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.

**NIST Tests**

**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**

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 reported 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 100 algorithms from 57 developers, show Cognitec’s high performance for accuracy tests with visa photos. In addition, Cognitec’s template generation was the fastest among the highest ranking algorithms with false non-match rates lower than 0.01, at a false match rate of 0.0001.

**FRVT 2019**

Cognitec announced its successful participation in the FRVT: Identification, confirming the solid market position of the FaceVACS matching technology, and the achievements of the company’s algorithm research and development.

The September 2019 results, comparing 203 algorithms, show Cognitec’s excellent identification performance for large mugshot galleries, and greatly improved performance values for unconstrained images with severe pose variations.

*NIST: National Institute of Standards and Technology, USA*
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
- compare facial images from different sources to those stored in multi-million image databases
- integrate into your applications and infrastructure

> Read more on page 5.

### FaceVACS-DBScan LE
- search recorded video material for known or unknown persons
- control thresholds and match list sizes
- use investigation tools and filters to enhance images and compare them side by side
- manage demographics and other case-related data

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

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

**Find a demo video at www.cognitec.com**

### FaceVACS-VideoScan
- recognizes people’s faces in live video streams and recorded videos, 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-VideoScan

- instantly detect, track, recognize and analyze people in live video streams or recorded video footage
- perform instant comparisons to image databases/watch lists
- receive real-time notifications when user-defined events occur (e.g., Banned Person at Entrance West)

General features
- stores high-resolution video sequence of the cropped face (face stream) of each appearance
- compares all persons against each other in real time to cluster identities
- clusters and displays all appearances of each person
- installs with a pre-defined catalog of events
- allows for custom configuration of event names and parameters to serve various use cases
- performs complex investigations on persons appearing in real-time camera streams and/or recorded video files
- uses Cognitec’s latest face recognition algorithm

Event notifications
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, 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
- average transit time
- distribution of male/female visitors
- distribution of age groups

A managed system
FaceVACS-VideoScan ES
The Enterprise Solution consists of software, specialized cameras, servers, and installation/support services, and offers the advantages of an all-installed system:
- no upfront cost
- affordable subscription pricing
- no hardware investment and staff training costs
- guaranteed performance criteria

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

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 and gender of the audience and deliver tailored messages and displays

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

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

Find a demo video at www.cognitec.com
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.

P5
- 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

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

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

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.

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)

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)

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

Video security

real-time recognition of known persons (shoplifters, problem gamblers, terrorists, etc.) at casinos, airports, stores and border control points in Canada, Panama, the UK and the US

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.
About the cover artist

The oil painting was created for Cognitec by Vietnamese artist Do Van Binh. Born in 1975 in the Nam Dinh Province, he grew up in a large family with six siblings, and has been painting since the age of seven. He is a graduate of the Vietnam University of Fine Arts and represented by the D&C Art Gallery in Hanoi: oilpaintingdc.com

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