



Biometrical and Artificial Intelligence Technologies

MegaMatcher

- Reliable multi-biometric technology
- NIST MINEX compliance
- Rolled, flat and latent fingerprint matching
- Multiplatform scalable cluster architecture
- Biometric standards and WSQ support
- Support for webcams and 30+ fingerprint scanners

The **MegaMatcher multi-biometric technology** is designed to meet large scale biometrical identification and verification needs. The technology includes a set of specific features that make it very attractive for **large-scale face-fingerprint systems** and **AFIS** integrators:

- ▶ **Multi-biometrics.** Fingerprint and facial recognition engines can be used separately or together in a large-scale system for more reliable identification results.
- ▶ **Reliability.** The fused face-fingerprint identification algorithm assures high reliability even when using large database.
- ▶ **Ready-to-use-network components** are included in MegaMatcher for rapid system development.
- ▶ **Effective price/performance ratio.** MegaMatcher based systems use PCs with Microsoft Windows and Linux operating systems as computational units.

MegaMatcher SDK provides a set of tools for the development and integration of scalable network-based and web-based biometrical identification systems, including:

- ▶ Web banking systems
- ▶ Border control systems
- ▶ Forensic systems
- ▶ National-scale voting systems
- ▶ And other systems where fast and accurate authentication is required

MegaMatcher SDK is multiplatform and supports Microsoft Windows (32 and 64 bit) and Linux (32 and 64 bit) Operating systems. Available SDKs:

- ▶ **MegaMatcher 2.0 Light SDK** for developing a client/server based multi-biometric face-fingerprint identification product.
- ▶ **MegaMatcher 2.0 SDK** for developing a large-scale network-based AFIS or multi-biometric identification product.

Specifications

Fused face-fingerprint identification algorithm	
Matching speed	Up to 400,000 persons per second
Size of one record in database	300 - 6,000 bytes for each fingerprint, 2,284 byte for each face
Maximum database size	Unlimited

Facial recognition engine	
Minimal face image size	640 x 480 pixels
Single face processing time	About 0.2 seconds
Matching speed	Up to 500,000 faces per second

Fingerprint recognition engine	
Fingerprint resolution	500 dpi
Single fingerprint processing time	0.2 - 0.4 seconds
Matching speed	Up to 60,000 fingerprints per second

MegaMatcher SDK

VeriFinger SDK

VeriFinger SDK provides tools for developing and integrating a wide range of fingerprint identification systems, including:

- ▶ Access control
- ▶ Attendance control
- ▶ Customer relationship management (CRM)
- ▶ PC biometrical logon
- ▶ Identity verification

VeriFinger SDK is intended for biometric system developers and integrators. It allows the rapid development of biometric applications for **Microsoft Windows, Linus and Mac OS X** platforms. VeriFinger can be easily integrated into a customer's security system. The integrator completely controls SDK data input and output; therefore, SDK functions can be used in connection with **any scanner, any database and any user interface.**

VeriFinger

VeriFinger algorithm follows the commonly accepted fingerprint identification scheme, which uses a set of specific fingerprint points (minutiae). However, VeriFinger also contains many proprietary algorithmic solutions that enhance the system performance and reliability:

- ▶ **Adaptive image filtration** algorithm eliminates noises, ridge ruptures and stuck ridges, and enables the reliable extraction of minutiae even from poor quality fingerprints.
- ▶ **Tolerance to fingerprint translation, rotation and deformation.**
- ▶ **Fast identification (1:N)** and verification (1:1).
- ▶ **Features generalization** during enrolment for even more reliable identification.
- ▶ **Algorithm optimization** modes for 30+ fingerprint scanners.

- Fast fingerprint identification technology for PC and Mac
- NIS and FVC2006 proven reliability
- Support for 30+ fingerprint scanners
- Multiplatform
- Programming samples for numerous languages

Fingerprint resolution	> 250 dpi 500 dpi recommended
Fingerprint processing time	0.2 - 0.4 seconds
Matching speed	40,000 fp/second
Template size	150 bytes - 1.8 kbytes
Database size	Unlimited

Specifications

VeriLook

- Face identification technology
- High speed and reliability
- Multiple face processing
- Support for most cameras and webcams
- Multiplatforms

The **VeriLook** face identification algorithm and Software Development Kit are designed for biometric system integrators. VeriLook offers capabilities of the most advanced and convenient face identification systems at a reasonable cost:

- ▶ Fast and accurate face localization for reliable detection of **multiple faces in still images** as well as in **live video streams.**
- ▶ **Simultaneous multiple** face processing and identification from a single frame.
- ▶ **Small face template size** for VeriLook-based applications to handle large databases of faces.
- ▶ **False Rejection Rate varying from 1% to 5%,** depending on configured FAR, camera type and lighting conditions.
- ▶ **Features generalization mode** for combining features from several templates to improve the reliability of matching without affecting the template size.

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- ▶ PC Biometrical Logon
- ▶ Identity Verification

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SDK content:

- ▶ Interfaces for image input from files and cameras
- ▶ Camera Manager library form simultaneous capture from multiple cameras
- ▶ Sample applications with source code for:
 - C/C++
 - C#
 - Visual Basic 6
 - Visual Basic .Net
 - Delphi 7
- ▶ Documentation

Specifications

Faces' detection time	Less than 0.1 second
Features' extraction time	Less than 0.2 second
Matching speed	100,000 faces/second
Face template size	2.3 Kbytes

VeriLook SDK