

RPAS and AI in Aviation

Six SESAR ER projects together to present their results

Six exploratory research projects financed by the SESAR Joint Undertaking programme come together in a joint event to present the latest developments within the SESAR JU framework in two of the most promising aviation topics: **Drones and Artificial Intelligence**.

Why these six projects in one joint event?

RPAS and AI explainability are two of the hottest themes still to be explored in aviation, according to OPTICS and OPTICS2 projects' analysis, which investigated European aviation research to assess if it is on the right track towards Flightpath 2050.

In fact, their research highlighted that **automated drones** and **UAM vehicles** would have to rely on seamless integration of automated flight controls, thus providing another level of challenge for development and operation: *"The **integration of RPAS and drones into civil airspace** needs urgent research, [...] together with the development of a new CONOPS that accommodates the rapidity and scale of developments occurring with RPAS/UAS and their impending integration into airspace"*.

Also, *"Finding the right **Human-AI partnerships** will be key to future aviation safety. The Intelligent Assistant (IA) in the cockpit and on the ground will be the crucial stepping stone toward fuller Artificial Intelligence (AI) by 2050. Research is urgently needed to determine how humans and AIs can work together productively and safely, including human supervision and recovery in case of 'aberrant behaviour' by AI systems"*.

In the European exploratory research panorama, **SESAR 2020** has financed research worth highlighting: the **INVIRCAT**, **URClearED**, **SAFELAND**, **SafeOPS**, **MAHALO**, and **ARTIMATION** research projects explored these two topics in the last two years and a half, marking great steps forward for the domain, both for drones and AI integration.

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Centro Congressi Cavour, Rome, Italy
Nov. 3, 2022 | 14:00-19:00 (CET)
Nov. 4, 2022 | 09:00-14:00 (CET)



These projects have received funding from the SESAR Joint Undertaking under the European Union's Horizon 2020 research and innovation program under the grant agreement:
INVIRCAT N° 893375, SAFEOPS N° 892919, ARTIMATION N° 699381,
URCLEARED N° 892440, MAHALO N° 892970, SAFELAND N° 890599.



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November 3 DAY 1 RPAS	
13.45-14.00	Participant registration
14.00-14.20	Welcome
14.20-14.40	RPAS integration: SESAR JU's vision towards the ATM Master Plan and SRIA <i>Nil Agacdiken, SESAR JU – Project Officer</i>
14.40-15.25	URCleared: a unified integrated Remain Well Clear concept in airspace D-G class <i>Federico Corrado, CIRA</i>
15.25-15.40	Coffee break and access to the demonstration sessions
15.40-16.25	The INVIRCAT project: IFR RPAS control in airports and TMA <i>Gunnar Schwoch, DLR</i>
16.25-17.10	SAFELAND: enhancing safety in case of single pilot incapacitation, until landing <i>Aurora De Bortoli Vizioli, Deep Blue & Teemu Joonas Lieb, DLR</i>
17.10-17.30	Closing remarks and next steps for RPAS research <i>Damiano Taurino, Deep Blue</i>
17.30-19.00	Coffee break and access to the demonstration sessions
19.30-23.00	Social event and dinner
November 4 DAY 2 AI	
08.45-09.00	Participant registration
09.00-09.20	Welcome
09.20-09.40	Digitalisation in ATM: will it be Human? <i>Marc Baumgartner, IFATCA</i>
09.40-10.25	SafeOPS: Evaluating an AI based Decision Support for Go-around Handling in the Operational Context <i>Lukas Beller, TUM</i>
10.25-10.40	Coffee break and access to the demonstration sessions
10.40-11.25	Empirical results from the MAHALO project: personalized and transparent AI for CD&R <i>Carl Westin, LiU</i>
11.25-12.10	Algorithm transparency for conflict resolution: the ARTIMATION project <i>Christophe Hurter, ENAC</i>
12.10-12.30	Closing remarks and next steps for AI-related research in ATM <i>Stefano Bonelli, Deep Blue</i>
12.30-14.00	Coffee break and access to the demonstration sessions



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