





BEZBEDNOST *i* PREPOZNAVANJE LICA

Security & Face Recognition

www.tocsearch.com

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Ciljevi

0011

- Metodi prepoznavanja lica
- Demonstracije softvera za prepoznavanje lica
- Android aplikacija
- Vi pitate 😊

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Baza podataka o terorizmu i organizovanom kriminalu



The screenshot shows the homepage of the TOC-search website. At the top, there is a navigation menu with links for Home, About TOC search, TOC search team, and Contact. The main header features the TOC-search logo and the title "Terrorist and Organized Criminal Search Data Base". Below the header, there is a "Flash points" section with a date and a headline: "Date: 30.01.2011. - 10 people died in violent clashes in Egypt". The main content area is titled "What is TOC-search?" and contains two paragraphs of text. The first paragraph describes the TOC-search as a dynamic data base offering comprehensive information on the global terrorist network. The second paragraph explains the TOC-s data base as an online search engine providing in-depth search and analysis on various terrorist-related categories. To the right of the main content, there is a "Members login" section with fields for Email and Password, a "Login" button, and a link for "Forgot your password?". Below the login section, there is a "New to TOC search?" section with a "Create an account" button. At the bottom right, there is a "See TOC search in action" section with a video player showing a preview of the search interface.

Home | [About TOC search](#) | [TOC search team](#) | [Contact](#)

TOC search
by TOC-s team

Terrorist and Organized Criminal Search Data Base

Flash points Date: 30.01.2011. - 10 people died in violent clashes in Egypt

What is TOC-search?

The TOC-search (Terrorist and Organized Criminal Search Data Base) is a dynamic data base which offers comprehensive information on global terrorist network and helps researchers, analysts, students and others working to prevent terrorism. It is result of a common project realized by the [Faculty of Security Studies](#) and [Faculty of Mathematics](#) in Belgrade which had started in December 2007.

The TOC-s data base is designed as online search engine that provides in-depth search and analysis on various terrorist-related categories: terrorist incidents, groups, organizations, members, leaders and supporting individuals and organizations. It also provides extensive information on links and relations between the mentioned terrorist-related categories and enables the corresponding search and predictions as well. One of the key advantages of the TOC-s is fact that its basic data source is verified information provided by PTSS reports of the [George C Marshall European Center for Security Studies](#). In this way, we provide constant and automatic refreshment of the base with up-to-date information. [read more about TOC-s >>](#)

Who can access TOC-s database?

There are two levels of data access are implemented in the TOC-s. The first level is named "blue key" and it is available for students and researches in academic institutions and research centers. The "blue key" enables the access to all open-source data stored in the base. The second level of data access, named "red key" is reserved for legal authorities, state institutions and state government. The "red key" opens the part of the TOC-s with confident data. The owner of the "red key" also has access to the open source data, as the "blue key" owner. Only institutions and agencies which have a contract with TOC-search have an access to the red key data and they are red key members. If you want to become a red key member please contact us.

Disclaimer

Members login

Email

Password

[Forgot your password?](#)

New to TOC search?

See TOC search in action

See TOC search in action

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Nadgradnja baze podataka TOC-a

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- Softver za prepoznavanje lica
(ručno i automatsko)
- Android aplikacija
- Statistička obrada i analiza podataka
- Metod predikcije

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Digitalna (dvodimenzionalna) slika

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- Statička

(skenirana, slikana digitalnim aparatom/kamerom)

- Dinamička

(video zapis iz koga se izdvajaju digitalne slike)



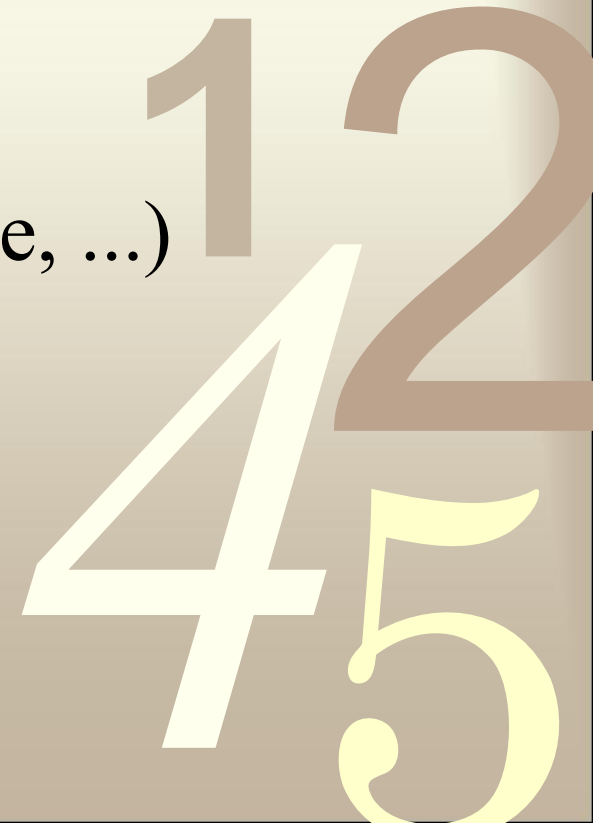
Prepoznavanje lica (eng. *Face recognition*)

