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iLoc—High-integrity Localization for Automated Vehicles

CALL FOR WORKSHOP PAPERS & POSTERS

May 15, 2023	Jun. 30	Jul. 31	Sep. 24, 2023
Submission Deadline	Decision Notification	Final paper submission	Workshop Session

Workshop Code: u41sy

If you have any questions, please send an email to: philippe.xu@hds.utc.fr

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Scope

This workshop aims to address the localization integrity requirements of automated vehicles. The concept of integrity is defined as “a measure of trust which can be placed in the correctness of the information supplied by the total system”. In particular, it is a critical performance indicator for the navigation of highly automated vehicles (e.g., SAE L3 and above). To guarantee the safe driving of an AV in varying environments, measures of the localization information gathered from different sensors, such as LiDAR, IMU and GNSS, are required. Continuously and reliably estimating a vehicle’s position in varying driving environments is essential for autonomous driving and safe operation. However, dynamic and complex traffic environments make high-integrity localization very challenging in the vehicular domain. In our 2nd ***iLoc*** workshop, we want to emphasize the importance of integrity in ITS and address the scientific challenges in managing localization integrity for vehicle navigation in complex traffic environments, including its use as part of perception tasks.

Topics of Interest

At this workshop, the research topics of interests include but are not limited to:

- What are the leading factors for high-integrity localization for AVs?
- Which multi-sensor architectures and data fusion methods are best suited for autonomous driving?
- How to estimate the uncertainty and integrity risks applicable to model-based and data-driven approaches to localization?
- How can maps be used to increase localization integrity?
- How to combine a vehicle kinematic model and road geometry to improve integrity estimation?
- What are the integrity metrics needed for AVs?
- Are there any emergent standards applicable to the estimation of integrity in ITS?
- How to verify experimentally the system localization integrity when considering low risks?
- Uncertainty estimation of LiDAR point clouds registration and imagery data processing in e.g., probabilistic and deep learning-based models
- State-of-the-art deep learning multi-modal data fusion for e.g., GNSS, LiDAR point clouds, images, 3D map localization information with integrity estimation.

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Visit our homepage to know more: https://www.icsens.uni-hannover.de/en/iloc-workshop-2023