SAFEXPLAIN

Safe and Explainable
Critical Embedded Systems based on AI

Check our website

Deep Learning (DL) techniques are key for most future advanced software functions in Critical Autonomous AI-based Systems (CAIS)

Safexplain is making CAIS safe

Case Studies

Railway

This case studies the viability of a safety architectural pattern for the completely autonomous operation of trains (Automatic Train Operation) using intelligent DL-based solutions.

Space

This case employs state-of-the-art mission autonomy and AI technologies to enable fully autonomous operations during space missions. These technologies are developed through high safety-critical scenarios.

Automotive

This case develops advanced methods and procedures that enable self-driving cars to accurately detect road users, estimate their distance from the vehicle, and predict their trajectories while adhering to both safety and explainability requirements.

The Vision

- Provide scientific and technical solutions to the European industry that enable fully-autonomous Critical Systems (e.g. cars, trains, satellites) with certified and economically viable solutions
- Bring increased efficiency of Critical Autonomous Systems because safe DL solutions reduce CO2 emissions (up to 80% for different types of vehicles according to informed predictions)
- Allow the European CAIS industry to benefit from DL functionalities and remain competitive in the future, while still being trustworthy

Objectives

To improve the explainability and traceability of DL components

To provide clear safety patterns for the incremental adoption of DL software in CAIS

To integrate the SAFEXPLAIN libraries with an industrial system-testing toolset

To create architectures of DL components with quantifiable and controllable confidence, and that have the ability to identify when predictions should not be released.

To design, implement, or update selected representative DL software libraries according to safety patterns and safety lifecycle considerations, meeting specific performance requirements on relevant platforms

SAFEXPLAIN is a member of the TrustworthyAI cluster

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TrustWorthy AI Cluster

Working towards a Trustworthy AI

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