HYPERSOLVER

Aurélie PEUAUD, ENAC

Fly AI Forum 2024, EUROCONTROL BRUSSELS, 29 – 30 April 2024

EUROPEAN PARTNERSHIP

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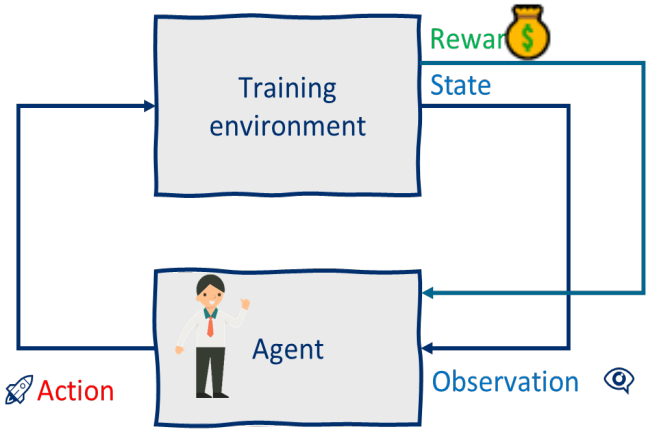
HOLISTIC ATFCM & ATC SOLVER THANKS TO AI DEEP REINFORCEMENT LEARNING



In RL, an agent learns the best *policy* to maximise a long-term reward from state-action-reward-next state experiences.

Theoretical Model

Tailored Reward function at each horizon of time

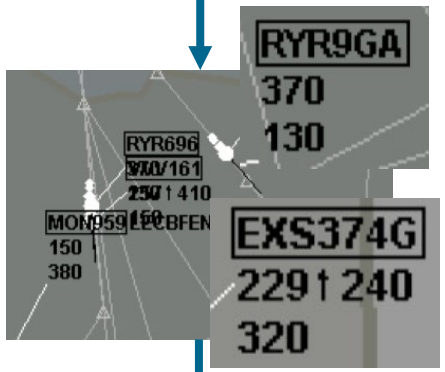
Break ATFM/ATC silos towards Flow-centric approach

Single Controller Operations

A fast-time ATC simulator

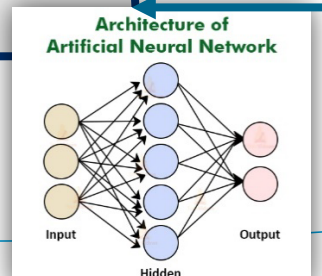
Fuel consumption, losses of separation, etc.

The state and intent of the aircraft in the various ATS units.



HYPERSOLVER

Vectoring, speed or flight level change instruction for each aircraft.



THANK YOU FOR YOUR ATTENTION

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TRUSTY
TRUStworthy inTellingent sYstem for remote digital tower (RDT)

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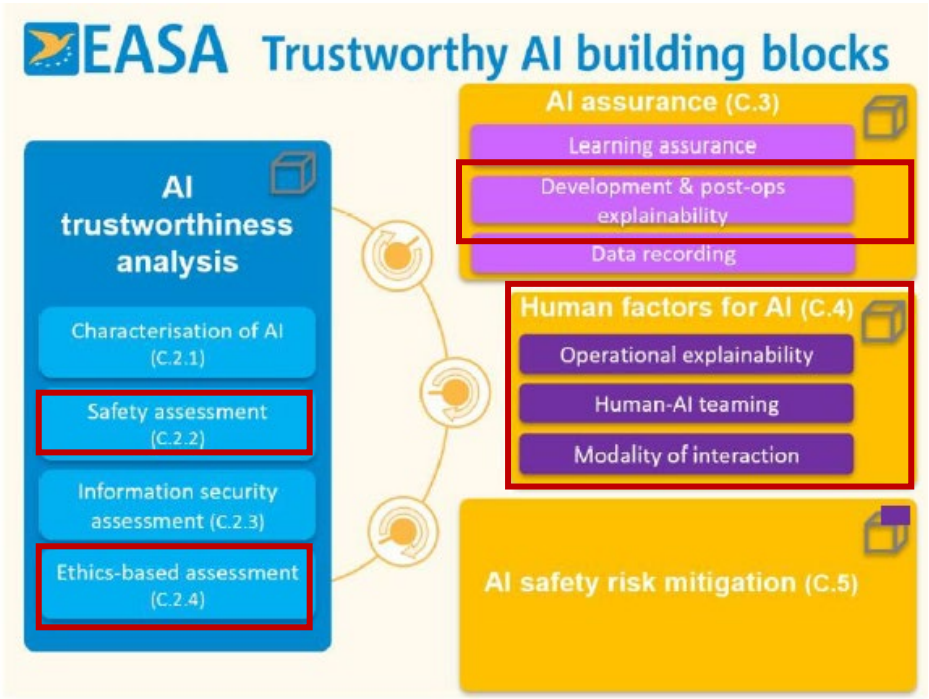


