The 22nd IEEE International Conference on Intelligent Transportation Systems

October 27 - 30
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BEYOND TRADITIONAL SENSING FOR INTELLIGENT TRANSPORTATION

SPECIAL SESSION • CALL FOR PAPERS

SCOPE AND OBJECTIVE

Over the past few decades, sensors have not only become more advanced but also made impressive strides across an increasing number of sensing modalities.Despite the improved capabilities and breadth of available sensor systems, those used for intelligent transportation have remained relatively uniform across platforms; as a result, the algorithms and techniques being designed do not take full advantage of the rich information modern sensors can provide. Since all tasks - including perception, localisation, decision-making, and learning - are built on top of sensing, exploring alternative approaches to sensing is a compelling research area that can render all subsequent tasks more robust and accurate.

The objective of this special session is to explore unconventional sensing for intelligent transportation in three ways. Firstly, it will investigate sensor systems that are not typically applied to certain transportation tasks, such as radar for precise localisation, audiofor failure detection, and RF sensing for road traffic estimation. Secondly, it will explore untraditional sensor configurations and placements, such as ground-facing cameras using shadows to detect occluded moving objects. Lastly, it will look into the sensing of commonly overlooked information, such as the use of atmospheric sensors for gauging road surface traction or in-vehicle sensors for driving analysis. Via these three themes, this special session aims to stimulate discussion and research into untraditional sensing in order to improve the reliability and accuracy of transportation systems.

TOPICS OF INTEREST

Including, but are not limited to:

- Localisation and navigation using radars
- Ego-noise and soundscape modelling and interpretation
- Event-based (neuromorphic) vision for localisation and perception in challenging scenarios
- Multi-spectral imaging
- In-vehicle sensing and wearable computing for failure detection, driver and passenger behaviour modelling
- Far infrared sensing
- Texture odometry
- Novel sensor hardware and designs
- Unconventional sensor placements or multi-sensor systems
- Optimal sensor scheduling and control in complex and/or multi-agent and social environments
- Astronomical (skyward-facing), atmospheric or odor-based sensing
- IoT technology for intelligent transportation and Internet of Vehicles (IoV)
- Passive Wireless/RF sensing

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Important Dates

Paper Submission: **March 31, 2019**
Notification of Acceptance: **June 30, 2019**
Final Paper Submission: **July 15, 2019**
Conference Dates: **October 27-30, 2019**