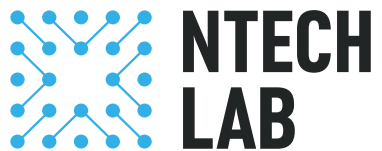


# FACIAL BIOMETRICS

by NtechLab



# About NtechLab

NtechLab is the world's recognized expert in face recognition technologies driven by artificial intelligence and neural networks. Dozens of engineers work on the development of our unique products. The integration of FindFace products into city-wide CCTV networks provides a high level of security and comfort for citizens.

FindFace products ensure high speed and face recognition accuracy on huge datasets (containing more than 1.5 billion images).

The quality of our technology is confirmed by our partners, customers and research centers from all over the world, including the Bureau of Special Technical Events of Russia's Ministry of Internal Affairs, the Main Administration of Criminal Search of Russia's Ministry of Internal Affairs, the Regional Office of the Ministry of Internal Affairs for Ryazan, the Ministry of Internal Affairs of Mordovia, the Ministry of Internal Affairs of the Udmurt Republic, NIST (the National Institute of Standards and Technology, USA), IARPA (the Intelligence Advanced Research Projects Activity, USA).



**FindFace offers endless possibilities**



CONFIDENTIAL



## Power of Face Recognition

Our mission is to deliver a superior level of security and comfort for every citizen







