title, author affiliation, acknowledgment, and any other information related to the authors' identification).
3. All manuscripts will be peer-reviewed and evaluated based on quality, originality, novelty, and relevance to the topics.
4. If any problems, please feel free to contact the journal editorial office via email: jai-editor@sae-china.org .

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The journal provides a forum for the research of principles, methodologies, designs, theoretical background, and cutting-edge technologies in connection with the development of vehicles and mobility. The main topics cover energy-saving, electrification, intelligent and connected, safety, lightweight, and emerging vehicle technologies.

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