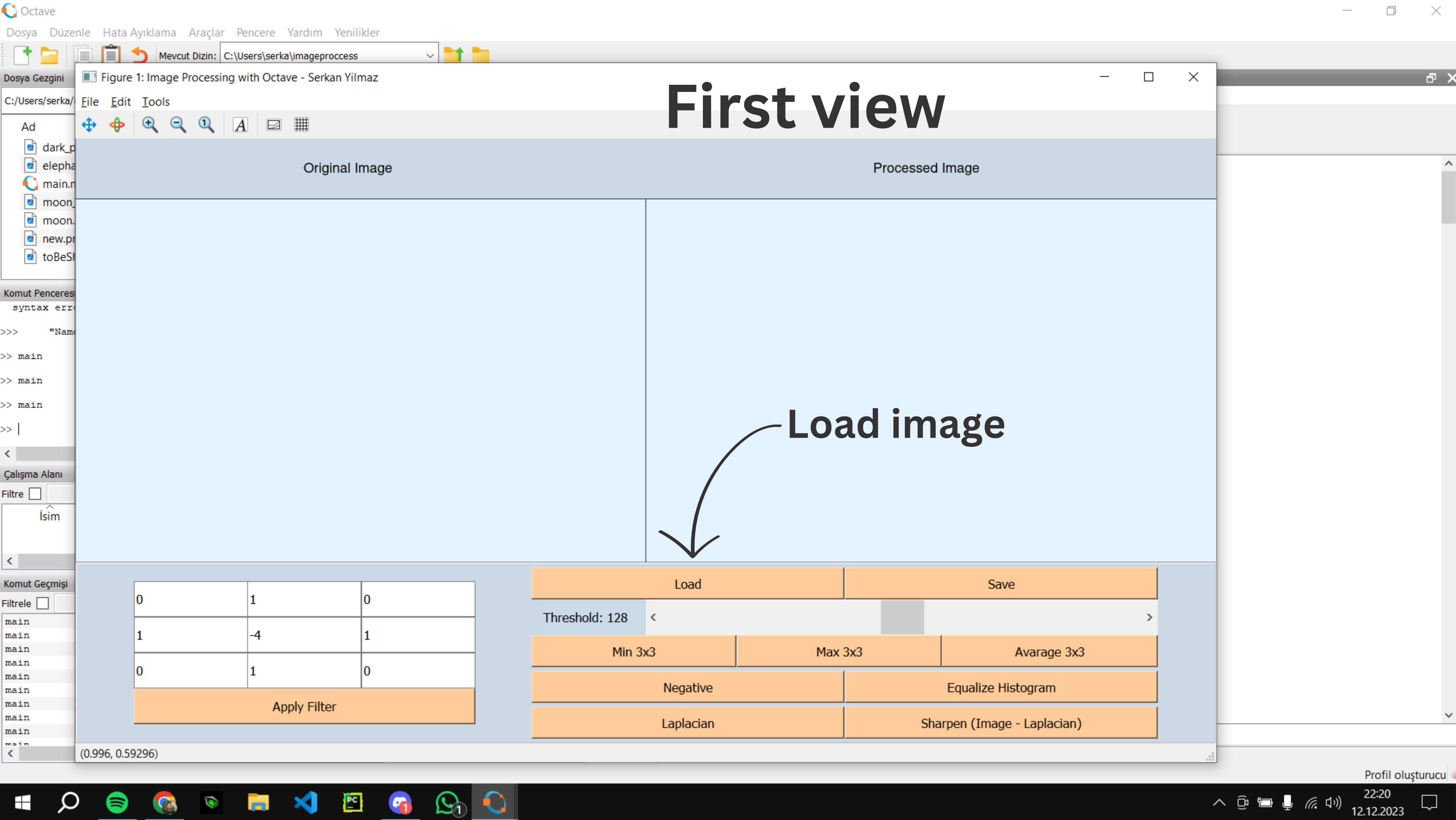
