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Information technology - Artificial intelligence - Treatment
of unwanted bias in classification and regression machine
learning tasks (ISO/IEC TS 12791:2024)

Technologies de l'information - Intelligence artificielle
- Traitement des biais indésirables dans les tâches
d'apprentissage automatique de classification et de
régression (ISO/IEC TS 12791:2024)

Informationstechnik - Künstliche Intelligenz -
Behandlung von unerwünschtem Bias bei
Klassifizierungs- und Regressionsaufgaben des
maschinellen Lernens (ISO/IEC TS 12791:2024)

This Technical Specification (CEN/TS) was approved by CEN on 12 October 2024 for provisional application.

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European foreword

This document (CEN/CLC ISO/IEC/TS 12791:2024) has been prepared by Technical Committee ISO/IEC JTC 1 "Information technology" in collaboration with Technical Committee CEN-CENELEC/ JTC 21 "Artificial Intelligence" the secretariat of which is held by DS.

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Endorsement notice

The text of ISO/IEC TS 12791:2024 has been approved by CEN-CENELEC as CEN/CLC ISO/IEC/TS 12791:2024 without any modification.

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 General.....	1
3.2 Artificial intelligence.....	3
3.3 Bias.....	4
3.4 Testing.....	5
4 Abbreviated terms	6
5 Treating unwanted bias in the AI system life cycle	6
5.1 Inception.....	6
5.1.1 Stakeholder identification.....	6
5.1.2 Stakeholder needs and requirements definition.....	7
5.1.3 Procurement.....	8
5.1.4 Data sources.....	9
5.1.5 Integration with risk management.....	11
5.1.6 Acceptance criteria.....	11
5.2 Design and development.....	12
5.2.1 Feature representation.....	12
5.2.2 Metadata sufficiency.....	12
5.2.3 Data annotations.....	12
5.2.4 Adjusting data.....	13
5.2.5 Methods for managing identified risks.....	13
5.3 Verification and validation.....	13
5.3.1 General.....	13
5.3.2 Static testing of data used in development.....	14
5.3.3 Dynamic testing.....	14
5.4 Re-evaluation, continuous validation, operations and monitoring.....	15
5.4.1 General.....	15
5.4.2 External change.....	16
5.5 Disposal.....	17
6 Techniques to address unwanted bias	17
6.1 General.....	17
6.2 Algorithmic and training techniques.....	17
6.2.1 General.....	17
6.2.2 Pre-trained models.....	18
6.3 Data techniques.....	19
7 Handling bias in a distributed AI system life cycle	19
Annex A (informative) Life cycle processes map	21
Annex B (informative) Potential impacts of unwanted bias on different types of specific user	22
Bibliography	23

Foreword

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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 documents 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).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 42, *Artificial intelligence*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/CLC/JTC 21, *Artificial Intelligence*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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Introduction

This document describes steps that can be taken to treat unwanted bias during the development or use of AI systems.

This document is based on ISO/IEC TR 24027 and provides treatment techniques in accordance with the AI system life cycle as defined in ISO/IEC 22989:2022, Clause 6 and ISO/IEC 5338. The treatment techniques in this document are agnostic of context. This document is based on the types of bias described in ISO/IEC TR 24027.

This document describes good practises for treating unwanted bias and can help an organization with the treatment of unwanted bias in machine learning (ML) systems that conduct classification and regression tasks. The techniques in this document are applicable to classification and regression ML tasks. This document does not address applicability of the described methods outside of the defined ML tasks.

This document does not contain organizational management and enabling processes related to an AI management system, which can be found in ISO/IEC 42001.

[Annex A](#) provides a cross-reference between the life cycle stages and the clauses of this document.

Information technology — Artificial intelligence — Treatment of unwanted bias in classification and regression machine learning tasks

1 Scope

This document describes how to address unwanted bias in AI systems that use machine learning to conduct classification and regression tasks. This document provides mitigation techniques that can be applied throughout the AI system life cycle in order to treat unwanted bias. This document is applicable to all types and sizes of organization.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 5259-4:2024, *Artificial intelligence — Data quality for analytics and machine learning (ML) — Part 4: Data quality process framework*

ISO/IEC 22989:2022, *Information technology — Artificial intelligence — Artificial intelligence concepts and terminology*

ISO/IEC/IEEE 29119-3:2021, *Software and systems engineering — Software testing — Part 3: Test documentation*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 22989:2022 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 General

3.1.1

authoritative record

record which possess the characteristics of authenticity, reliability, integrity and useability

[SOURCE: ISO 30300:2020, 3.2.3]

3.1.2

consumer vulnerability

state in which an individual can be placed at risk of harm during their interaction with or a decision by a service provider due to the presence of personal, situational and market environment factors

[SOURCE: ISO 22458:2022, 3.5, modified — added reference to a decision by a service provider.]