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Press Release

Artificial Intelligence to Enhance Sensor Data

Le Bourget, June 23, 2023 - At the 2023 Paris Air Show, the results of the "Paris Region AI Challenge for Industry" were presented to Éric Trappier, Chairman and CEO of Dassault Aviation, and to Valérie Pécresse, President of the Paris Region. They were also the focus of a keynote address organized with the ASTech competitiveness cluster, a fitting way to conclude this initiative which was introduced at the 2019 Paris Air Show.

As a reminder, the Paris Region is offering challenges to major players in the health care, energy and industry sectors, and to talent in the Paris Region, as part of its artificial intelligence plan initiated in 2017.

The €500,000 Paris Region AI Challenge for Industry was won by a *consortium* comprising a research team from ISAE-Supméca and the company Aquila Data Enabler, a leading player in AI R&D in France. The *consortium* had the opportunity to conduct a collaborative project with Dassault Aviation over an 18-month period.

The work focused on developing "virtual sensors", i.e., statistical models of sensors to enhance the measurements available in an aircraft. The algorithms are based on Deep Learning, and more specifically on generative artificial intelligence methods. They were trained on Falcon flight test data provided by Dassault Aviation and then deployed within *"TimeFlow"*, a platform developed by Aquila Data Enabler for processing, analyzing and predicting sensor data and time series.

Dassault Aviation intends to pursue this collaboration by integrating the models into its engineering teams and will continue to support the winners in their research into the hybridization of physical models and Deep Learning models.

The challenge and the collaborative project will have made it possible to develop Artificial Intelligence-based tools relevant to any sector of activity exploiting temporal data, while also conducting research as part of a public-private partnership.

"We are working to implement digital twins of our in-service civil and military aircraft. This alliance of Big Data and AI is highly promising, especially for facilitating aircraft maintenance by anticipating issues. In this context, the Challenge helped us to enhance a type of analysis focusing on the "mechanical soundness" of airframes. The algorithms selected will contribute to optimizing our maintenance programs, by providing a more detailed understanding of the mechanical stress to which our aircraft are exposed, and ultimately,

to designing lighter, more fuel-efficient airframes," said Eric Trappier, Chairman and CEO of Dassault Aviation.

For Valérie Pécresse, president of the region, "acting as a catalyst for collaboration between major groups on the one hand, and start-ups, SMEs and ETIs on the other, is a key challenge for the Paris Region. As an international hub for innovation and a training ground for some of the world's top scientific talent, it remains Europe's most attractive location for direct investment, and benefits from a highly attractive AI ecosystem. This challenge and its impressive results demonstrate, if more evidence was needed, that the technological challenges of decarbonizing transport require the cooperation of all forces under the impetus of public authorities. As part of our IMPACT 2028 development and innovation strategy, our aim is clear: to make the Île-de-France region the European champion in strategic innovations, because this is ultimately a question of sovereignty. I'd like to congratulate Dassault, Aquila Data Enabler and ISAE-Supméca on their work, and I look forward to seeing all the AI start-ups at the next challenge on energy transition with RTE, which runs until July 2."

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