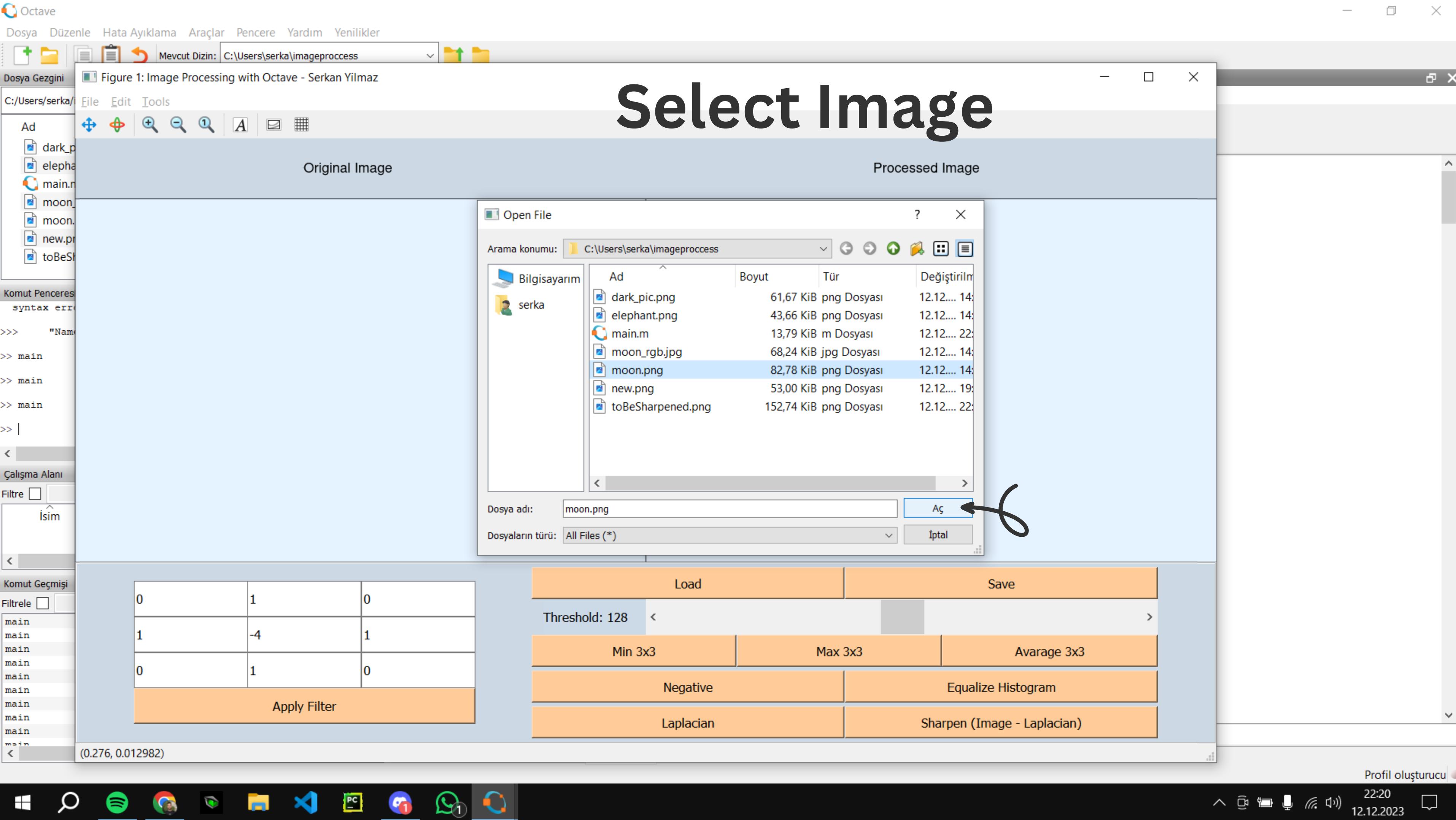