# Recognized across the world

The world's fastest and most accurate face recognition algorithm

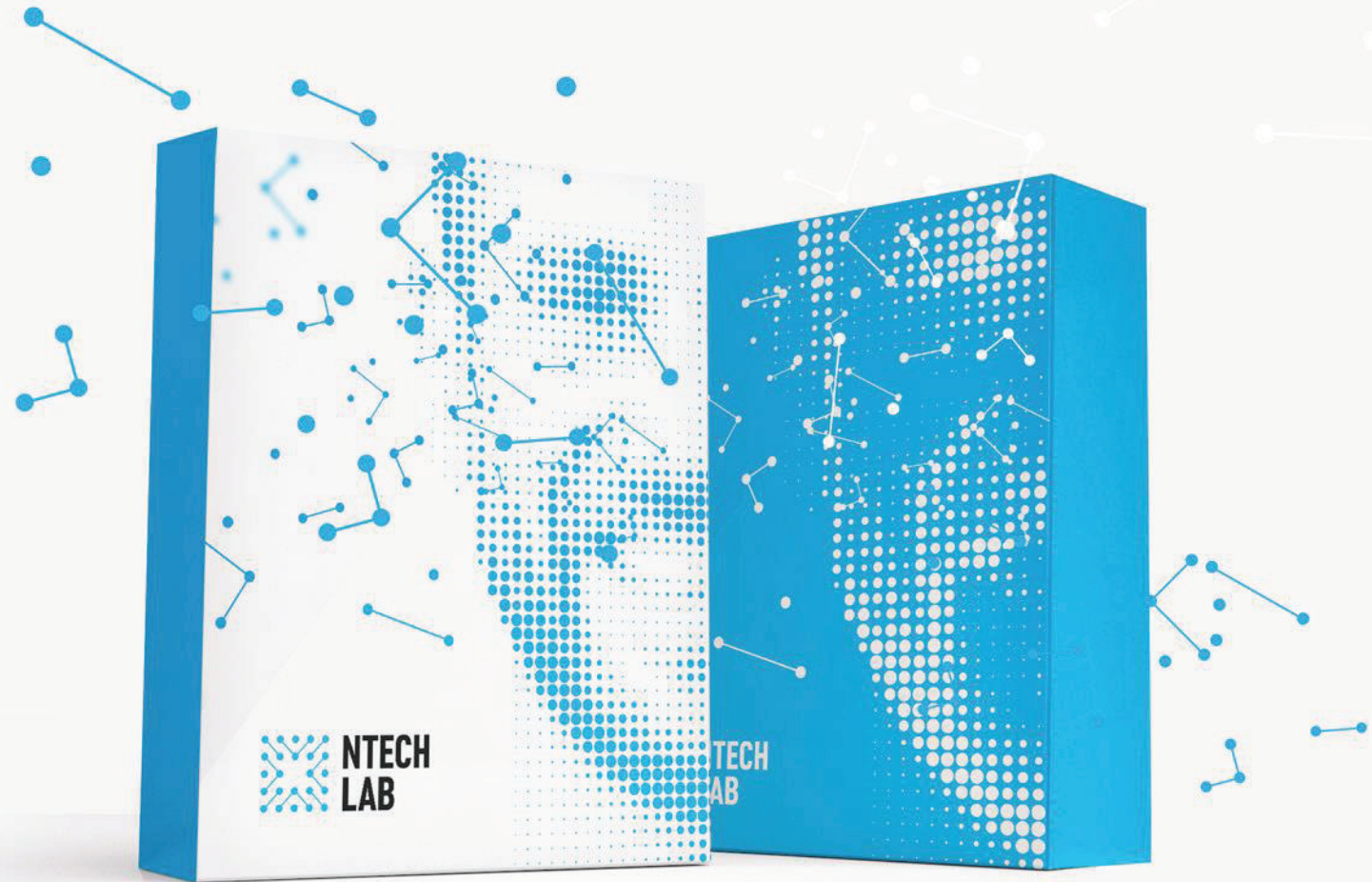


Recognized by experts, proved by customers

 <p><b>MEGAFACE CONTEST</b></p> <p>International challenge in face recognition algorithms at the University of Washington, USA</p>	 <p><b>IARPA</b></p> <p>International contest executed by the Intelligence Advanced Research Projects Activity, an organization within the Office of the Director of National Intelligence, USA</p>	<p><b>EMOTIONNET CHALLENGE</b></p> <p>Championship for developers of emotion recognition algorithms hosted by the University of Ohio, USA</p>	 <p><b>NIST FRVT ongoing</b></p> <p>Testing executed by the National Institute of Standards and Technology (NIST), USA</p>	 <p><b>WIDER FACE AND PEDESTRIAN CHALLENGE</b></p> <p>The Challenge addresses the problem of detecting pedestrians and cyclist in unconstrained environments.</p>
<p><b>2015</b></p> <p>Best accuracy in face recognition</p> <p>Outperformed Google and other competitors</p>	<p><b>2017</b></p> <p>Top performer in: Verification Accuracy</p> <p>Identification Speed</p>	<p><b>2017</b></p> <p>Best performance on emotion recognition</p>	<p><b>2018</b></p> <p>Best Results for a database of wild images</p>	<p><b>2018</b></p> <p>The III best performance on the detection of pedestrians and cyclists in images collected from surveillance cameras</p>

# PRODUCTS

by NtechLab



# NtechLab product portfolio

## Solutions for developers

### **FindFace** Enterprise Server SDK

Server-side solution for developers. Allows one to integrate the functionality via API to fit the customer's tasks

