



The 21st IEEE International Conference on Intelligent Transportation Systems

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Sponsored by the IEEE Intelligent Transportation Systems Society



BEYOND TRADITIONAL SENSING FOR INTELLIGENT TRANSPORTATION

SPECIAL SESSION • CALL FOR PAPERS

SCOPE AND OBJECTIVES

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 and audio for failure detection. 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 session aims to stimulate discussion and research into untraditional sensing in order to improve the reliability and accuracy of intelligent transportation systems.

TOPICS OF INTEREST

- Localisation and navigation using radar
- Ego-noise modelling
- Soundscape perception and interpretation
- Event-based vision
- Multi-spectral imaging (e.g. IR or polarimetric cameras)
- In-vehicle sensing
- Texture odometry
- Novel sensor hardware and designs
- Unconventional sensor placements or multi-sensor systems
- Optimal sensor scheduling
- Astronomical (skyward-facing) sensing
- Atmospheric or odor-based sensing

IMPORTANT INFORMATION

Submission Deadline: **April 15, 2018**

This special session will consist of 20-minute research presentations on accepted papers and one 40-minute keynote talk.

If you are interested in this special session, please submit a manuscript to IEEE ITSC 2018 through PaperPlaza. When submitting, you will be asked for the following items:

- Type of Submission: select "Special Session Paper" and use the special session code **SS_BEYO**
- Title of manuscript
- 200-word abstract
- PIN numbers for all authors
- Keywords: you will be prompted for 1-3 conference specific keywords during the submission process.
- Manuscript: this file should be in PDF format (version 1.4 or higher), searchable, and non-password protected. All fonts should be embedded/subsetted, and the page size should be US Letter. Final papers sent to be part of the program of the conference must be format compliant with the IEEE US Letter templates.

For the first submission, a manuscript in US Letter format can be 6-8 pages. For the final submission, a manuscript should be 6 pages, with up to 2 additional pages allowed at an additional charge.

Please additionally email the organisers if you plan to submit a paper or email the manuscript after you submit.

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Please feel free to email the organisers if you have any questions or concerns.

