

IEEE Standard for Transparent Human and Machine Agency Identification

IEEE Computer Society

Developed by the
Artificial Intelligence Standards Committee

IEEE Std 3152™-2024

STANDARDS

IEEE Standard for Transparent Human and Machine Agency Identification

Developed by the

Artificial Intelligence Standards Committee
of the
IEEE Computer Society

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IEEE SA Standards Board

Abstract: Elements to improve transparency in the identification of the agency behind media or communications, such as machine intelligence, a human being, or a combination of entities, are defined in this standard. The goal is to facilitate transparency, understanding, and trust during online, telephone, robotic, or other electronic interactions, thereby strengthening provisions for public safety and security.

Keywords: artificial intelligence, autonomous systems, avatars, chatbots, communication, deepfakes, ethics, explainability, IEEE 3152™, synthetic media, transparency

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Introduction

This introduction is not part of IEEE Std 3152-2024, IEEE Standard for Transparent Human and Machine Agency Identification.

This standard specifies marks for the transparent labeling of communications in contexts prone to confusion regarding the essential characteristics of an interlocutor and associated media.

This standard was established to operationalize the principle of ethical transparency, asserting that it should always be possible to discern with whom or with what one is interacting—be it a human, a machine, or a combination thereof. This is especially relevant in the era of realistic media constructs such as deepfakes. The application of artificial intelligence (AI) technology in ways that increasingly challenge detection heightens the risk of potentially harmful deceptions.

This standard offers a framework to assist developers of systems, as well as distributors and creators of content, in marking content attributes that require transparency concerning the essential characteristics of the agency operating through that medium. However, system-system transparency (transparency between systems) falls outside the scope of this standard. Despite this, it acknowledges potential downstream risks to humans, such as the obfuscation of ultimate agency or the contamination of datasets with derivative data.

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IEEE Standard for Transparent Human and Machine Agency Identification

1. Overview

1.1 Scope

This standard addresses recognizable audio and visual markers that assist humans in distinguishing communication with a human, a machine, or a combination of both. Therefore, the standard defines visual, textual, and auditory marks.

This standard does not cover methods to determine whether an interaction is with a machine, such as Turing tests.

1.2 Purpose

Because of the improving capabilities of artificial intelligence (AI), filters, deepfakes, and blended human-AI hybrid entities, humans are increasingly failing to identify the true actor in an interaction. To maintain or regain transparency, understanding, and trust during online, telephone, or other forms of electronically mediated communication or interactions, this standard is needed. The standard helps minimize cognitive and social burdens on developers, users, and other stakeholders, to avoid misattributions that could otherwise increase epistemic uncertainty, erode the integrity of datasets, or injure social trust.

1.3 Word usage

The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (*shall* equals *is required to*).^{6,7}

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (*should* equals *is recommended that*).

⁶ The use of the word *must* is deprecated and cannot be used when stating mandatory requirements; *must* is used only to describe unavoidable situations.

⁷ The use of *will* is deprecated and cannot be used when stating mandatory requirements; *will* is only used in statements of fact.

The word *may* is used to indicate a course of action permissible within the limits of the standard (*may* equals *is permitted to*).

The word *can* is used for statements of possibility and capability, whether material, physical, or causal (*can* equals *is able to*).

2. Normative references

There are no normative references in this document.

3. Definitions

For the purposes of this document, the following terms *and definitions apply*. The *IEEE Standards Dictionary Online* should be consulted for terms not defined in this clause.⁸

agency: The capacity of both humans and artificial intelligence systems to initiate actions and make decisions independently, reflecting their respective abilities to exert influence and enact choices within their environments.

artificial intelligence: (Often abbreviated as AI, also known as machine intelligence) The simulation of human intelligence processes by machines, especially computer systems, enabling them to perform tasks that typically require human intelligence, such as reasoning, learning, and problem-solving. AI includes both machine learning algorithms and rule-based systems, which follow explicit instructions to perform tasks.

autonomy: The ability of a system or entity to operate independently, making decisions and performing tasks without human intervention, based on its programming, algorithms, or learned experiences.

centaur: In AI terms, a collaborative system that combines human and artificial intelligence to leverage the strengths of both, enhancing decision-making and problem-solving capabilities beyond what either could achieve independently.

content: Interactive or non-interactive object containing information represented by text, image, video, sound, or other media.

deepfake: (or synthetic media) Modifications in an interaction or content that create the impression of digitally generated attributes in an actor or interlocutor, significantly diverging from the initial perceptions of an average person. These include AI-driven modifications to content commonly described as “deepfakes.” Non-transparent alterations can undermine healthy epistemology by distorting the understanding of recipients.

epistemology: (epistemic) The branch of philosophy concerned with the theory of knowledge, exploring the nature, origins, and limits of human knowledge and the methods through which knowledge is acquired and validated.

essential characteristics: The inherent nature, traits, and capabilities of a communicating agent, encompassing any influences or modifications exerted upon it.

interlocutor: Human or automated system that engages in dialog with a human.

⁸*IEEE Standards Dictionary Online* is available at: <http://dictionary.ieee.org>. An IEEE account is required for access to the dictionary, and one can be created at no charge on the *dictionary sign-in page*.

mark: A defined distinctive symbol or descriptor used to identify, represent, or signify something or someone, serving as a visual, textual, or audio signifier.

non-expert user: Person who has only a brief interaction, or who interacts every day, with an artificial intelligence system.

transparency: Characteristic of the transfer of information that is honest; contains information relevant to the causes of some action, decision, or behavior; and is presented at a level of technicality and form that is meaningful to the stakeholder.

4. Key concepts

4.1 Approaches to transparency

In this document, *transparency* refers to the conveyance of meta-information from an entity—or its configurators, operators, designers, and developers—to a stakeholder, as described in 4.4 of this standard. Essentially, transparency is concerned with articulating the essential characteristics of a communicator, notifying the recipient of any significant modifications from the original source, i.e., base reality, or what is immediately perceptible. This clarity about the current state may also extend to explaining past actions or potential future behaviors (for example, if a human overseer had previously or is about to engage with an AI system).

The conveyed information should be truthful, actionable, and presented in a manner that is accessible and meaningful to the stakeholder (typically through natural language or a recognizable standard mark). Stakeholders are individuals requiring clarity about the current state or needing to be informed about past or potential future activities.

A stakeholder generally engages with the entity or is affected by it. An entity or system is considered transparent if stakeholders can obtain meaningful, real-time descriptions of its essential characteristics. This may pertain to a particular moment or span a designated period, contingent on the stakeholder's interest and the system's nature (Theodorou et al., 2017) [B20].⁹ Interactions may also extend from one to many, such as a robot engaging with multiple people.

Nonetheless, it may not always be desirable, feasible, or foreseeable for a developer to ensure equal levels of transparency across all systems. For instance, in entertainment contexts, full transparency could detract from the immersive quality of the experience where the risk of harm is minimal. Thus, this standard specifies varying degrees of transparency, dependent on the nature of the system and its interaction with stakeholders.

This standard recognizes laws and regulations regarding personal data, data privacy, and data security, but does not replace them. Users of this standard are responsible for referring to and observing all such laws and regulations. Conformance with this standard does not imply conformance with any applicable legal or regulatory requirements.

4.2 Transparency as a goal

Transparency offers extensive economic and social benefits, such as bolstered social trust. It facilitates coordination by enabling the reliable exchange of information like plans, intentions, and status.

⁹ Numbers in brackets correspond to the sources listed in Annex C.