



IEEE ITSC 2025

Invited Session Proposal

- Title:

Artificial Transportation Systems and Simulation

- Modality:
 - Half-day (e.g., 3 hours plus breaks)
 - Full day (e.g., 6 hours plus breaks)

Half-day

- Scope (no longer than 1 page), including the following sections:
 - Motivation and general scope
 - Relevance to the ITS community
 - Topics of interest for the invited session

The aim of the ATSS special session is to foster the discussion on issues concerning the development of Artificial Transportation Systems and Simulation as a means to devise, test and validate ITS-based technologies. With the ability to integrate different transportation models and solutions in a virtual environment, ATSS serve as an aid to support decisions made by engineers and practitioners in a controlled and safe manner. They also provide a natural ground where new approaches can be experimented while avoiding natural drawbacks of dealing directly with real critical domains, such as ITS. On the basis of theories and methodologies borrowed from a wide spectrum of disciplines, such as the Social Sciences, Cloud Computing, Artificial Intelligence and Multi-agent Systems, Digital Twins and many others, many important issues arise which challenge and motivate researchers and practitioners from multidisciplinary fields, as well as different technical and scientific communities.

We especially invite contributions on topics related to all aspects of ATSS-based modeling, analysis, control and management of transportation systems, including but are not limited to:

- Agent-based modelling and simulation;
- Real-world agent architectures;
- Hardware-, software-, and human-in-the-loop simulation;
- Agent-human interactions;
- Environment modelling and interaction protocols;
- Learning and adaptation;
- Collaboration, cooperation, competition, coalitions in traffic and transportation models;
- Social and emergent behaviour in MAS-T (multi-agent systems applied to traffic and transport);
- Multi-resolution simulation and simulator interoperability;
- Growing artificial societies in artificial transportation systems;
- Large scale simulation of agent-based traffic models;
- Data Mining and Data Analysis for Artificial Transportation Systems;
- Calibration and validation of agent-based models for traffic and transportation;
- New trends and inspirational metaphors for artificial transportation systems;
- Social transportation;
- Transportation knowledge automation.



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- Organizers (names, affiliations, emails, and short bio):

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- Intended audience and expected attendance of the invited session:

Researchers and engineers in the field of ITS

- Contact details of the main proposers (email & mobile number):

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