Workshop on Airborne Collision Avoidance and Flight Guidance

Ioana Koglbauer, Ph.D.   Boris Prehofer, DI

Brightline Avionics, Austria   Institute of Mechanics, TU Graz

This workshop addresses issues of design and evaluation of airborne collision avoidance systems for flight operations according to visual flight rules (VFR) and for commercial aviation.

In the first section we will introduce a display for traffic conflict detection and we will assist participants in using the display during simulated VFR flight. Discussions will focus on the interpretation of traffic indications, as well as the demand for different types and levels of automation in collision detection and avoidance, and route management in VFR.

In the second section, the conventional (TCAS II) and the novel airborne collision avoidance system (XCAS) will be presented with respect to traffic conflict resolution maneuver geometry and flight guidance in commercial operations.

Participants will have the opportunity to conduct simulator flights with specific traffic scenarios to be resolved as well as to analyze thereby recorded flight data. Additionally, different display indications as well as different levels of automation implemented in commercial aircraft collision avoidance systems will be explained.

Benefits, limitations and areas of optimization of different human machine interfaces for airborne collision avoidance will be discussed. Preliminary results of experimental evaluations with VFR and commercial pilots will be briefly presented. Finally, ideas for future research and development shall be derived in merging group discussion.

The workshop will be hold in the research simulator at Graz University of Technology (http://flightsimulation.tugraz.at).