



# KONTROLA PRISTUPA POMOĆU ZNAČAJKI LICA

HRVOJE BOGADI  
RASPOZNAVANJE UZORAKA I STROJNO UČENJE  
FERIT OSIJEK  
21. VELJAČE 2021.

# KOMPONENTE PROGRAMA



GRAFIČKO  
KORISNIČKO SUČELJE



PREDOBRADA  
PODATAKA



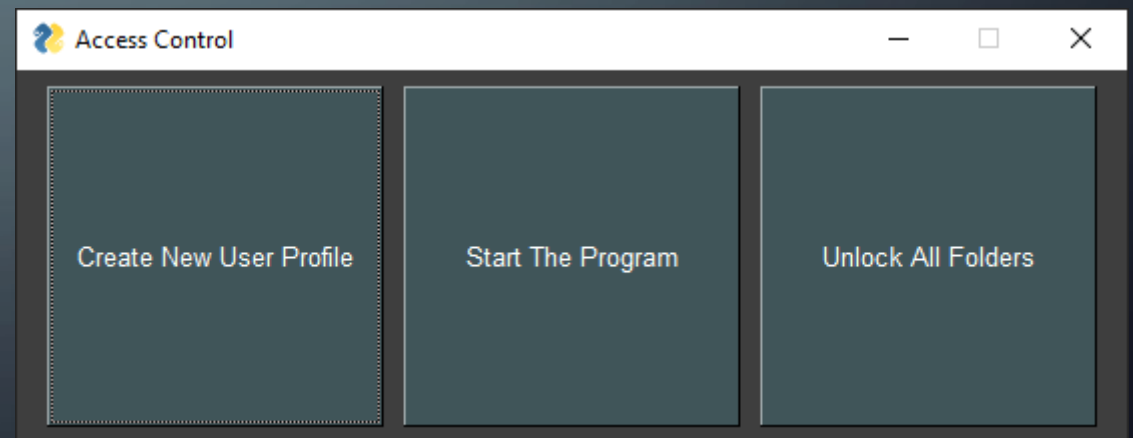
NEURALNA MREŽA



BAZA PODATAKA

# GRAFIČKO KORISNIČKO SUČELJE

- PySimpleGUI



# REGISTRACIJA KORISNIKA

Odabir direktorija

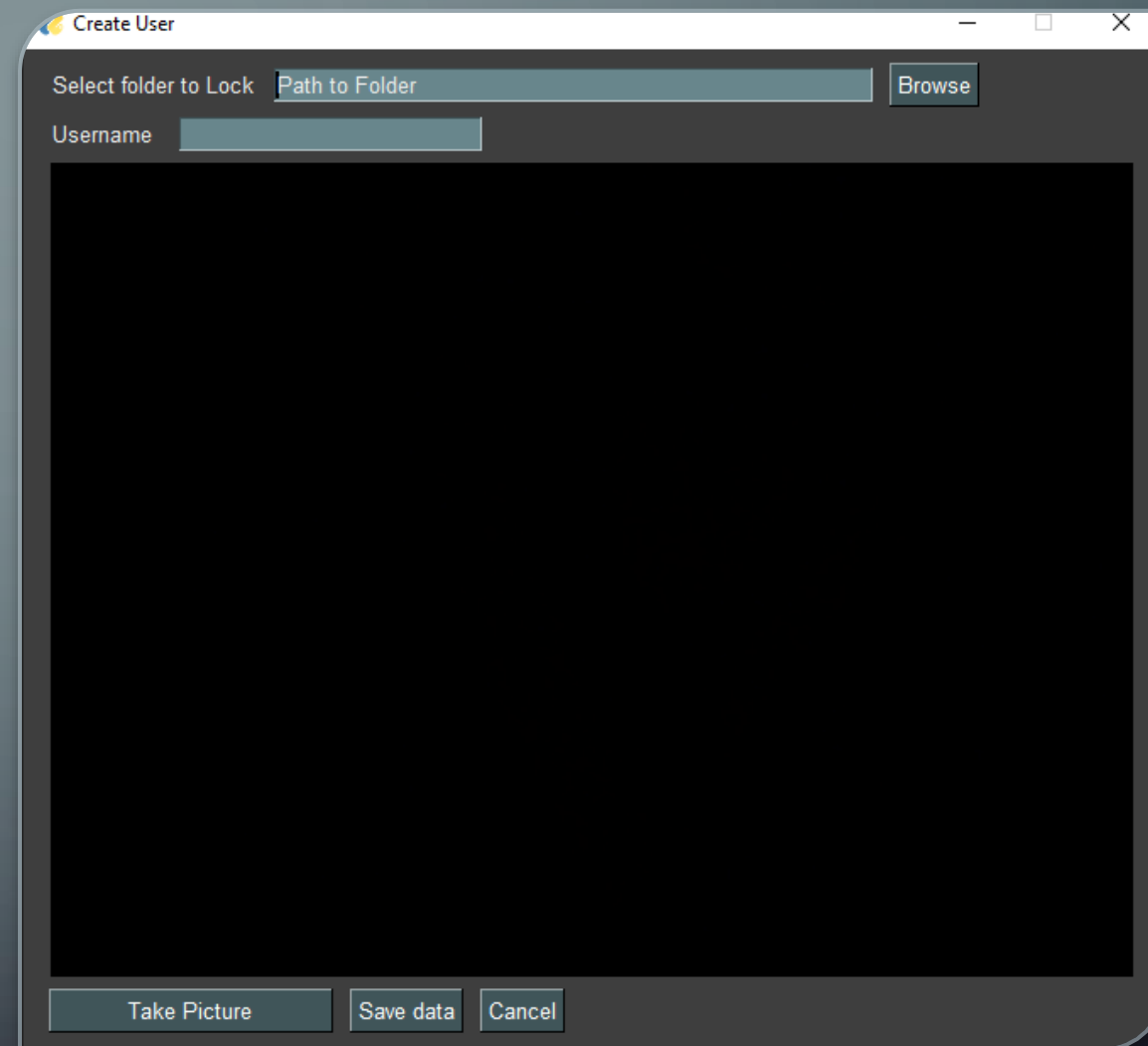
Korisničko ime

Minimalno 10 fotografija

Predobrada fotografija

Neuralna mreža

Baza podataka



