Računalniški vid

- Uvod v obdelavo slik z Matlabom -

- Osnovne informacije -

Nosilec: **doc. dr. Janez Perš**

Asistentka: **as. Marija Ivanovska**

Prostor: BN204 (LSI - Laboratorij za strojno inteligenco)

E-pošta: marija.ivanovska@fe.uni-lj.si

Govorilne ure: po dogovoru

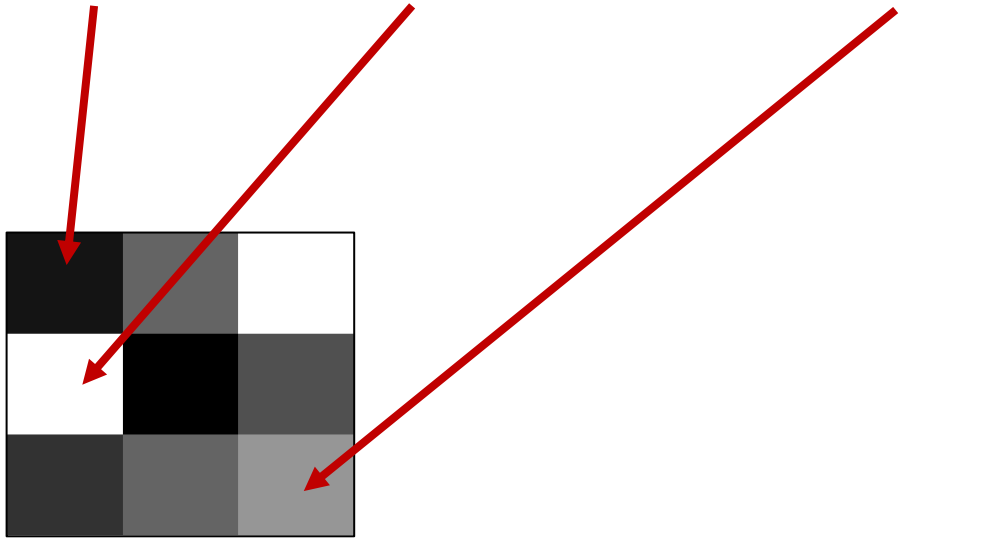
- Informacije o poteku vaj in vse potrebne materiale najdete v e-učilnici predmeta.
- 5 laboratorijskih vaj – skupaj 30 točk . Za uspešno opravljanje vaj pri vsaki vaji potrebujete najmanj polovico vseh možnih točk.
- Samostojno delo lahko opravljate od doma ali na fakulteti.

- Predstavitev slik v Matlabu -

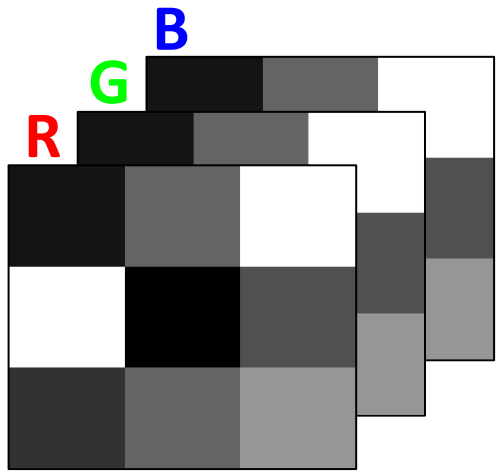
8 bitne slike:

Primer sivinske slike:

```
A_2D=[20,100,255;255,0,80;50,100,150];
```



```
A_3D = repmat(A_2D,[1,1,3]);
```



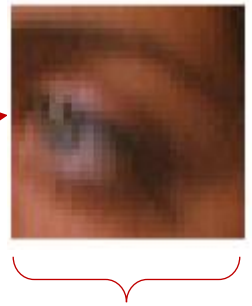
stolpci

```
A(140:170,490:520,:)
```

vrstice

barvne ravnine

```
A=imread('Barbara.bmp');
```



31 px

31 px

=

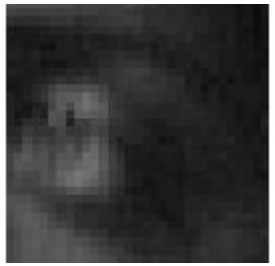
R

+

G

+

B



169	167 ...	
151	149 ...	
:	:	

104	102 ...	
89	87 ...	
:	:	