COM2501 SCIENTIFIC PROGRAMMING PROJECT 1

DIGITAL IMAGE PROCESSING PROJECT

Serkan Yılmaz
21290681
Computer Engineering







Dosya Gezgini

C:/Users/serka/

Ad

dark_p

elepha

main.n

moon.

moon.

new.pr

toBeSh

Komut Penceresi

syntax error

>>> "Name

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Çalışma Alanı

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Komut Geçmişi

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main

(0.54933, 0.023451)



Figure 1: Image Processing with Octave - Serkan Yilmaz

Original Image

Processed Image

Apply Black-White Effect

Load Save
Threshold: 128 < >
Min 3x3 Max 3x3 Avarage 3x3
Negative Equalize Histogram
Laplacian Sharpen (Image - Laplacian)



Octave

Dosya Düzenle Hata Ayıklama Araçlar Pencere Yardım Yenilikler

Dosya Gezgini Mevcut Dizin: C:\Users\serka\imageprocess

Dosya Gezgini

C:/Users/serka/

Ad

dark_p
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moon.
moon.
new.pr
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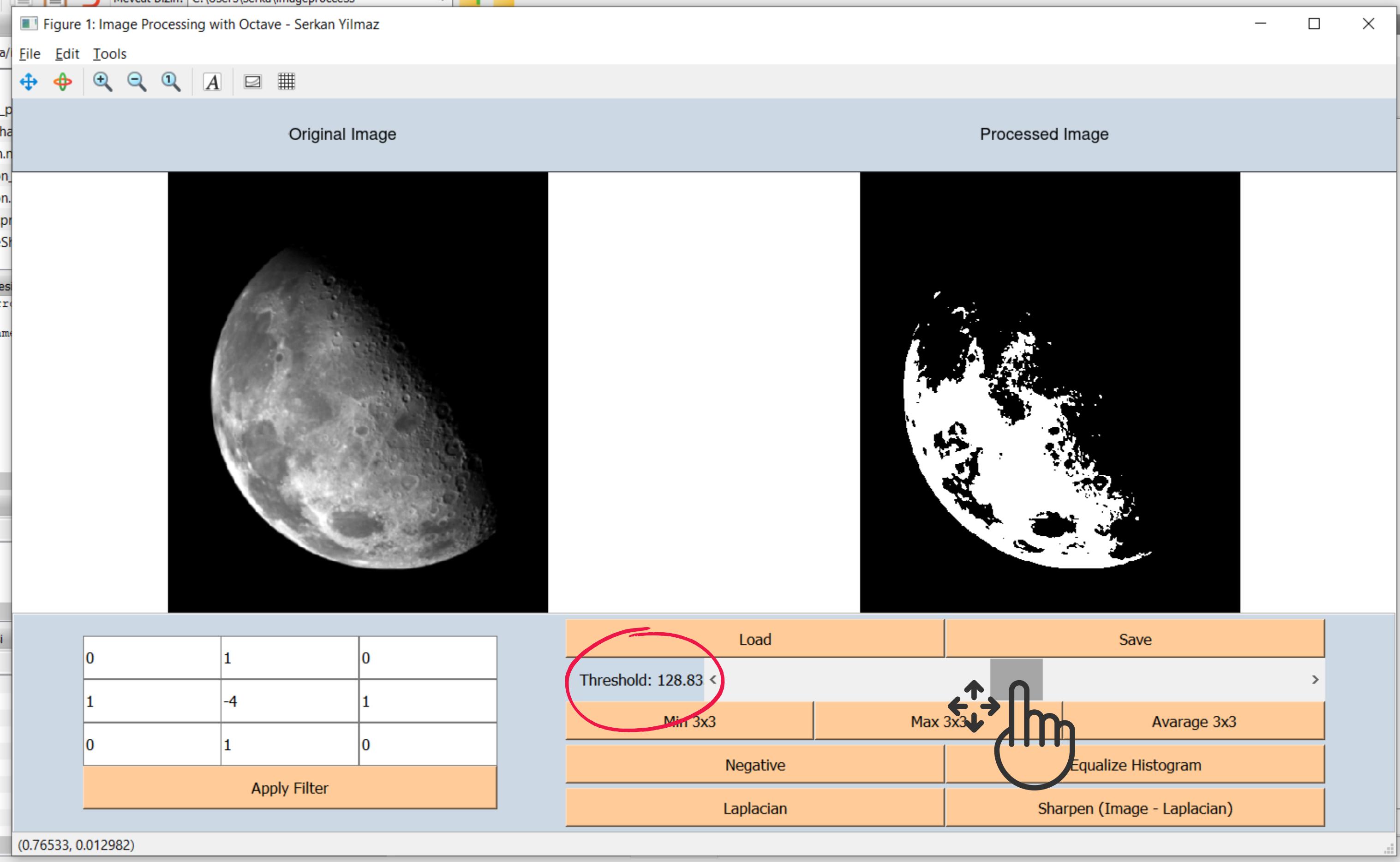
Komut Geçmişi

Filtrele

main

<

(0.76533, 0.012982)



Profil oluşturucu

22:27

12.12.2023



Octave

Dosya Düzenle Hata Ayıklama Araçlar Pencere Yardım Yenilikler



Dosya Gezgini

C:/Users/serka/

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elepha
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moon.
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Filtre