### **FindFace** Cloud API

Cloud-based face recognition platform for developers

### **FindFace** SDK

Low-level libraries for tight integration with 3rd party solutions

## Solutions for end-customers

### **FindFace** Security

Out-of-the-box product for end-customers. Recognizes faces in multiple video streams

### **FindFace** Security Mobile Van

Mobile biometric complex for face recognition on demand

### **FindFace** Security Mobile

Mobile application for FindFace Security

## Industrial solutions

### **FindFace** Public Safety

Solution for public security

### **FindFace** Retail

Solution for Retail

### **FindFace** Casino

Solution for Casino

# Why our products are unique

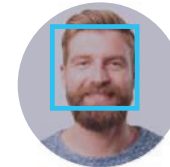
The best key performance indicators among face recognition solutions in the world



Face recognition accuracy



Gender recognition accuracy



Face Vegetation



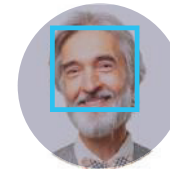
Glasses



Unique visitor count accuracy



Age recognition accuracy



Getting old



Occlusions



Probability of detecting a person in a video stream



Search time in a database of 500 million images



Head turns



Emotions

\* NtechLab's algorithm was recognized as the best by the results of the international testing of NIST and the IARPA competition

# Our products address two major tasks

NtechLab products deliver a superior level of security and comfort. They enable one to identify people of interest and prevent crimes. Our face recognition solutions can also be used to increase business efficiency and enrich customers' data.



