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## Information technology — Biometrics — Overview and application

*Technologies de l'information — Biométrie — Aperçu général et applications*





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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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](http://www.iso.org/directives)).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

This second edition cancels and replaces the first edition (ISO/IEC TR 24741:2007), which has been technically revised with the following changes:

- terminology is revised to align with that of ISO/IEC 2382-37;
- clauses on “Overview of biometric technologies” and “Example applications” have been updated to reflect state of art;
- clauses on “Biometrics and information security” and “Biometrics and privacy” have been considerably expanded.

## Introduction

“Biometric recognition” is the automated recognition of individuals based on their biological and behavioural characteristics. The field is a subset of the broader field of human identification science. Example technologies include, among others: fingerprinting, face recognition, hand geometry, speaker recognition and iris recognition.

Some techniques (such as iris recognition) are more biologically-based, some (such as signature recognition) more behaviourally based, but all techniques are influenced by both behavioural and biological elements. There are no purely “behavioural” or “biological” biometric systems.

“Biometric recognition” is frequently referred to as simply “biometrics”, although this latter word has historically been associated with the statistical analysis of general biological data. The word “biometrics”, like “genetics”, is usually treated as singular. It first appeared in the vocabulary of physical and information security around 1980 as a substitute for the earlier descriptor, “automatic personal identification”, in use in the 1970s. Biometric systems recognize “persons” by recognizing “bodies”. The distinction between person and body is subtle, but is of key importance in understanding the inherent capabilities and limitations of these technologies. In our context, biometrics deals with computer recognition of patterns created by human behaviours and biological structures and is usually associated more with the field of computer engineering and statistical pattern analysis than with the behavioural or biological sciences.

Today, biometrics is being used to recognize individuals in a wide variety of contexts, such as computer and physical access control, law enforcement, voting, border crossing, social benefit programs and driver licensing.

# Information technology — Biometrics — Overview and application

## 1 Scope

This document describes the history of biometrics and what biometrics does, the various biometric technologies in general use today (for example, fingerprint recognition and face recognition) and the architecture of the systems and the system processes that allow automated recognition using those technologies. It also provides information about the application of biometrics in various business domains such as border management, law enforcement and driver licensing, the societal and jurisdiction considerations that are typically taken into account in biometric systems, and the international standards that underpin their use.

## 2 Normative references

There are no normative references in this document.