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Komut Geçmişi

Filtrele



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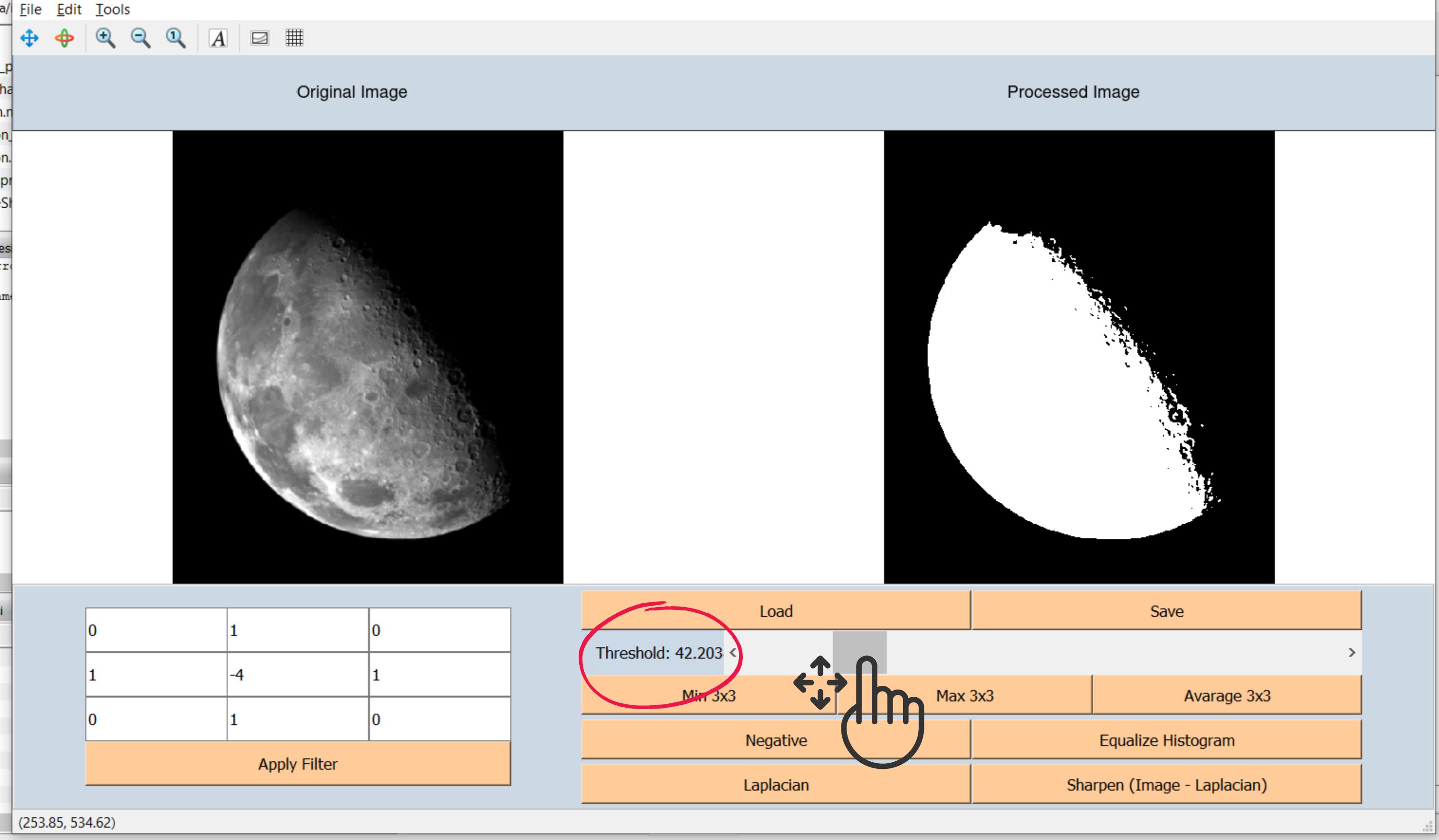
main

<

(253.85, 534.62)



Figure 1: Image Processing with Octave - Serkan Yilmaz



Profil oluşturucu

22:28
12.12.2023

```
ThresholdLabel = uicontrol (ButtonsFrm, ...
    "style", "text",
    "units", "normalized",
    'BackgroundColor', [0.8, 0.85, 0.9], ...
    "string", "Threshold: 128",
    "horizontalalignment", "left",
    "position", [0.41, 0.6, 0.5, 0.2]);
ThresholdSlider = uicontrol(ButtonsFrm, ...
    'style', 'slider',
    'min', 0, 'max', 255, 'value', 128, ...
    'units', 'normalized',
    'position', [0.5, 0.6, 0.45, 0.2], ...
    'callback', {@threshold, ImgFrm, ProcessedImgFrm, ThresholdLabel});
```

```
function threshold(hObject, eventdata, ImageFrame, ProcessedImgFrm, ThresholdLabel)
    img = getimage(ImageFrame);
    if size(img, 3) == 3
        img = rgb2gray(img);
    end
    threshold_value = get(hObject, 'Value');
    set (ThresholdLabel, "string", sprintf ("Threshold: %d", threshold_value));
    output = (img >= threshold_value)*255;
    axes(ProcessedImgFrm);
    imshow(output, []);
    colormap gray;
    axis image off
end
274
275
276
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284
285
286
287
```



Dosya Gezgini

C:/Users/serka/

Ad

- dark_p
- eleph
- main.n
- moon.
- moon.
- new.pr
- toBeSt

Komut Penceresi

syntax error

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Komut Geçmişi

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(275.33, 493.92)