## SECURITY

Identifying people in live video streams in real time



## CUSTOMER DATA ENRICHMENT

Enriching customers' data

Gender, age, and emotion detection

# NtechLab products' advantages

Our task is to prevent a crime before it happens. FindFace solution takes less than 5 seconds to identify a criminal in a huge crowd and alert a security officer on their arrival.

## Security



Decrease crime and increase public safety for an organization, city or state



Locate the whereabouts of wanted people and prevent crimes



Search for missing people, including children



Provide security for critical transportation infrastructure: airports and railway stations. Person identification and flight registration without a need to present documents



Security for crowded events and public venues



Instant person identification, including sending alerts to mobile applications



Prevention of shoplifting and fraud by customers and employees in retail stores and financial organizations



Controlling access to particular zones for commercial and manufacturing facilities



# NtechLab products' advantages

How to make a customer the best possible recommendation? Access the complete data about him or her! Age, gender and emotions detection, integration with a loyalty program and more allows one to optimize sales and marketing processes.

## Growth of revenue, customer loyalty and business efficiency



Creation and management of unique multichannel communications with a customer



Deep analysis of customers' experience and preferences



Creation of personalized recommendations based on accurate customers' data



Enables personalized recommendations for target audience



Increasing the average check



Decreasing costs on attracting new customers



Creation of heat maps that track customers' movements within a retail space



Accurate data about customer satisfaction

# INDUSTRIES



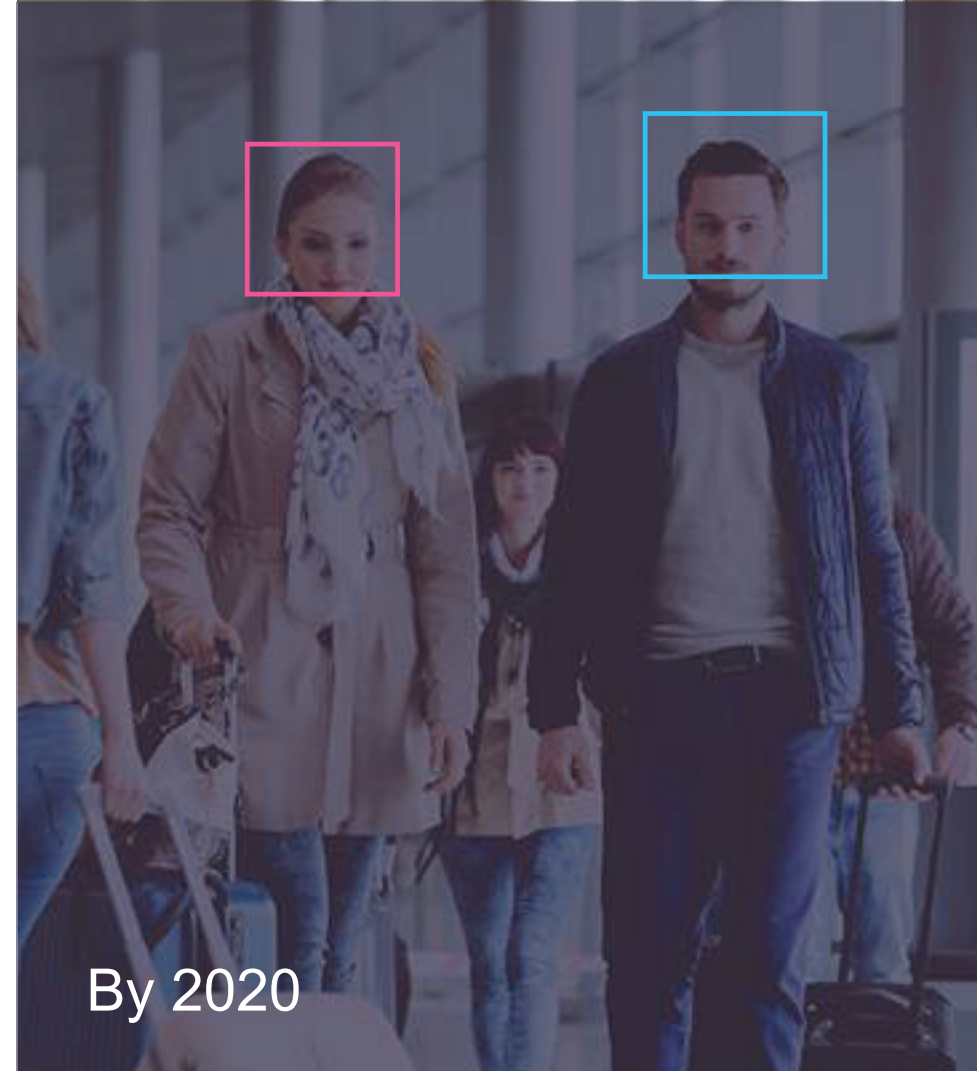
# State

Delivering a superior level of public safety in crowded locations, public venues and transportation sites



## Applications and use cases

- Public safety: search for criminals, missing children  
Chicago saw a **33%** decrease in crime after using a face recognition technology
- Identification of important guests and increased service quality: flight registration and access to VIP lounges without a need to present documents
- Transportation infrastructure facilities: person identification and search for suspicious people
- Crowded locations: person identification allows one to prevent troublemakers and blacklisted people from attending an event



By 2020

All the world's largest airports will be equipped with a face recognition technology

