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Evaluation and grading of robot intelligent vision

机器人智能化视觉评价方法及等级划分

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for

standardization work Part

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1 Scope

China's national standard for evaluating and grading robot intelligent vision. Vision is what separates a robot that repeats a taught path from one that responds to what is in front of it, and the capability now spans an enormous range - from a camera that locates a part in a fixture to a system that recognises unfamiliar objects, estimates their pose, and plans a grasp. Buyers have no way to compare across that range, because every supplier describes its system as intelligent and the demonstrations are staged. A graded scale, with defined evaluation conditions and methods, is what makes the claim checkable. The standard specifies the general principles, the classification of visual intelligence levels and the evaluation conditions, and describes the evaluation methods, result calculation and reporting. It applies to industrial robots, personal and household service robots, public service robots and special robots led by construction robots, and excludes medical, military,

toy and unmanned aerial applications.

This document specifies the general principles, visual intelligence level classification, and evaluation conditions for robot intelligent vision evaluation, and describes the corresponding evaluation methods. Method, result calculation and evaluation report. This document applies to industrial robots, personal/household service robots, public service robots, special robots (mainly construction robots Intelligent visual evaluation and grading of humans) for reference by other types of special robots. This document does not apply to medical robots, military robots, toys with robotic features, or unmanned aerial vehicles.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 2423.10 Environmental testing Part

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 robot A programmable mechanism with a certain degree of autonomy to perform movement, manipulation or positioning. Note 1 to entry. A robot includes a control system.
Note

2.Examples of robot mechanical structures are manipulators, mobile platforms and wearable robots. [Source: GB/T 12643-2025, 3.1]

3.2 The robot's perception, cognition, decision-making and other functions can realize autonomous operation in unstructured or dynamic environments.

3.3 Robotic Vision System Through multimodal visual sensing, images or videos of the target environment are collected and analyzed to obtain relevant information about the target object.