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Preduslovi:

- savremen hardver
(sigurnosne kamere, web kamere, ...)
- softver za prepoznavanje lica

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Biometrijski metodi

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- Metod otiska prsta
- Metod dužice oka
- Metod prepoznavanja lica
- Metod prepoznavanja glasa
- Metod potpisa
- Metod geometrije dlana

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Značajne tačke (eng. *landmarks*)

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- Anatomski značajne tačke
- Matematički značajne tačke
- Pseudo značajne tačke

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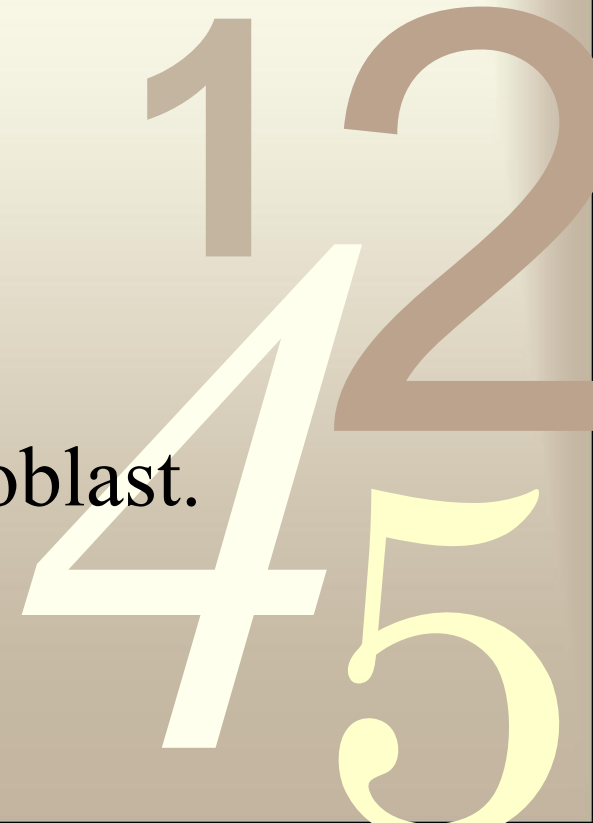
Značajne tačke (eng. *landmarks*)

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Anatomski značajne tačke

Biološki značajne tačke
koje su strogo definisane
od strane stručnjaka za određenu oblast.

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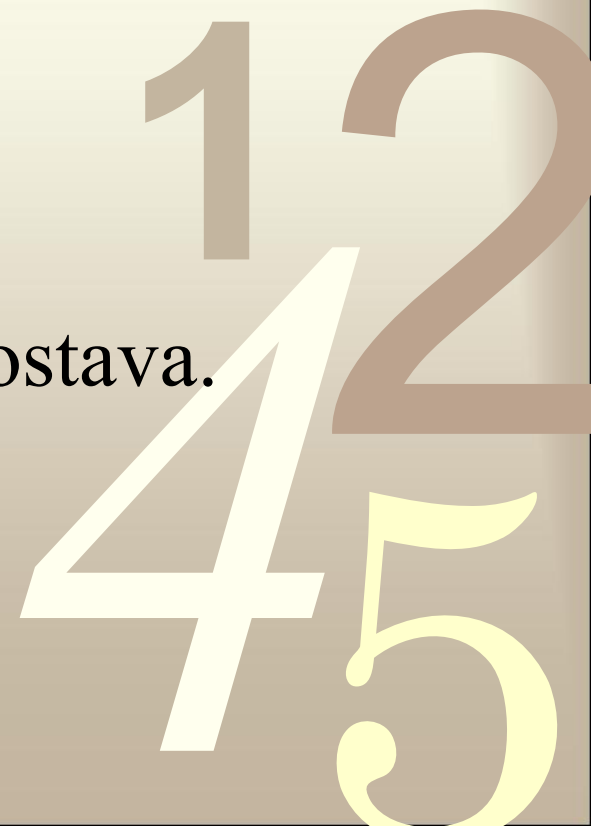
Značajne tačke (eng. *landmarks*)

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Matematički značajne tačke

Definisane na osnovu nekih matematičkih ili geometrijskih svostava.

