Cognitec
The face recognition company
The trusted face recognition company since 2002.

Cognitec develops market-leading face recognition technologies and applications for enterprise and government customers around the world for:
- recognition of persons in still photographs or videos
- comparison to image databases
- analysis of person characteristics

Cognitec’s products implement the different processes involved in today’s identity management systems using facial data for:
- identity verification
- duplicate check
- background check
- real-time identification in video streams or footage
- acquisition of standards-based biometric portraits

At the same time, Cognitec’s products enable commercial and consumer-facing applications using facial images to:
- recognize VIP customers
- index and sort photographs in digital photo albums
- analyze people flow by count, age, gender and other measures
- enable digital signage devices to tailor advertisements
- authenticate users during phone, PC, and banking login processes

Cognitec’s research and development efforts have always focused on biometric performance. Independent tests performed by government authorities and industry clients have validated Cognitec’s leadership position within the face recognition market, resulting in a track record of successful reference projects worldwide.

**Verification performance**

for 20 Mill. comparisons with passport-style images of adults, as used in passports, drivers’ licenses, ID cards, and other ID documents.

The test database contains highly compressed image material, with age differences of up to 12 years.

For algorithm training and optimization, Cognitec uses internal proprietary databases which do not contain any data from test databases.

**FRVT 2002**

NIST’s first Face Recognition Vendor Test (FRVT) awarded Cognitec’s software the best performance among all participants for large-scale verification, identification and watch list scenarios.

**FRVT 2006**

The 2006 NIST test confirmed the leading performance of Cognitec’s technology. With 22 participants, only Cognitec and ten others completed the large-scale tests. Cognitec exceeded the goal set by the Face Recognition Grand Challenge for increasing recognition performance compared to the FRVT 2002.

**MBE 2010**

The results of the MBE 2010(MBE-STILL) reaffirmed the excellent performance of Cognitec’s algorithms, in particular for identification use cases.

**FRVT 2013**

Cognitec maintained its leading market position. Test results on the performance of age estimation algorithms showed Cognitec performing with the highest accuracy for all age groups. The algorithm showed superior performance in the youth and senior age groups, leading the next most accurate algorithm in 5-year accuracy by 30% and 16%, respectively.

**FRVT 2018**

Cognitec can report remarkable leaderboard positions in the Ongoing FRVT 1:1, ahead of all face recognition companies with established market presence and products. The November 2018 results, comparing 39 algorithms, show Cognitec’s high performance for accuracy tests with VISA photos. In addition, our algorithm performed best for template generation speed at a false non-match rate below 0.01.

* NIST: National Institute of Standards and Technology.

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**Leading the Industry**

Various independent evaluation tests have proven the market-leading recognition accuracy and speed of our FaceVACS® software.

More than twenty years of algorithm research and optimization have resulted in outstanding independence from variances such as head pose, facial mimic, age, hair styles, glasses, and temporary lighting changes.
Cognitec develops and markets face recognition applications based on the world-leading FaceVACS technology. Easy integration of our products is ensured through open system architecture and professional support.

FaceVACS–DBScan ID
compares images from different sources to those stored in multi-million image databases, preventing ID fraud and managing large ID photo databases.
> Read more on page 5.

FaceVACS–DBScan LE
combines our image database search technology with powerful video inspection tools for a multitude of investigation use cases. The toolset includes various filters to enhance image quality and inspect image pairs.
> Read more on page 5.

FaceVACS–VideoScan
recognizes people’s faces in live video streams and video footage, compares them to image databases, and instantly finds known persons. Anonymous facial analysis computes data to count individuals, analyze demographics and track people flow.
> Read more on page 6 and 7.

FaceVACS–Entry
combines smart hardware for image acquisition with market-leading software for verification processes, and is ready for integration into electronic gates (eGates) at border control checkpoints.
> Read more on page 8.

FaceVACS–PortraitAcquisition
streamlines the production of high-quality photos suitable for ID documents and future face recognition applications, and performs compliance checks for ISO 19794-5 and other standards.
> Read more on page 9.

