Technical Specification

ISO/IEC TS 42119-2

First edition
2025-11

Artificial intelligence — Testing of AI —

Part 2: Overview of testing AI systems

Intelligence artificielle — Test des IA —

Partie 2: Vue d'ensemble du test de systèmes d'IA

Reference number
ISO/IEC TS 42119-2:2025(en)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and https://patents.iec.ch. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared jointly by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittees SC 7 *Software and systems engineering* and SC 42, *Artificial intelligence*.

A list of all parts in the ISO/IEC 42119 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document facilitates understanding of how ISO/IEC/IEEE 29119-1, ISO/IEC/IEEE 29119-2, ISO/IEC/IEEE 29119-3, ISO/IEC/IEEE 29119-4 and ISO/IEC 20246 apply to the testing of AI systems.

The purpose of ISO/IEC/IEEE 29119 (all parts) is to define an internationally agreed set of standards for software testing that can be used by any organization when performing any form of software testing.

ISO/IEC/IEEE 29119-1 introduces software testing concepts, which can be applied to any AI system.

ISO/IEC/IEEE 29119-2 comprises test process descriptions that define the software test processes at the organizational level, test management level and dynamic test levels. It supports dynamic testing, functional and non-functional testing, manual and automated testing and scripted and unscripted testing, and can be utilized for the testing of any software-based system, including AI systems.

ISO/IEC/IEEE 29119-3 defines software test documentation. The requirements specified for templates and examples of test documentation defined in ISO/IEC/IEEE 29119-3 can be met in the test documentation for any AI system.

ISO/IEC/IEEE 29119-4 defines test design techniques, which can be utilized for the testing of AI systems and their components.

ISO/IEC 20246 defines processes and templates for work product reviews, including inspections, walkthroughs and technical reviews.

This document explains how ISO/IEC/IEEE 29119-2 can be adopted for the testing of AI systems and their components and how the test documentation templates defined in ISO/IEC/IEEE 29119-3 can be implemented when testing AI systems and their components. This document also explains how ISO/IEC 20246 can be adopted for the review of AI systems and related documentation. This document is structured as follows:

— Clauses 1 to 4 define the scope, normative references, terms and definitions and abbreviated terms;

— Clause 5 defines concepts of AI system architectures, the AI system life cycle and testing processes and documentation;

— Clause 6 explains how risk is identified for AI systems;

— Clause 7 defines test approaches suitable for testing AI systems and components;

— Annexes A to C provide supporting details and examples.

The aim of the ISO/IEC 42119 series is to provide requirements and guidance on the testing of AI components and systems.

Other parts of the ISO/IEC 42119 series include:

— ISO/IEC TS 42119-3 describes approaches and provides guidance on processes for the verification and validation analysis of AI systems;

— ISO/IEC TS 42119-7 provides technology-agnostic guidance for conducting red teaming assessments on AI systems;

— ISO/IEC TS 42119-8 provides definitions, concepts, requirements and guidance related to assessing prompt-based text-to-text AI systems that utilize generative AI.