81	79 ...	
65	63 ...	
:	:	

```
A(140:170,490:520,1)
A(140:170,490:520,2)
A(140:170,490:520,3)
```

- Predstavitev posnetkov v Matlabu -

```
video=VideoReader('atrium.mp4');
frames=read(video,[1 Inf]);
video_size=size(frames);

first_frame=frames(:,:,:,1)
```

```
>> video_size=size(frames)

video_size =

   360   640     3   600
```

image_1

image_2

image_3

image_4

image_5

```
frames = zeros(size(image_1,1),size(image_1,2),size(image_1,3),5,'uint8');
frames(:,:,:,1)=image_1; frames(:,:,:,2)=image_2; ..... frames(:,:,:,5)=image_5;
```

```
writer_object=VideoWriter('my_video.avi ');
writer_object.FrameRate = 2
open(writer_object)
writeVideo(writer_object, frames)
close(writer_video)
```

writer_object.FrameRate = 4

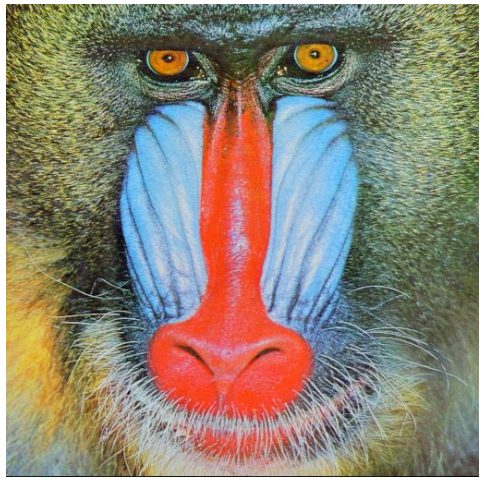
Naloge

Lena

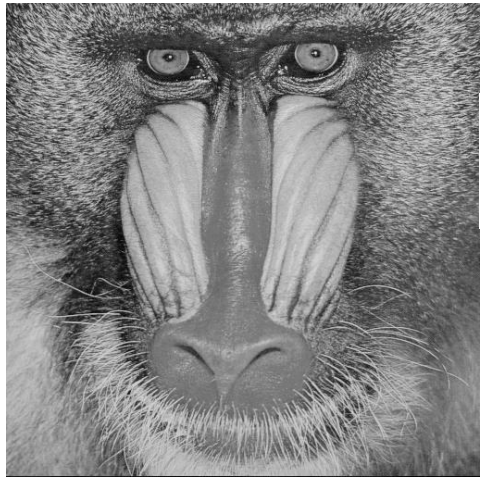
Y=0.299R+0.587G+0.114B

$$barva = \begin{cases} zelena & Y \leq 100, \\ oranzna & 100 < Y \leq 200, \\ rdeca & Y > 200, \end{cases}$$

Baboon



Y=0.299R+0.587G+0.114B

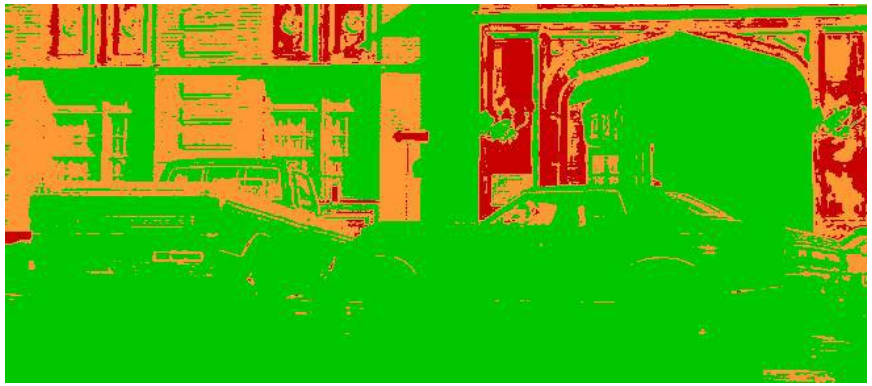


$$barva = \begin{cases} zelena & Y \leq 100, \\ oranzna & 100 < Y \leq 200, \\ rdeca & Y > 200, \end{cases}$$

Naloge

Holywood

Y=0.299R+0.587G+0.114B



$$barva = \begin{cases} zelena & Y \leq 100, \\ oranzna & 100 < Y \leq 200, \\ rdeca & Y > 200, \end{cases}$$