FaceVACS Engine
enables customers to develop new applications using face recognition technology.
> Read more on page 9.

FaceVACS–DBScan ID

Applications
ID management
- prevent ID fraud
- find clerical errors in ID databases
- find duplicate ID photos in large image databases

Photo search
- compare facial photographs with image databases, e.g. of celebrities or user groups

FaceVACS–DBScan LE

Applications
Law enforcement
- increase speed and accuracy of criminal investigations
- find missing persons

Photo gallery indexing and sorting
- search collections of digital images
- use a facial image to find and sort photos automatically
- run on PCs or in the cloud
FaceVACS-VideoScan

- instantly detect, track, recognize and analyze people in live video streams or video footage
- store and view face streams for each appearance of a person over time
- use anonymous face recognition to compute people analytics while protecting privacy
- perform real-time comparisons to image databases and watch lists
- receive real-time signals when user-defined events occur
- define, view and export statistics about people flow, visitor demographics, and client behavior
- receive event notifications and statistics on mobile devices
- run as a stand-alone application or integrate into third-party solutions

General features
- stores a high-resolution video sequence of the cropped face (face stream) for each appearance in front of a camera
- compares all appearances of persons against each other in real time and clusters identities
- uses Cognitec's latest face recognition algorithm for fast n:n comparisons to multiple databases
- supports anonymous face recognition for people analytics, intelligent signage, and people flow applications
- imports sets of video/image files for detailed investigations
- provides a clear user interface with expandable pop-up screens to view data details and live video streams

Real-time event display
FaceVACS-VideoScan installs with a catalog of pre-defined event types. An event appears on the console screen and/or a mobile device if, for example:
- a person is matching a gallery image
- a person is matching certain criteria (e.g., male, Asian, 30-40 years old)
- a person is first seen within one area and later within another (transit)
- more than n persons are seen within a specified area (crowd)

Statistics
Users can configure data display for:
- count of individuals during a respective time window
- visit count in relation to visit length
- average transit time
- distribution of male/female visitors
- distribution of age groups

Detailed investigations
- supports complex investigations of persons appearing in real-time camera streams and/or stored video material
- finds persons enrolled in an image database or unknown persons
- enables searches based on person, time, place, gender, age range, and more
- stores and reports investigation results

FaceVACS-VideoScan C5
- combines face detection/tracking and camera technology in a single device
- provides high image quality of machine vision cameras while using bandwidth and network structures for typical surveillance cameras
- optimal integration with FaceVACS-VideoScan; migrates video processing intelligence of the stream processor into the input device

Applications
Physical security
- screening of public and private places (e.g., malls, banks, airports, business centers, real estate)
- identify intruders, unauthorized personnel, shoplifters and otherwise barred persons
- find subjects in videos recorded at a specific location and time

Business intelligence
- count visitors by zones within your facility
- detect repeat visitors and frequency of visits
- detect age, gender and ethnicity distribution

People flow
- perform anonymous face recognition to measure crowds and waiting/transit times in specific areas
- alert security staff, direct traffic, and enhance customer experience

Intelligent signage
- detect age, gender and ethnicity of the audience and deliver tailored messages and displays

Border control
- check videos recorded at border checkpoints against a watch list of undesired immigrants

VIP recognition
- identify registered customers in clubs, banks or stores
- monitor access
- offer special treatment

Find a demo video at www.cognitec.com
Please request the specification document from our sales team at sales@cognitec.com

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FaceVACS-Entry

- captures optimal facial images for fast, accurate identification processes
- enables automated passport control in less than 15 seconds
- compares live facial images to biometric photos stored in passports and other ID documents
- performs instant biometric verification to allow entry to traveler or deny access
- detects presentation attacks (checks for presence of a real face)
- integrates into eGates at airports, harbors and other border checkpoints

Components and features

FaceVACS-Entry consists of the P5 panel (hardware and firmware) and the face recognition software Core, which incorporates Cognitec’s latest matching algorithm.