A screenshot of a 'Create User' dialog box. The dialog has a title bar with a yellow icon and the text 'Create User'. It contains a 'Select folder to Lock' label, a 'Path to Folder' text input field, and a 'Browse' button. Below this is a 'Username' label and a text input field. The main area of the dialog is a large black rectangle. At the bottom, there are three buttons: 'Take Picture', 'Save data', and 'Cancel'.

Create User

Select folder to Lock Path to Folder Browse

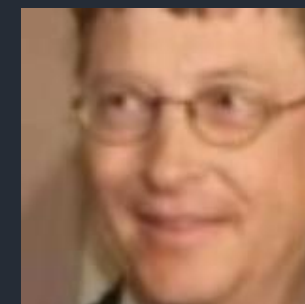
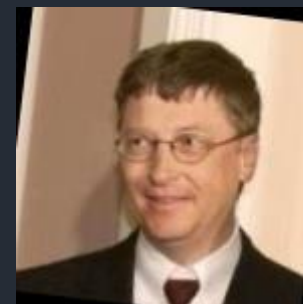
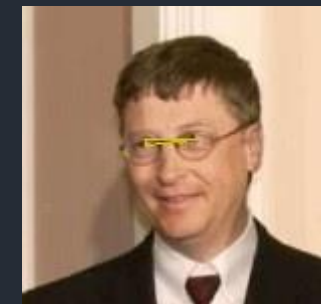
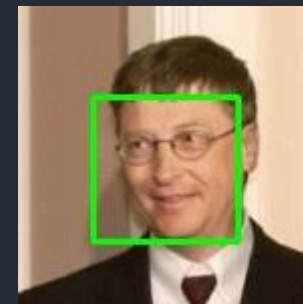
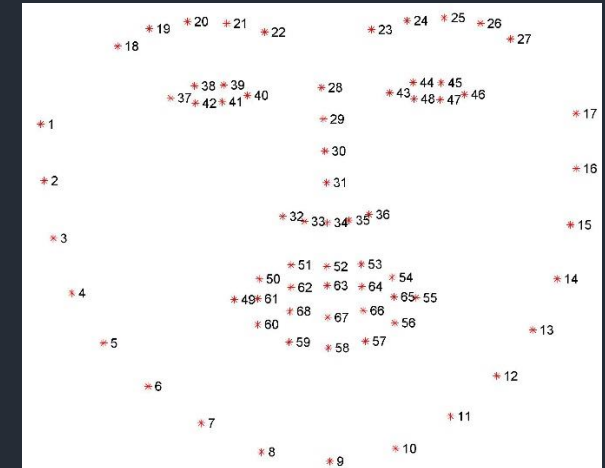
Username

