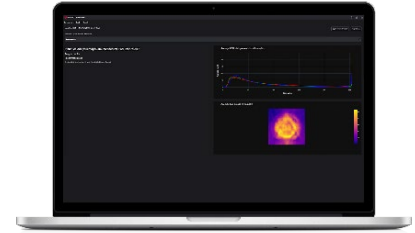


Can You Explain Your AI and Prove AI Safety in Deployment ?



Building Trustworthy AI Across the Lifecycle

From Black Box to Glass Box

AI systems operate as complex, dynamic entities, yet many of their decisions remain hidden from developers and users. This **black-box nature and the corresponding lack of transparency create significant challenges for industries, such as the automotive industry**, where safety and compliance are critical. An AI will nearly always answer, even if it is wrong or delivered with low prediction confidence.

Developers struggle to understand the neural processes behind AI decisions, making it difficult to identify limitations in datasets or models. At the same time, regulatory frameworks, such as **ISO/PAS 8800 for automotive**, demand proven AI explainability and validation, yet provide little guidance on how to achieve them. Fragmented toolchains and siloed workflows further increase effort and risk gaps in regulatory conformance. Without early detection of hidden flaws, AI models risk compromising safety and trust once deployed.

Keysight's AI Software Integrity Builder introduces a novel, lifecycle-based approach to AI Assurance that answers the essential question: "What happens inside my black box, and how do I ensure a trustworthy AI deployment?" The solution helps to deliver the safety evidence required for regulatory conformance, empowering teams to validate, explain, adjust, and continuously improve AI systems.

AX1000A AI Software Integrity Builder

- **Designed for compliance:** Supports compliance with emerging regulations like the EU AI Act and ISO/PAS 8800 for automotive.
- **Built for scale:** Enables continuous AI assurance across development and maintenance workflows.
- **Holistic lifecycle coverage:** Covers not only dataset analysis & model optimization but also inference monitoring and domain adaptation - delivering comprehensive AI safety and conformance evidence through an integrated software solution.

A Unified Lifecycle Approach to AI Assurance

Keysight's AI Software Integrity Builder unifies dataset analysis, model validation, and inference-based testing into one integrated framework. This lifecycle approach ensures transparency, compliance, and continuous improvement - empowering teams to deploy AI systems that are explainable, auditable, and trustworthy by design.

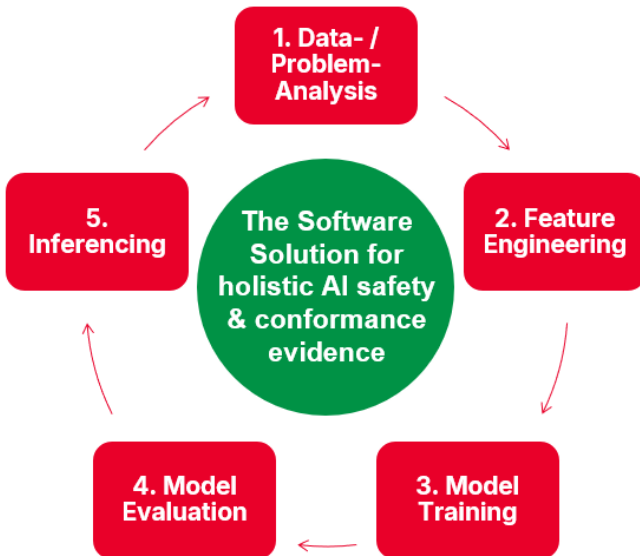


Figure 1. Holistic AI assurance is approached in a lifecycle.

Core capabilities include:

- **Dataset analysis:** Evaluates data quality using statistical methods to identify biases, gaps, and inconsistencies that impact model performance.
- **Model-based validation:** Provides Explainable AI (XAI) by clarifying model decisions and revealing hidden correlations, helping developers understand system patterns and limitations of an AI system.
- **Inference-based testing:** Goes beyond static validation by extending validation to real-world conditions by assessing model behavior, detecting deviations from training, and recommending improvements for future iterations.

Learn more [here](#) and contact us to discuss your AI validation needs and determine the right assurance approach for your organization.