PS
- modular, flexible design
- mobile unit holds monitor, LEDs and video cameras
- monitor displays mirror live image and instructions
- performs measurements for face position, frontal pose, still gaze, eyes open and mouth open
- fast height adjustment according to face position
- proprietary sensor detects presentation attacks (masks, printed images, video material)
- installs onto certified glass surfaces or can be ordered with glass cover

Core
- includes market-leading algorithm for optimal verification performance
- verifies live images against images in ID documents and/or facial images in databases
- triggers signal to instantly grant or deny access according to the person’s security status
- includes user-friendly interface for easy integration

FaceVACS-PortraitAcquisition

- streamline production of high-quality photos suitable for face recognition
- supervise and operate the acquisition process
- integrate self-service technology into kiosk applications
- store demographics with facial images
- assess key technical characteristics such as frontal pose, uniform lighting, glasses and open eyes
- check compliance with international standards for full frontal image type (e.g. ISO 19794-5 standard)
- integrate software into existing document issuing processes and applications

FaceVACS Engine

- develop new face recognition applications with use-case and platform-specific software development kits
- work with clear and logical APIs
- use industry-leading algorithms for enrollment, verification, identification, age estimation, gender detection, and portrait characteristics check
- apply multiple algorithms
- use for many application platforms, from mobile devices to high-end servers

Applications

- ID management
- access control
- border control
- VIP recognition
- photo indexing and sorting
- web applications for digital photo gallery search
- phone, PC, and banking login

Find a demo video at www.cognitec.com
About Cognitec

Cognitec is the only company worldwide that has worked exclusively on face recognition technology since its inception in 2002.

Experiencing steady growth at business locations in Dresden, Boston and Sydney, the company is proud to maintain a stable, market-leading position within the industry, and to uphold the trust it has gained as a reliable, experienced provider of biometric technologies.

Our founders have been working on specific algorithms for face recognition technology since 1995. Commencing as early as 1996, government and industry customers began relying on the FaceVACS technology for a wide range of applications.

Our technology and products are built on the extensive knowledge of our scientists and software engineers. Their continuing dedication aims to deliver the best performance available on the market. Successful implementations worldwide confirm excellent performance in terms of recognition accuracy, response times, scalability and reliability.

Cognitec’s products are easy to use, flexible, extendable, and take into account current industry standards. We provide our partners with open system architecture and excellent documentation, tutorials, training, and technical support.

In order to best serve our worldwide customers, Cognitec has established sales and support offices in Germany; the United States and Australia.

Cognitec is a member of
- ASIAL
- Biometrics Institute
- European Assoc. for Biometrics
- IIBA
- Silicon Trust
- TeleTrusT

Official Supporter of the Biometrics Institute Privacy Charter

Cognitec received the quality seal ‘IT Security made in Germany’, issued by TeleTrusT.

Reference Projects

Since 2002, Cognitec has partnered with more than 400 clients, value-added resellers and system integrators in 50+ countries. Our partners have developed and continue to create new solutions using our technology—testament to the technical proficiency and customer-friendliness of our products. Here are a few examples:

Border control
comparison of passport photo to the person’s face in more than 1000 automated border control solutions worldwide (including eGate systems from various system integrators)

Voter registration
de-duplication of voter registration image database in Africa (database size of 10 million images)

ID management
duplicate check of new passport photos by comparison to multi-million image databases of existing passport images; used by passport, visa and driver’s license agencies in Australia, Canada, Germany and the US

Law enforcement
identification of suspects from photographs and video stills in comparison to multi-million image databases of offenders; used in Australia, France, the Netherlands, Germany and the US (database sizes range from 200,000 to 7 million)

People flow management
real-time analytics and redirection of human traffic at Gatwick Airport (with 175 cameras), London City Airport (with 10 cameras), Edinburgh Airport and Luton Airport, via the MFlow application developed by Human Recognition Systems

A more complete list of customers can be found at www.cognitec.com or send a request for references to sales@cognitec.com.
With a clear focus on face recognition technology, we are committed to delivering the best performance available on the market.