Figure 1: Image Processing with Octave - Serkan Yilmaz

Original Image Processed Image

Load Save

Threshold: 42.203 < >

Min 3x3 (highlighted with a red circle)

Max 3x3

Avarage 3x3

Negative

Equalize Histogram

Laplacian

Sharpen (Image - Laplacian)

Apply Filter



>>> "Name"

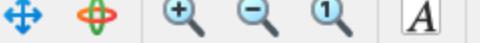
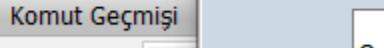
>> main

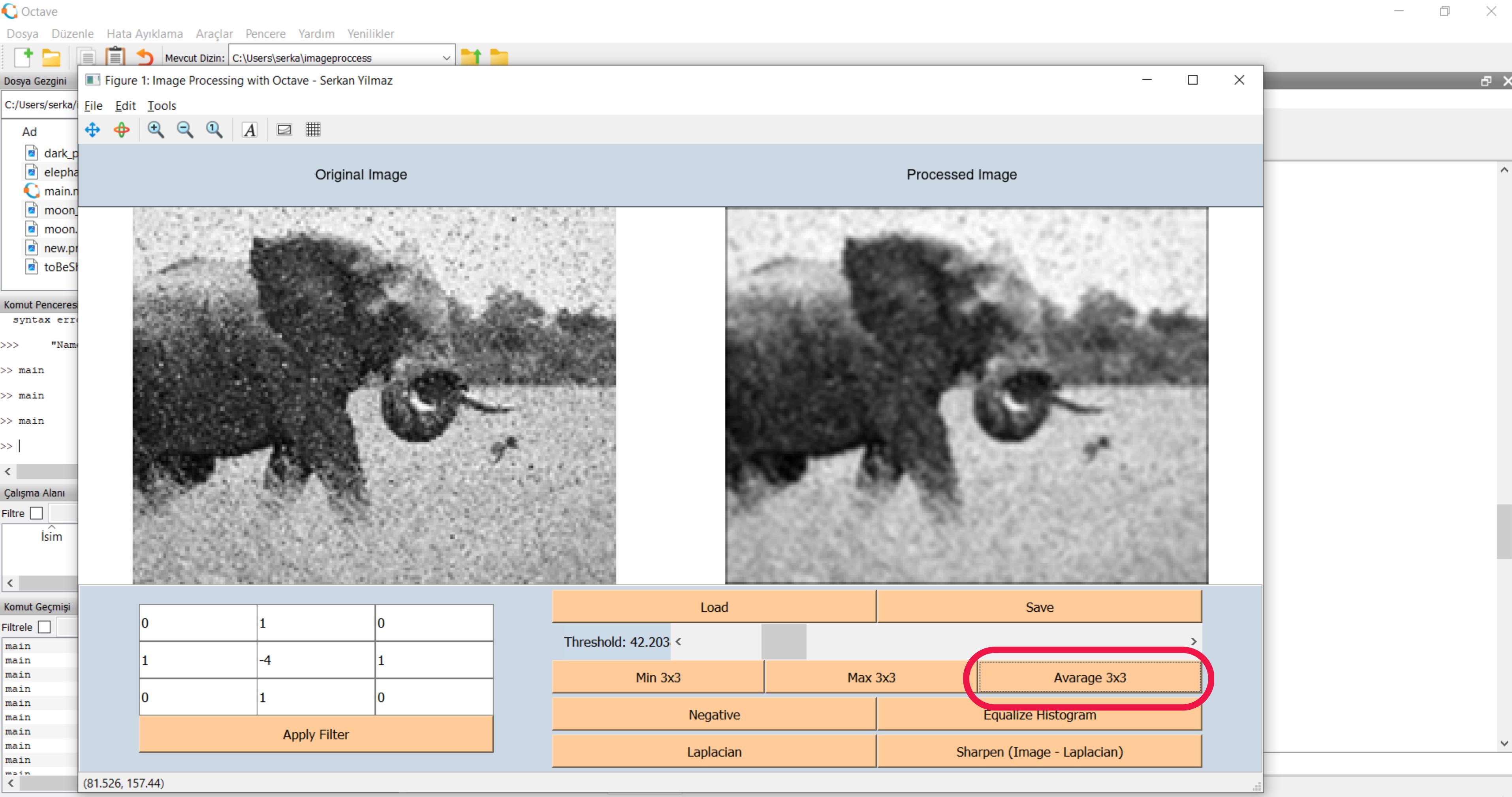
>> main

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Octave

Dosya Düzenle Hata Ayıklama Araçlar Pencere Yardım Yenilikler

Dosya Gezgini Mevcut Dizin: C:\Users\serka\imageproccess

Dosya Gezgini

C:/Users/serka/

Ad

dark_p

elepha

main.n

moon.

