



ULTIMATE makes its entrance



The European Community has launched a call for tenders dedicated to **Trustworthy Artificial Intelligence** (AI). Among the handful of projects selected is the one launched and led by TRT: **ULTIMATE** (mUlti-Level Trustworthiness to IMprove the Adoption of hybrid arTificial intelligence).

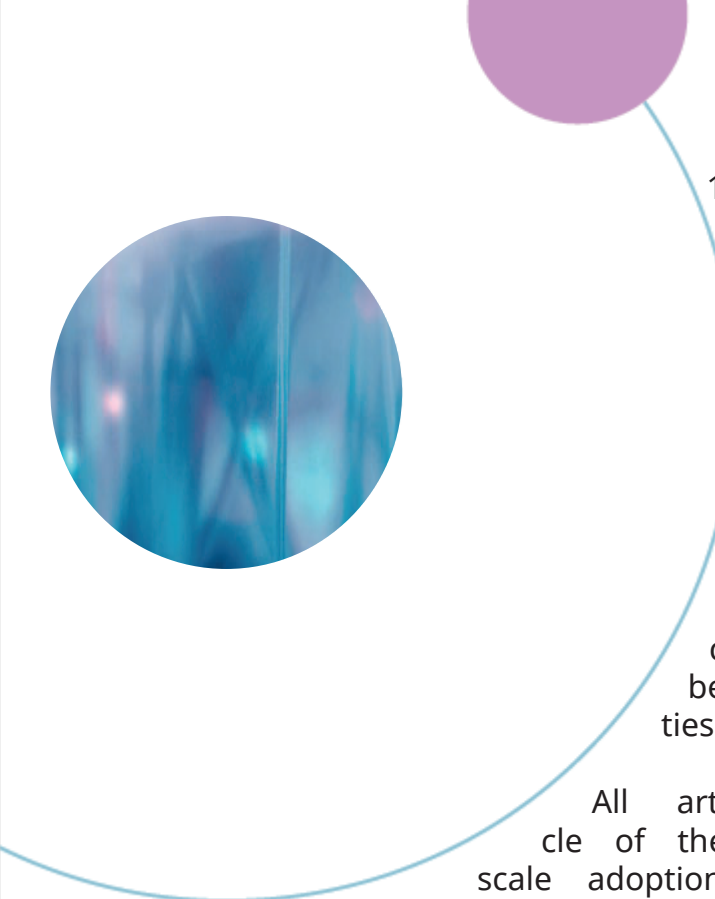
ULTIMATE addresses the subject of Trustworthy AI through the **hybrid AI lifecycle** by emphasizing the stages of building and evaluating AI algorithms in order to deliver an operational system equipped with **trustworthiness**.

The principle of hybrid AI is to combine the best of both worlds covered by data-driven AI algorithms (e.g. neural networks) and model-driven AI algorithms which are based for instance on physical laws. This fusion of methods makes it possible in particular to better contextualize the data, which particularly improves the quality of the learning process and consequently the behaviour of AI algorithms.

Even though data-driven AI and model-driven AI clearly complement each other and form a critical foundation for the **adoption of AI solutions in industry**, hybrid AI does not fully address the issue. Indeed, trustworthiness can be defined through the 4 axes of **validity, transparency, explainability and ethics**.

The objective of ULTIMATE is to pave the way for the development of trustworthy hybrid AI that meets industrial quality criteria, in three stages:

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1. relying on **interdisciplinary data sources** and respecting physical constraints to achieve **the most correct hybrid AI algorithms possible** by construction,
 2. by developing tools to **explain, evaluate and validate these hybrid AI algorithms and by affirming their compliance with ethical and legal rules,**
 3. by testing these hybrid AIs in **operational conditions** using real industrial use cases in the field of **robotics** (collaboration between humans and robots for logistics activities) and **space** (detection of failures in satellites).

All articulated according to the entire lifecycle of the solution in order to promote the large-scale adoption of hybrid AI in industrial environments.

Thales Research and Technology France leads ULTIMATE while being an expert on hybrid AI evaluation. Thales Alenia Space brings a use case for automatic predictive anomaly detection within satellite, when Robotnik brings a robot manipulators use-case and PIAP a robot workshop one with the goal of monitoring presence of humans in the shared area.

Among its partners and their multiple related skills, ULTIMATE also relies on LNE which is a reference in terms of AI evaluation and certification, KTH which is expert in developing hybrid AI algorithms for detecting anomalies, ITTI for its explainability expertise, Tecnalía as expert particularly on statistical predictive models for trustworthiness in the system development lifecycle and finally CBRNE Ltd for its hybrid AI architecture for decision support systems and research ethics expertise.

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All the partners of the ULTIMATE project join together to wish you happy holidays and a happy new year 2023!



Season's greetings
from
ULTIMATE



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