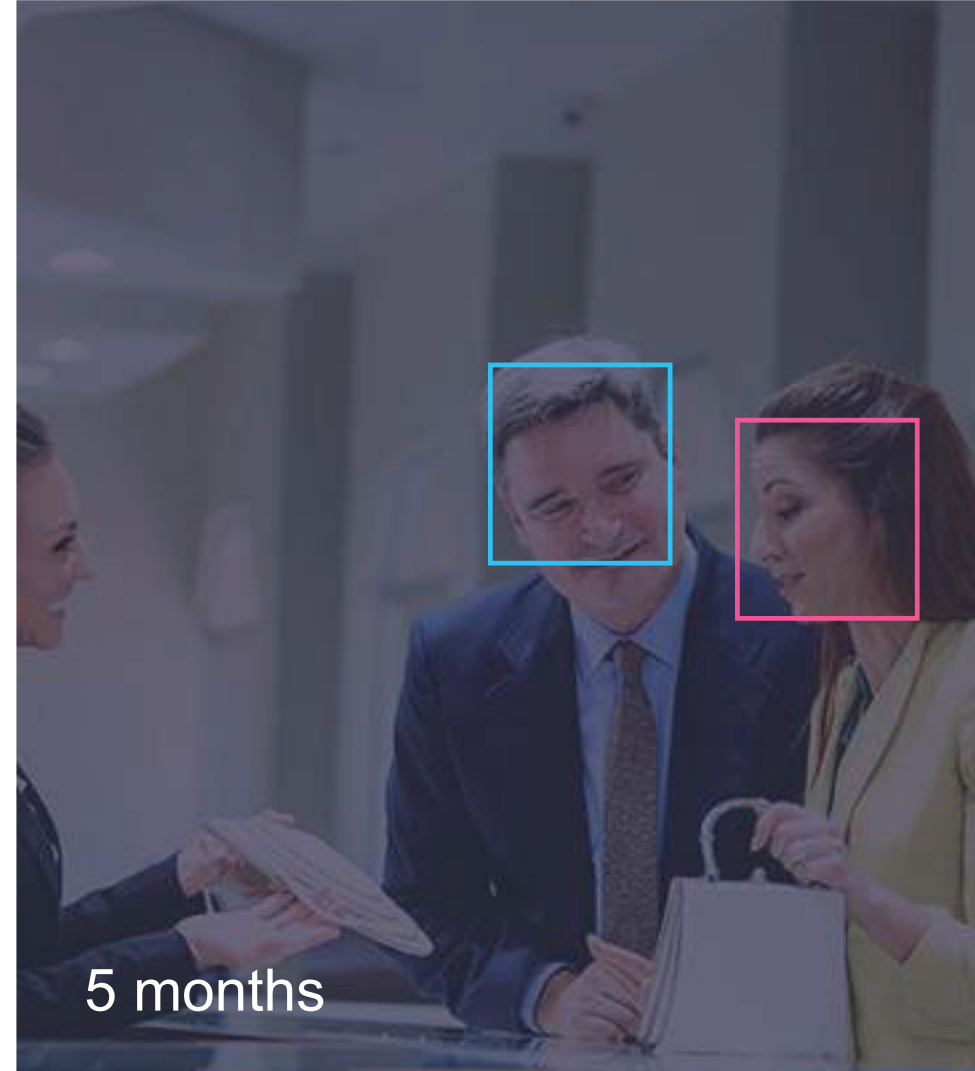
# Retail

Know your customer. Drive down costs and increase business efficiency



## Capabilities

- Prevention of theft losses from shoplifters and employees  
  
Every year Russian stores lose **\$6,17 billion** because of theft. It amounts to 1% - 3% of turnover of every store  
  
**92%** companies that use a face recognition technology report a successful prevention of retail stores' losses and organized theft
- Growth of sales and creation of multichannel communications due to the identification of customers and customers' data collecting
- Customer behavior analytics. Creation of heat maps and customers' movement routes