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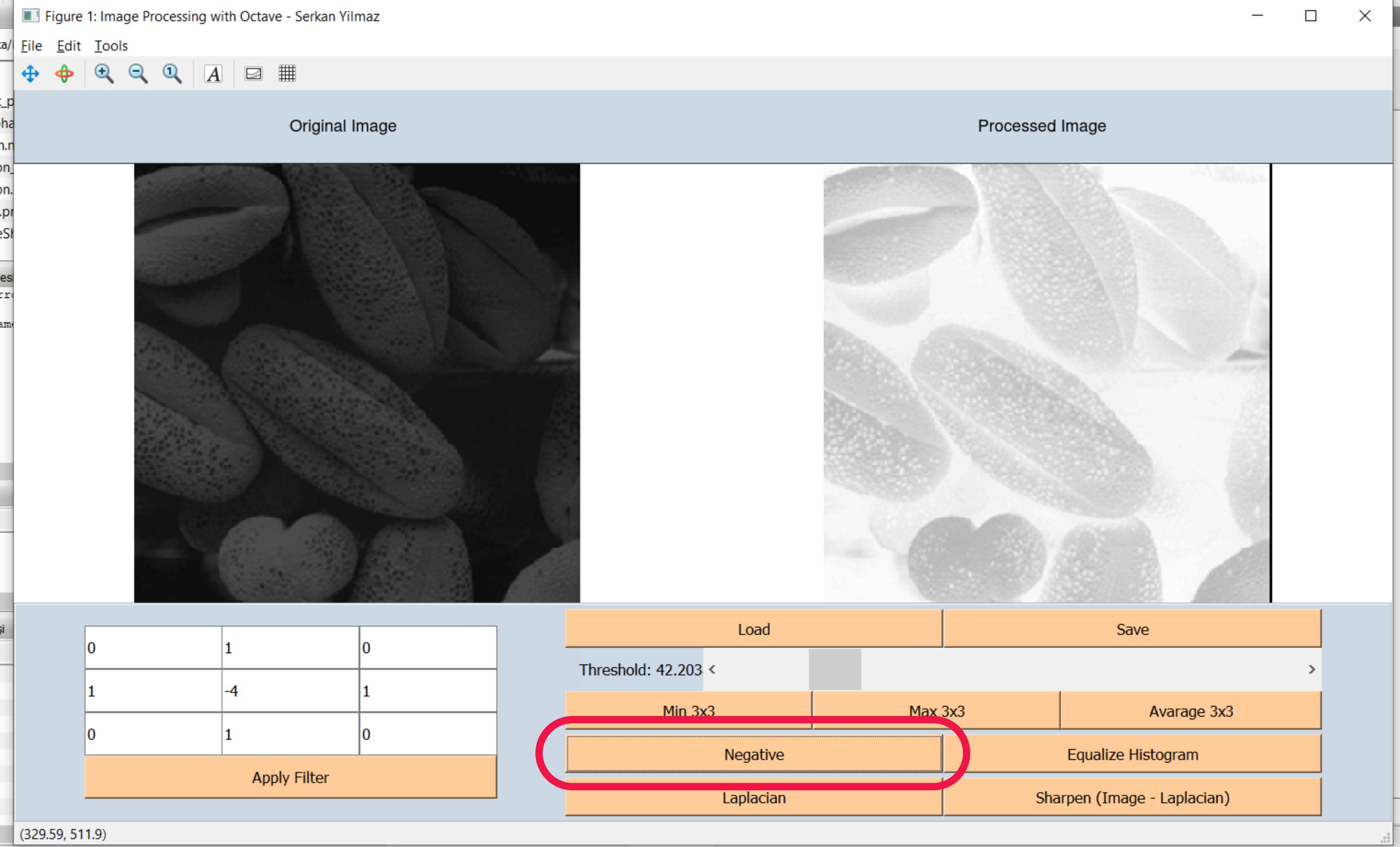
main

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<

(329.59, 511.9)





