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Information technology — Biometric data interchange formats —

Part 8: Finger pattern skeletal data

Technologies de l'information — Formats d'échange de données biométriques —

Partie 8: Données des structures du squelette de l'empreinte

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 19794-8 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

ISO/IEC 19794 consists of the following parts, under the general title *Information technology — Biometric data interchange formats*:

— *Part 1: Framework*

— *Part 2: Finger minutiae data*

— *Part 3: Finger pattern spectral data*

— *Part 4: Finger image data*

— *Part 5: Face image data*

— *Part 6: Iris image data*

— *Part 7: Signature/sign time series data*

— *Part 8: Finger pattern skeletal data*

— *Part 9: Vascular image data*

— *Part 10: Hand geometry silhouette data*

— *Part 11: Signature/sign processed dynamic data*

Introduction

With the interest of implementing interoperable personal biometric recognition systems, this part of ISO/IEC 19794 establishes a data interchange format for pattern-based skeletal fingerprint recognition algorithms. Pattern-based algorithms process sections of biometric images. Pattern-based algorithms have been shown to work well with the demanding, but commercially driven, fingerprint sensor formats such as small-area and swipe sensors.

The exchange format defined in this part of ISO/IEC 19794 describes all characteristics of a fingerprint in a small data record. Thus it allows for the extraction of both spectral information (orientation, frequency, phase, etc.) and features (minutiae, core, ridge count, etc.). Transformations like translation and rotation can also be accommodated by the format defined herein.

With this part of ISO/IEC 19794 for pattern-based skeletal representation of fingerprints

— interoperability among fingerprint recognition vendors based on a small data record is allowed;

— proliferation of low-cost commercial fingerprint sensors with limited coverage, dynamic range, or resolution is supported;

— a data record that can be used to store biometric information on a variety a storage media (including but not limited to, portable devices and smart cards) is defined;

— adoption of biometrics in applications requiring interoperability is encouraged.

It is recommended that biometric data protection techniques in ANSI/X9 X9.84 or ISO/IEC 15408 are used to safeguard the biometric data defined herein for confidentiality, integrity and availability.

Information technology — Biometric data interchange formats —

Part 8: Finger pattern skeletal data

1 Scope

This part of ISO/IEC 19794 specifies the interchange format for the exchange of pattern-based skeletal fingerprint recognition data. The data format is generic, in that it may be applied and used in a wide range of application areas where automated fingerprint recognition is involved.

2 Conformance

A system conforms to this part of ISO/IEC 19794 if it satisfies the mandatory requirements herein for extraction and description of the skeleton described in Clause 6 and the generation of the data record as described in Clause 7.

Since any finger skeletal data extraction and comparison algorithm supporting the described finger skeletal data interchange formats may be used, interoperability testing is of extreme importance, especially for environments in which components of different manufacturers interact.

3 Normative references

The following referenced documents are indispensable for the application 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 7816-6:2004, *Identification cards — Integrated circuit cards — Part 6: Interindustry data elements for interchange*

ISO/IEC 7816-11:2004, *Identification cards — Integrated circuits cards — Part 11: Personal verification through biometric methods*

ISO/IEC 19784-1:2006, *Information technology — Biometric application programming interface — Part 1: BioAPI specification*