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Značajne tačke (eng. *landmarks*)

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Pseudo značajne tačke

Definisane su po ivici objekta ili između dve postojeće anatomske ili matematičke značajne tačke.

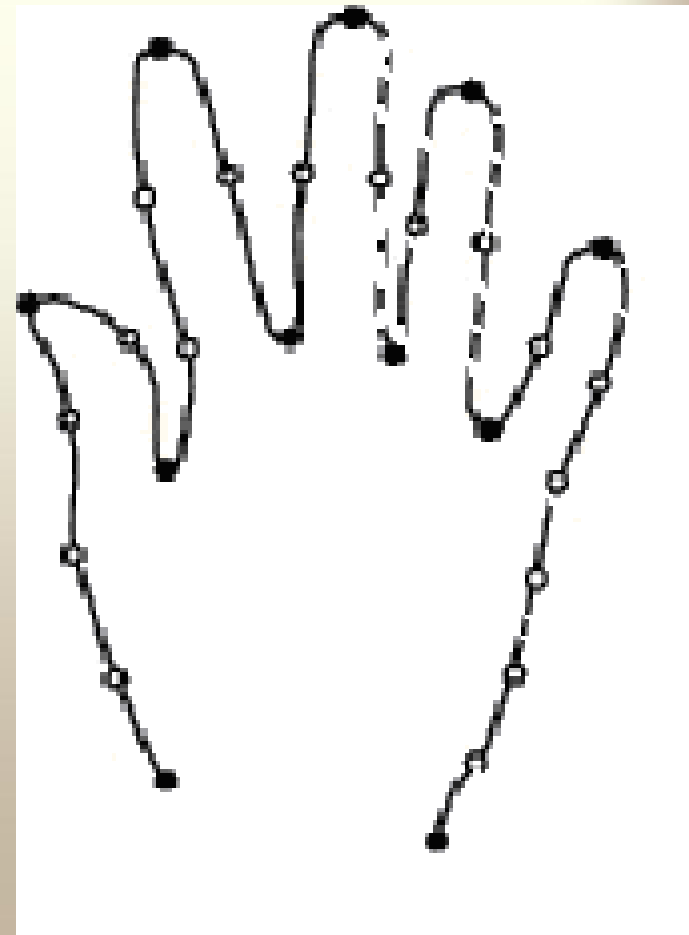
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Značajne tačke (eng. *landmarks*)

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- anatomske značajne tačke
 - pseudo značajne tačke



