

Thales Special Session at ECC 2023

Title: Air Traffic Management: Practical applications for tracking algorithms

Speaker: Hristea Emanuel, Thales Romania

Abstract:

The main objectives of Air Traffic Control (ATC) are the regulation of air traffic, preventing collisions between aircraft, obstructions on the ground and expediting and maintaining the orderly flow of traffic. A part of this complex system is managed by the ATC automation center which integrates data sent by all the implemented surveillance sensors. Processing and unifying all types of surveillance data is done by the tracking system in order to provide clear, fused information for visualization and safety nets systems. Enhanced results are obtained based on a multi-sensor tracking system which combines multiple received data pertaining to a single aircraft into a single surveillance track, utilizing the best contribution from each surveillance source and eliminating the influence of their respective drawbacks.

In this talk we shall discuss the evolution and application of tracking algorithms to the air traffic management problem. The participants will have the opportunity to step into the:

- Surveillance problem, a key pillar for efficient ATM
- Topsky ATM system, and its overall design
- How tracking algorithms are integrated in our solution and their technological evolution in time
- How Simulation and Validation tools can improve the quality of service of our solution

Speaker bio:

Emanuel Hristea received his Master's of Engineering degree in Automatic control and Signal Processing from CentraleSupélec, in 2011. His research interests include dynamic systems modelling, numerical simulation and tracking algorithms. During his career he contributed to the development of detailed dynamic simulation models for braking systems, high performance electrical motors and to the detection and tracking algorithms for autonomous driving. He joined Thales Romania in 2021, where he has the architect role in the development team of the Topsky-C ATM solution.