



The 21st IEEE International Conference on Intelligent Transportation Systems



## Special Sessions

### Aviation Systems Intelligent Computational Models

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**Session Code:** SS\_AVIA

Paper Submissions to: <http://its.papercept.net>

Paper Submission Instructions: <https://www.ieee-itsc2018.org/information-for-authors.html>

Submission Deadline: April 15, 2018

**Format:** Full day, workshop

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**Abstract:**

Air transport plays a key role when it comes to sustainable economic and social development. The aviation force in the global economic context can be confirmed by the fact that air traffic had doubled its volume every fifteen years since the mid-1970s, and this was in spite of the occurrence of periods characterized by severe recession. Aviation, in a market perspective, is characterized by significant macro-economic indicators, contributing to the integration of communities and regions through clear cycles of investment and opportunity around the globe.

The economic importance of aviation can only be compared to its complexity. Moreover airspace is a limited resource, and the systematic increase in the number of aircraft flying without proper planning, may cause safety issues, and ultimately result in economic and human lives losses. Therefore, the accomplishment



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of a safe and sustainable Aviation development clearly requires decentralized efforts of several heterogeneous and self-interested stakeholders. Consequently, any decision-making process related to the Aviation System is at least as complex as the system itself.

The Aviation System is a System of Systems (SoS) which comprises two large systems, namely: Air Navigation System (ANS) and Air Transportation System (ATSys). The first is defined by all elements and processes dedicated to the movement of the aircraft itself, that is, supporting the traffic of the aircraft in airspace, observing all operational and safety related criteria, among other regulatory requirements. The ATSys in turn embraces the elements and services that directly support the transport of passengers and cargo, disregarding all those which support the movement of aircraft. Additionally, it is worth to mention that the fast evolution of the Artificial Intelligence approaches may be extremely beneficial in terms of dealing with the several Aviation development challenges.

Within this context, the ITSC 2018 Aviation Systems Intelligent Computational Models Special Session welcomes intelligent modeling and simulation contributions aimed at the safe, secure, efficient and sustainable development of the Air Navigation and Air Transportation, as well as at the improvement of any Aviation related decision-making processes.

Special sub-topics of interest include (but not limited to):

- Cybersecurity in the Aviation Domain
- Aviation Systems Crisis Management
- Safety and Security Management Systems
- Autonomous Systems for Air Traffic Control
- Big Data in the Aviation Context
- Air Traffic Data Mining and Predictive Analytics
- Virtual, Remote, Synthetic, and Multi-Site Air Traffic Control Towers
- Game Theory in Air Navigation and Air Transportation
- Intelligent Agents for Air Traffic Flow Management
- Learning Frameworks Applied to the Aviation Domain
- Conflict Detection and Resolution
- Trajectory Prediction under Uncertainty
- Airspace Complexity, Design and Management
- Human-Machine Interaction and Integration
- UAV and Drones Traffic Management and Integration
- New Concept of Operations & Technological Requirements to UAS Traffic Management (UTM)
- Airspace and Airport Capacity, Demand, Forecasting and Delay
- Aviation Environmental Impacts Assessment and Mitigation
- Climate Change Impacts on Aviation
- Space Meteorology and Volcanic Ashes Impacts Modeling
- Spacecraft and Balloons Activities Safe Integration to the Air Traffic Management System
- System Wide Information Management in the Context of Aviation
- Airport Facilities Efficiency