Octave

Dosya Düzenle Hata Ayıklama Araçlar Pencere Yardım Yenilikler

Dosya Gezgini Mevcut Dizin: C:\Users\serka\imageprocess

Dosya Gezgini

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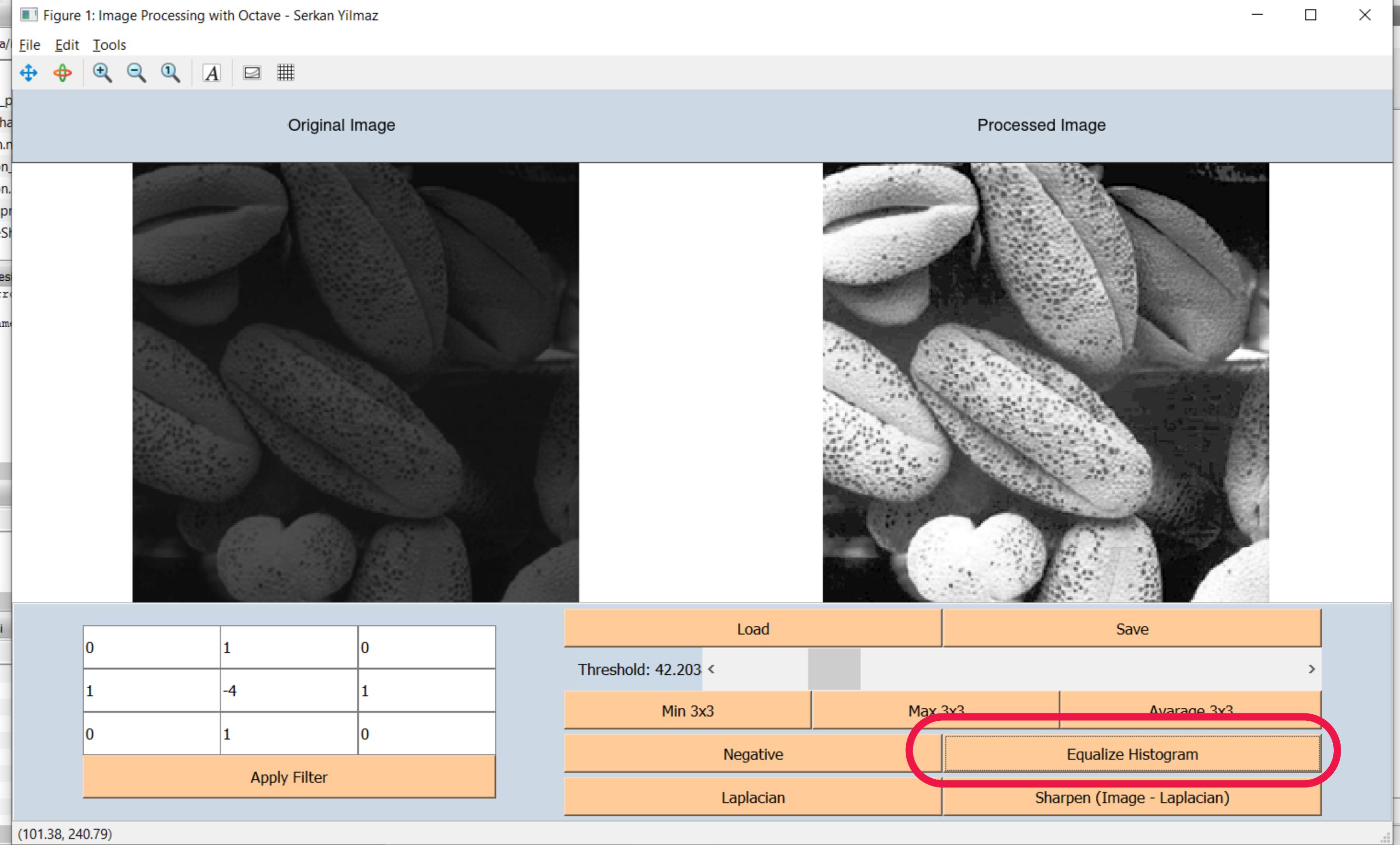
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(101.38, 240.79)



Profil oluşturucu

22:37
12.12.2023



Dosya Gezgini

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- dark_p
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- main.n
- moon.
- moon.
- new.pr
- toBeSt

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(56.741, 257.12)



Figure 1: Image Processing with Octave - Serkan Yilmaz

Original Image

Processed Image

Load Save

Threshold: 42.203 < >

Min 3x3 Max 3x3 Avarage 3x3

Negative Equalize Histogram

Laplacian Sharpen (Image - Laplacian)

Apply Filter

The 'Laplacian' button is highlighted with a red circle.