Take Picture Save data Cancel



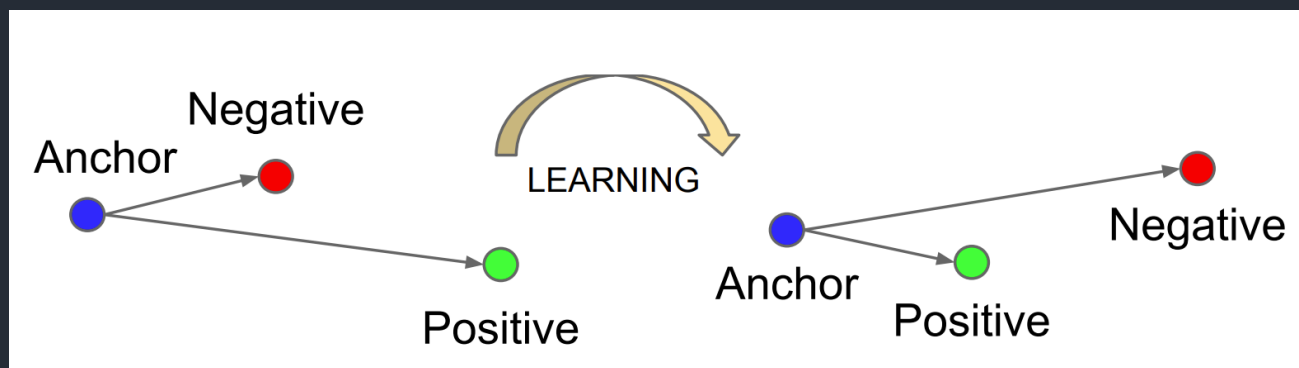
# PREDOBRA PODATAKA

- Pronalazak lica
- Pronalazak kuta rotacije slike
- Ispravljanje slike
- Izrezivanje lica
- Skaliranje fotografije



# NEURALNA MREŽA

- F. Schroff, D. Kalenichenko i J. Philbin, »FaceNet: A unified embedding for face recognition and clustering,« 2015 IEEE Conference on Computer Vision and Pattern Recognition (CVPR), pp. 815-823, 2015.
- Duboka konvolucijska neuralna mreža
- Triplet loss
- $\|f(x_i^a) - f(x_i^p)\|_2^2 + \alpha < \|f(x_i^a) - f(x_i^n)\|_2^2,$   
 $\forall (f(x_i^a), f(x_i^p), f(x_i^n)) \in \tau$
- $L = \sum_i^N [\|f(x_i^a) - f(x_i^p)\|_2^2 - \|f(x_i^a) - f(x_i^n)\|_2^2 + \alpha]$





## BAZA PODATAKA

- Datoteke userInfo, database
- Korisničko ime – embedding
- Korisničko ime – putanja do direktorija
- Usporedba ulaznih embeddinga s onima iz direktorija
- Otključavanje direktorija



# HVALA NA SLUŠANJU

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