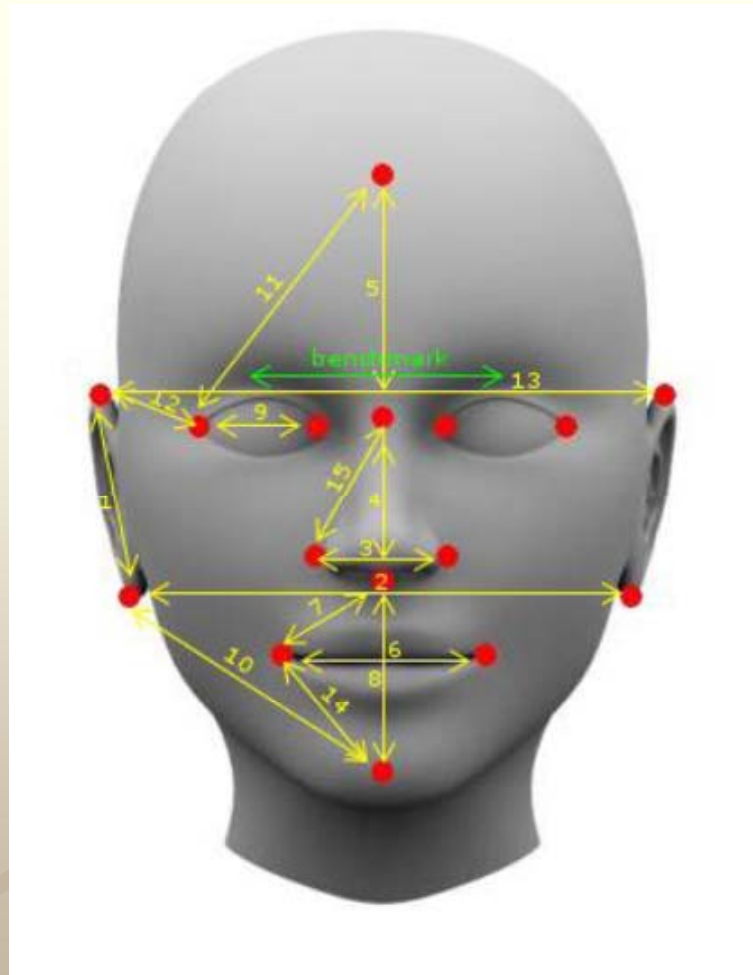
Značajne tačke lica

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- rastojanje između očiju, zenica, ušiju,
- dubina očnih udubljenja,
- širina, vrh i koren nosa,
- vilična linija,
- brada,
- jagodice, ...