5 months

Average ROI for a face recognition technology

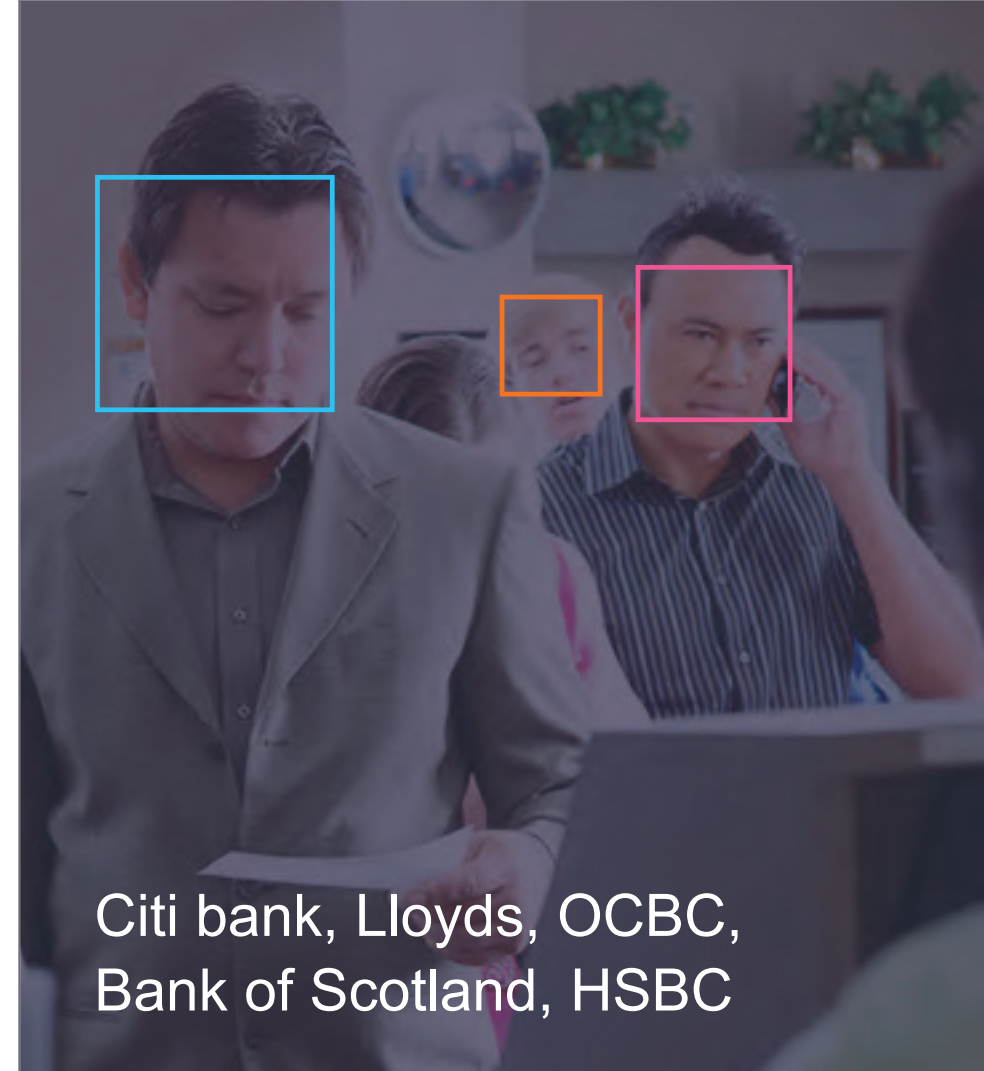
# Financial organizations

Accurate data for decreasing fraud and increasing customer service quality



## Capabilities

- Reducing customer loan and cash transaction fraud. FindFace solution verifies the customer's face vs their documents, minimizing fraud risks
- Reducing fraud risks and boosting the comfort for customers when they use mobile applications and ATMs. FindFace solution allows one to identify a customer by their face
- Customers' data enrichment and identification of important customers. The possibility of creating multichannel communications and personalized recommendations



Citi bank, Lloyds, OCBC,  
Bank of Scotland, HSBC



Dozens of other financial organizations in the world successfully use face recognition technologies

