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Australian STANDARD®

STANDARDS Australia

Information technology — Biometric performance testing and reporting

Part 10: Quantifying biometric system performance variation across demographic groups



AS ISO/IEC 19795.10:2025

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Information technology — Biometric performance testing and reporting

Part 10: Quantifying biometric system performance variation across demographic groups

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(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee IT-032, Biometrics and Identification.

The objective of this document is to specify requirements for estimating and reporting on performance variations observed when cohorts belonging to different demographic groups engage with biometric enrolment and recognition systems.

Within this context, performance refers to failure-to-enrol rate, failure-to-acquire rate, shifts in comparison score, recognition error rates, and aspects of response and processing time (throughput).

This document applies to the following:

(a) Demographic group membership.

(b) Phenotypic measures usage.

(c) Test reporting.

(d) Statistical uncertainty estimates.

(e) Operational thresholds settings.

(f) Equitability.

(g) Procurement agency activities.

This document also provides terms and definitions to be used when reporting performance variation across demographic groups.

This document is applicable to —

(i) technology evaluations of algorithms, subsystems and systems;

(ii) scenario evaluations of systems;

(iii) operational evaluations of systems.

The application of this document does not require detailed knowledge of a system's algorithms. It does require specific knowledge of the demographic characteristics for the population of interest.

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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).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics.*

A list of all parts in the ISO/IEC 19795 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 and www.iec.ch/national-committees.

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Introduction

As the use of biometric technology increases, so too does public interest in establishing whether the technology performs similarly for all individuals. Stakeholders are asking government and industry organizations that use biometric technology to establish whether these technologies vary in performance for different demographic groups. The intention of this document is to provide guidance on how to measure and report performance variation across demographic groups.[2]

This document is intended to help organizations evaluate demographic performance in biometric systems and report their results. Specifically, this document outlines how to measure and report biometric performance variations across demographic groups. It provides a set of metrics and best practices to facilitate such testing. However, this document does not provide guidance on how to establish specific causes for the observed variations. The following demographic variables are explicitly discussed in this document:[7][10][12]

— biological characteristics, such as:
  — sex, age, weight, height and skin lightness;
— social constructs, such as:
  — ethnicity, gender and language.

Many other variables can cause systematic changes in biometric characteristics or in how individuals interact with biometric systems. The following demographic variables are relevant although not explicitly discussed in this document:

— performance variations based on temporary states, such as:
  — self-styling (e.g. makeup, eyewear, mask-wearing, clothing, hairstyles),
  — behavioural or emotional states (e.g. intoxication),
  — behaviours (e.g. smiling, closing eyes, varying pose);
— performance variation caused by diseases or injuries, such as:
  — eye surgery, cataracts, vision correction,
  — stroke, cleft lip, Apert’s syndrome,
  — missing digits;
— performance variation caused by disabilities.

Demographic performance variation for applications other than biometric recognition, such as emotion, gender or age estimation, are not considered in this document.

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NOTES

Australian Standard®

Information technology — Biometric performance testing and reporting

Part 10: Quantifying biometric system performance variation across demographic groups

1 Scope

This document establishes requirements for estimating and reporting on performance variations observed when cohorts belonging to different demographic groups engage with biometric enrolment and recognition systems. In this context, performance refers to failure-to-enrol rate, failure-to-acquire rate, shifts in comparison score, recognition error rates, and aspects of response and processing time (throughput).

This document is applicable to the following:

— demographic group membership;

— using phenotypic measures;

— reporting on tests;

— stating statistical uncertainty estimates;

— operational thresholds settings;

— equitability;

— procurement agency activities.

This document also provides terms and definitions to be used when reporting performance variation across demographic groups.

This document is applicable to:

— technology evaluations of algorithms, subsystems and systems;

— scenario evaluations of systems;

— operational evaluations of fielded systems.

Application of this document does not require detailed knowledge of a system's algorithms but it does require specific knowledge of the demographic characteristics for the population of interest.

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 2382-37, *Information technology — Vocabulary — Part 37: Biometrics*

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