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TNI	**Bezpečnosť strojov Vzťah s ISO 12100 Časť 5: Účinky strojového učenia umelej inteligencie (ISO/TR 22100-5: 2021)**	**TNI CEN ISO/TR 22100-5** 83 3001

Safety of machinery - Relationship with ISO 12100 - Part 5: Implications of artificial intelligence machine learning (ISO/TR 22100-5:2021)

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English Version

Safety of machinery - Relationship with ISO 12100 - Part 5: Implications of artificial intelligence machine learning (ISO/TR 22100-5:2021)

Sécurité des machines - En relation avec l'ISO 12100 - Partie 5: Implications de l'intelligence artificielle pour l'apprentissage automatique (ISO/TR 22100-5:2021)

Sicherheit von Maschinen - Beziehung zu ISO 12100 - Teil 5: Auswirkungen von maschinellem Lernen mit künstlicher Intelligenz (ISO/TR 22100 5:2021)

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European foreword

The text of ISO/TR 22100-5:2021 has been prepared by Technical Committee ISO/TC 199 "Safety of machinery" of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TR 22100-5:2022 by Technical Committee CEN/TC 114 "Safety of machinery" the secretariat of which is held by DIN.

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ISO/TR 22100-5

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Safety of machinery — Relationship with ISO 12100 —

Part 5: Implications of artificial intelligence machine learning

Sécurité des machines — En relation avec l'ISO 12100 —

Partie 5: Implications de l'intelligence artificielle pour l'apprentissage automatique

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Foreword

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This document was prepared by Technical Committee ISO/TC 199, *Safety of machinery*.

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Introduction

The primary purpose of this document is to provide guidance for the development of artificial intelligence (AI) machine learning applications. Safety can be compromised due to the significant complexity of introducing AI machine learning to machines.

A control system can use machine learning (a technology of artificial intelligence) to improve performance of the machine or to execute tasks. The control system learns its expected behaviour through training. This involves two stages: training and inference (autonomous operation).

This document assists machinery designers to develop solutions appropriate for their particular applications. It describes how to apply the risk assessment process according to ISO 12100 to AI machine learning applications.

AI machine learning is a rapidly evolving technology and has not been a subject of machinery safety until now.

TECHNICAL REPORT **ISO/TR 22100-5:2021(E)**

Safety of machinery — Relationship with ISO 12100 —

Part 5: Implications of artificial intelligence machine learning

1 Scope

This document addresses how artificial intelligence machine learning can impact the safety of machinery and machinery systems.

This document describes how hazards being associated with artificial intelligence (AI) applications machine learning in machinery or machinery systems, and designed to act within specific limits, can be considered in the risk assessment process.

This document is not applicable to machinery or machinery systems with AI applications machine learning designed to act beyond specified limits that can result in unpredictable effects.

This document does not address safety systems with AI, for example, safety-related sensors and other safety-related parts of control systems.

2 Normative references

There are no normative references in this document.

