

Offer: Postdoc Position.

Title: Fault tolerant multi-sensor data fusion for autonomous navigation in civil aviation operations.

Description: In civil aviation operations the vector is pointed toward more autonomy and intelligence in the cockpit: The first step would be to take one pilot out of the cockpit (Single Pilot Operations, 2030+) and the following move would be to take humans completely out of the cockpit (pilotless operations, 2050+). Autonomous navigation is one of the required technological advances identified by the aeronautics sector to achieve the above long term, multiples and challenging goals toward more autonomous aircraft. Aircraft navigation systems are a flight-critical system and must be designed to meet the required navigation performance requirements in terms of accuracy, integrity, continuity and availability. This postdoc position will address centralized, decentralized and distributed architectures for fault tolerant multi-sensor data-fusion during the landing approach of an aircraft. The asynchronous data for navigation may come from various systems with different precision and validity domains. Among them: INS (Inertial Navigation System), GPS (Global Positioning System), ILS (Instrument Landing System) or sensors providing high precision images. Based on the state-of-the-art knowledge, the objective of this work is to design an integrated system whose output would be the best information for real-time autonomous navigation during the landing approach. This project falls within the scope of the COCOTIER project (COnccept de COkpit et Technologies Intégrées en Rupture) in which IMS and Airbus are involved. IMS lab and Airbus have a long-standing collaboration in fault management for aircraft systems.

Requested skills: The candidate should have developed deep knowledge in observer design & estimation issues, sensor FDI and fault tolerant data fusion. In addition, good knowledge in interval analysis and multi-sensor navigation systems is highly appreciated.

Place: The candidate will be embedded in the IMS lab (Automatic Control Group, ARIA team).

Duration: 12 months (possibility to be extended one year more), starting with September 2019.

Salary: Calculated according to French ANR norms (net salary of about 2100 euros per month)

For more information, please contact:

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