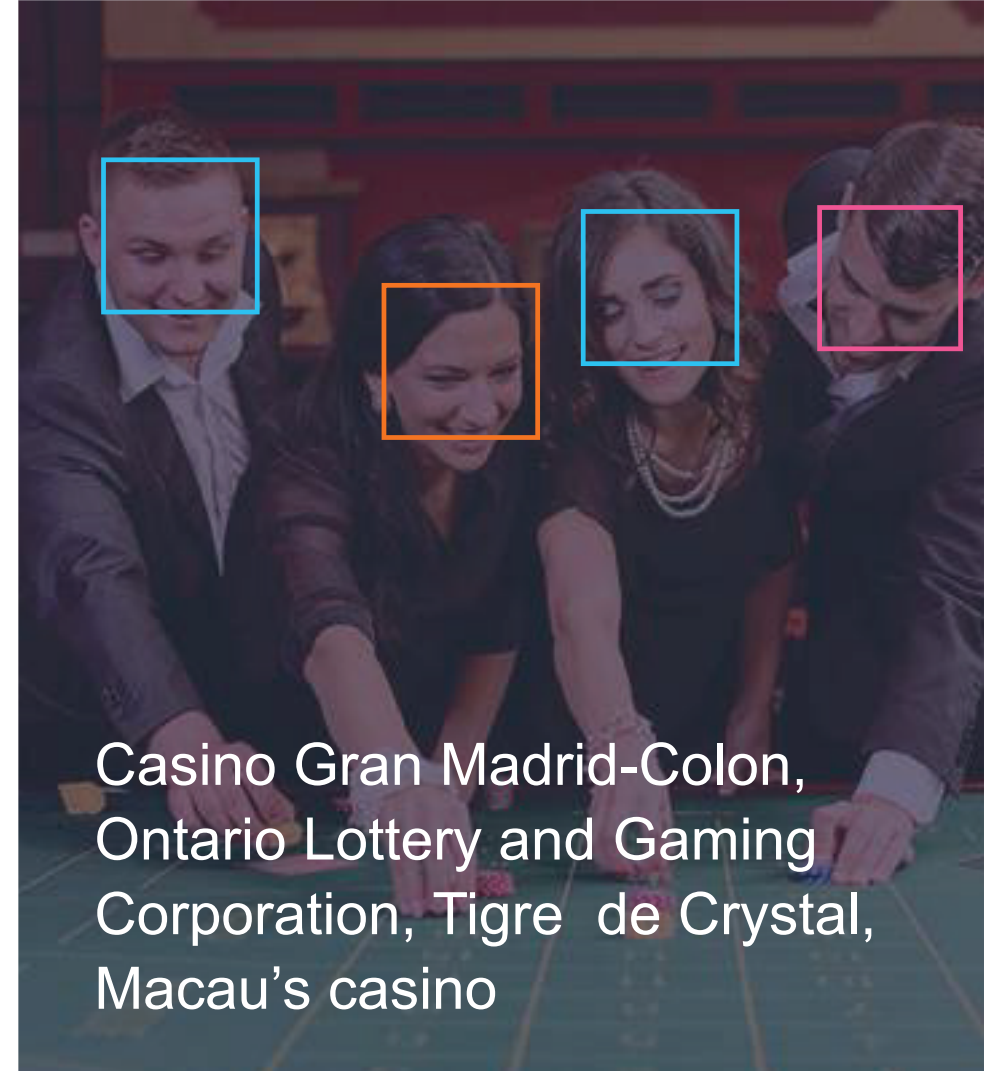
# Entertainment

Meet your customers as dear guests



## Capabilities

- Ensuring safety due to the fast and accurate recognition of unwelcome guests
- Accelerating registration of guests due to applying facial biometrics
- Increasing customer service and creating new impressions for guests



Casino Gran Madrid-Colon,  
Ontario Lottery and Gaming  
Corporation, Tigre de Crystal,  
Macau's casino



And many other gambling establishments in the world successfully use face recognition technologies

# Business application scenarios

## PERSON'S IDENTIFICATION

Finds a person's photo in a database among hundreds of millions of images in less than a second

## BREAKTHROUGH IN ONLINE SERVICES

Face and emotion recognition takes online services to a whole new level, rendering them more comfortable, modern and safer

## BEHAVIOR ANALYSIS

The capabilities of face recognition and data collection allow you to analyze customers' behavior in hotels and casinos

## CUSTOMER BEHAVIOR ANALYSIS

Recognition and tracking of customers' movements with video surveillance cameras. Data collection and analysis of data address your business tasks

## OFFLINE RETARGETING

Personalized advertising can be created on the basis of the data received via video surveillance cameras. Identify your customers by the social networks' data and offer them products and services they really need

## SMART PHOTO ALBUMS

You can create personalized photo albums for every participant of the photo! FindFace algorithm automatically sorts out large collections of photos and delivers unforgettable impressions for every participant of the photo

## BIOMETRIC IDENTIFICATION

Delivering a higher level of security due to the integrated algorithm of face recognition into the software components for business management and access control system. Creating white- and blacklists with the FAR 1:1,000,000.

## FRAUD PREVENTION

Checking a database for any matches against photos. Confirming the identity of a person against the photo when using a database of documents. You can create your own database of fraudsters or loyal customers, add new people to it, work with your business partners' similar databases.