Source : EASA Concept Paper: guidance for Level 1 & 2 machine learning applications Issue 02

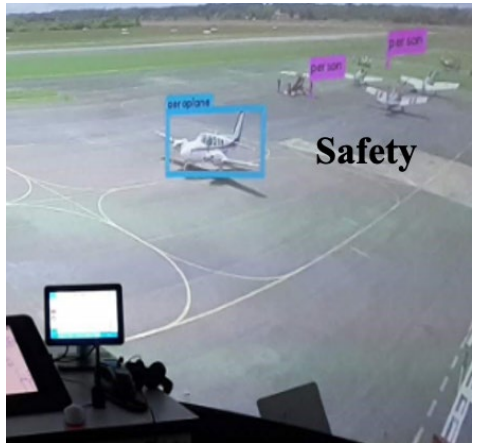


Image Recognition

Transparent Machine Learning

Neurophysiological measures

KEY OBJECTIVES & PROOF OF CONCEPT

Scientific Innovation & Research

Provide a comprehensive conceptual **Framework** for building **trustworthy intelligent system for RDT**

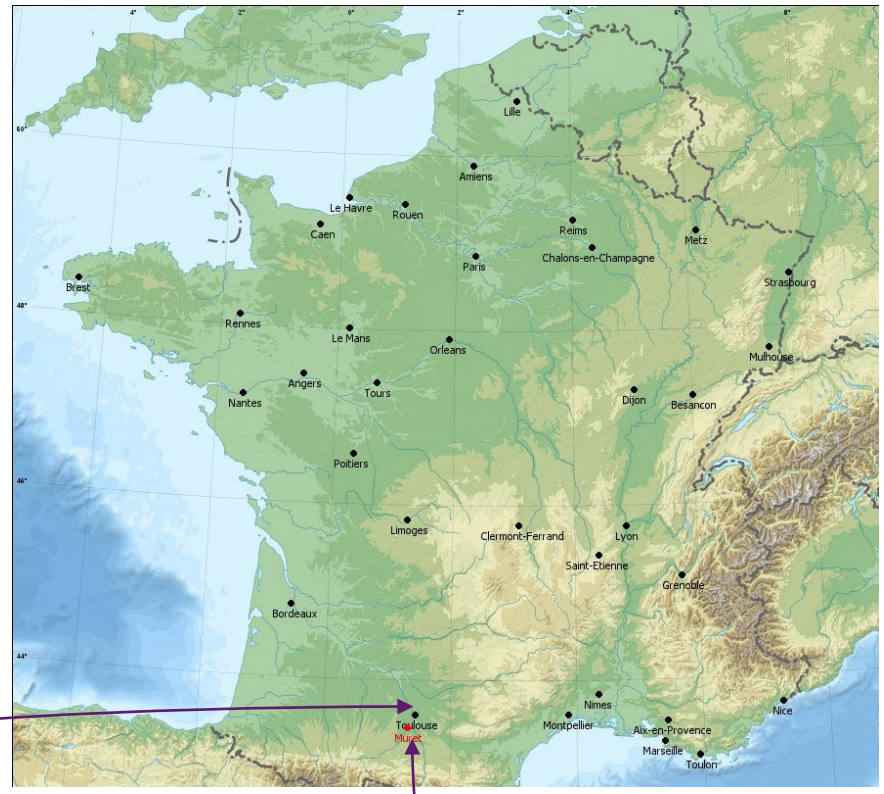
Technological

Develop a proof-of-concept of **Robust**, **Interpretable**, **Fairness** and Accountable AI model incorporating **human-Ai interaction**

Impact & Societal

Accelerate transition towards RDTs through **transparent** and **explainable** intelligent supporting tools and systems

Simulated Real Airport Environment (CDG)
ACHILLE Platform in ENAC (Toulouse)



Cameras on Muret Airport
for *Remote Digital Tower*

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