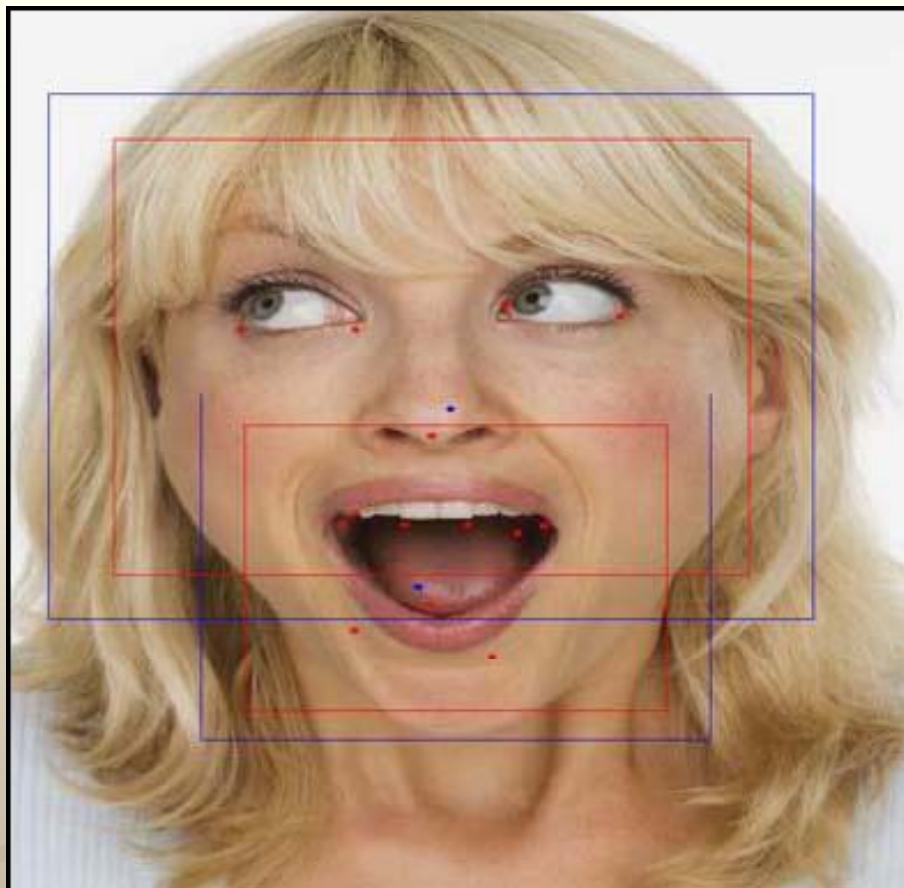
Značajne tačke lica



1
2
4
5

Pouzdanost prepoznavanja lica

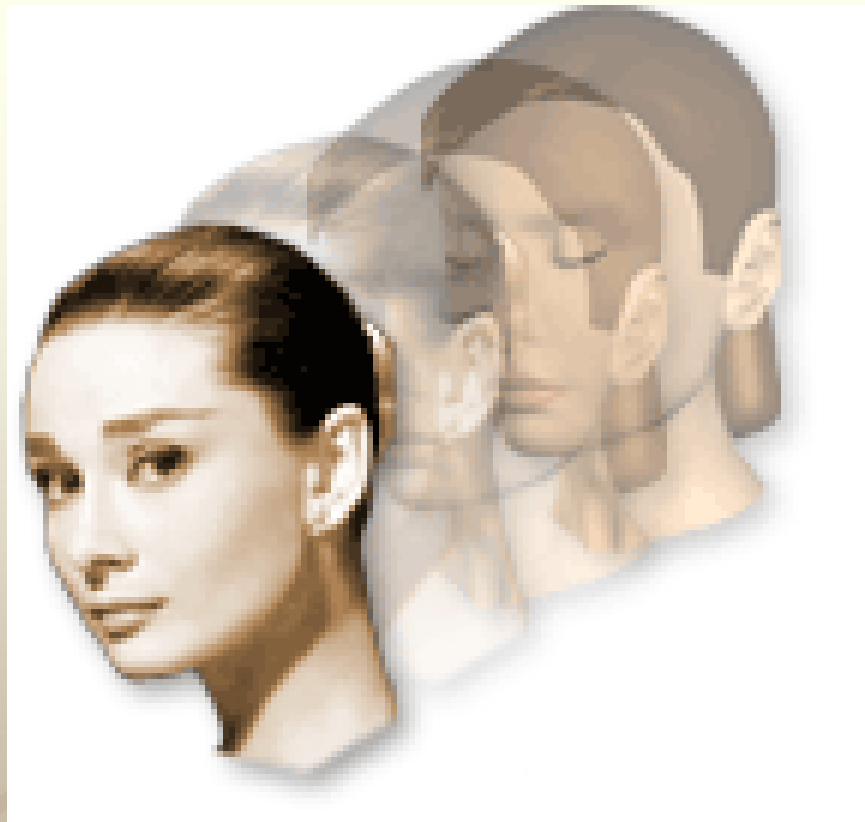
0011



1 2
4 5

Pouzdanost prepoznavanja lica

0011



1
2
4
5

Pouzdanost prepoznavanja lica

0011



1
2
4
5

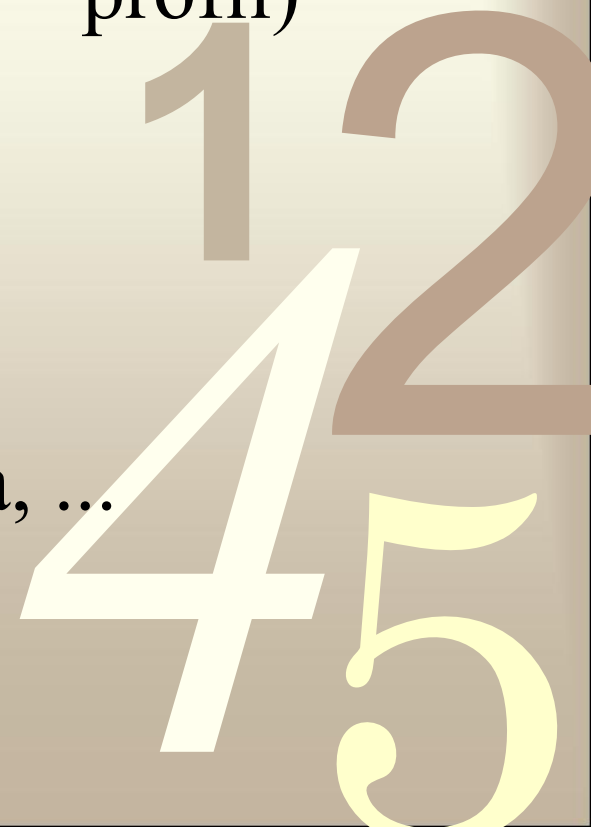
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Pouzdanost prepoznavanja lica

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- grimase
- pomeranje glave u stranu (anfas – profil)
- loše osvetljenje
- starenje
- hiruški zahvati
- boja kose i oblik frizure, šminka, ...

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Metod prepoznavanja lica zasnovan na ...

- Euklidskim transformacijama
- Dvodimenzionalnoj regresiji sa težinama sopstvenih vektora i modifikovanim Prokrustovim rastojanjem
- Odnosima rastojanja
- Osnovnoj komponentnoj analizi sa polarnim koordinatama