# Applications

## PUBLIC SAFETY

A city can become much safer due to the automatic identification of suspects and potentially dangerous people, by using a special algorithm built in surveillance cameras

## RETAIL

Increase the traffic due to the analysis of customers' preferences, create the routes of their movements on the basis of heat maps. Offer your customers only the products they really need

## ACCESS CONTROL

Access control and a whole new, improved level of security with the advanced algorithm FindFace. Creating white- and blacklists with the FAR 1:1,000,000

## BANKING

Improving your interaction with a customer in retail sales, mobile banking, and ATM experience

## DATING WEBSITE

Searching for a person using his photo in a multimillion database in less than a second. This will allow you to quickly identify fake and duplicated accounts

## EVENTS

Simple and fast registration of guests at conferences, exhibitions, and seminars with the help of the advanced algorithm FindFace

## SOCIAL NETWORKS, ENTERTAINMENT

Automatically sorts out large collections of photos by the faces of the people in them. The FindFace algorithm can create personalized photo albums and unforgettable impressions for every participant of the photo

## CASINO

Big Data technologies and face recognition allow you to study customers' behavior in hotels and casinos



# Endless possibilities of FindFace solutions for law enforcement and business

NtechLab products can be successfully used to ensure the safety of large cities and business efficiency



The executive body of Moscow city in the sphere of information technologies



The Interior Ministry of Russia



Russia's largest subway



The Government of the Republic of Tatarstan



Major telecommunications operator



Microfinance organization



Developer of innovative mobile apps and online software



Industry leader in IP-based security solutions



Company that specializes in the development of multimodal biometrics



Bank



Leading cloud-based CRM system



Bank



Russia's largest jewelry retail chain



The first casino, hotel and entertainment complex in Russian Far Eastern region



A grocery supermarket chain of the premium segment

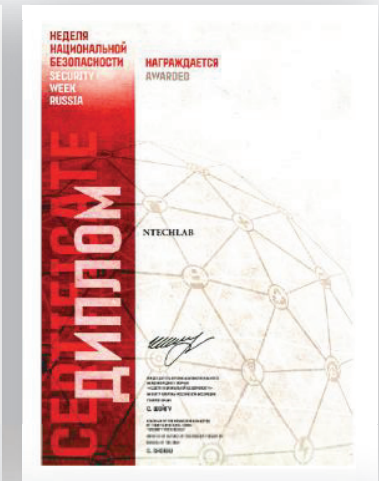


One of the largest shopping malls in Saint Petersburg

# Customers' assessment of our products

## Recommendations and acknowledgments from state and commercial organizations

- The Bureau of special technical events of the Interior Ministry of Russia
- The Main Administration of the Criminal Search of the Interior Ministry of Russia
- The Department of Information technologies of Moscow
- The Interior Ministry of Russia for the Udmurt region
- The Interior Ministry of Russia for the Republic of Mordovia
- The Administration of the Interior Ministry of Russia for Ryazan oblast
- Almetyevsk city, the Republic of Tatarstan
- Casino Tigre de Crystal
- 1C-Bitrix
- Jewelry retail chain 585



# Business geography

**>100** Customers and partners



**20** Countries in the world have already appreciated the unique capabilities of FindFace solutions



# How leading global publications cite NtechLab

«Face recognition systems take people detection to a new level... Who could ever imagine that a photo once uploaded to Facebook could would surpass fingerprints? The same can be said about any other photo, regardless of whether a person was aware of being shot by a camera or not.»

**OBSERVER**

«Their facial recognition software outperforms Google and China's best programs — spotting a single face within a crowd of 1 million within a fraction of a second... Co-founders Artem Kuharenko and Alexander Kabakov showed U.S. government officials what their program is capable of for the first time this week.»

**BuzzFeed**

**OBSERVER**

**Bloomberg**

**OBSERVER**

**Newsweek**

**Forbes**

**The Telegraph**

**The Washington Post**

**DAILY Mirror**

**TC**  
TechCrunch

Thank you for your attention

# BIOMETRIC TECHNOLOGIES

by NtechLab

[ntechlab.com](http://ntechlab.com)

[findface.pro](http://findface.pro)

Tell: +91 - 120-2423448

Email: [enquiry@secez.com](mailto:enquiry@secez.com)