Dosya Gezgini

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- main.n
- moon.
- moon.
- new.pr
- toBeSt

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- main.n
- moon.
- moon.
- new.pr
- toBeSh

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Komut Geçmişi

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(-21.677, 12.448)



Figure 1: Image Processing with Octave - Serkan Yilmaz

Original Image Processed Image

Custom Filter

Load Save

Threshold: 42.203 < >

Min 3x3	Max 3x3	Avarage 3x3
Negative	Equalize Histogram	
Laplacian	Sharpen (Image - Laplacian)	

Apply Filter

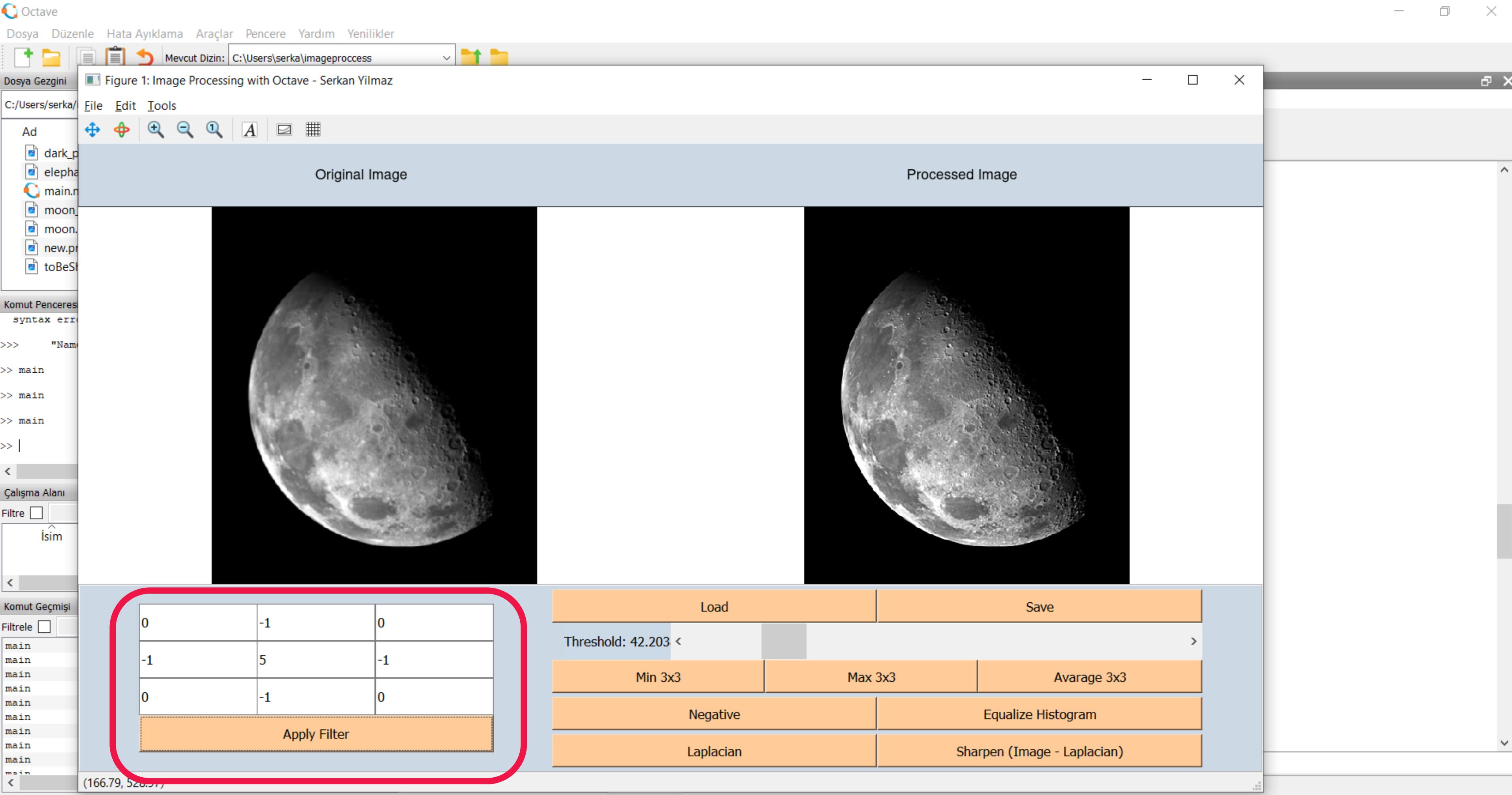
Original Image: A grayscale image of the Moon's surface, showing craters and lunar terrain.

Processed Image: The same image after applying a custom filter, resulting in a more enhanced and contrasted version of the Moon's surface.

Custom Filter: A 3x3 kernel matrix used for processing the image. The matrix is:

0	1	0
1	-4	1
0	1	0

Processing Options: The interface includes various processing options such as Load, Save, Threshold adjustment, and several built-in filters like Min 3x3, Max 3x3, Avarage 3x3, Negative, Equalize Histogram, Laplacian, and Sharpen (Image - Laplacian).



We can change the filter and see the results instantly

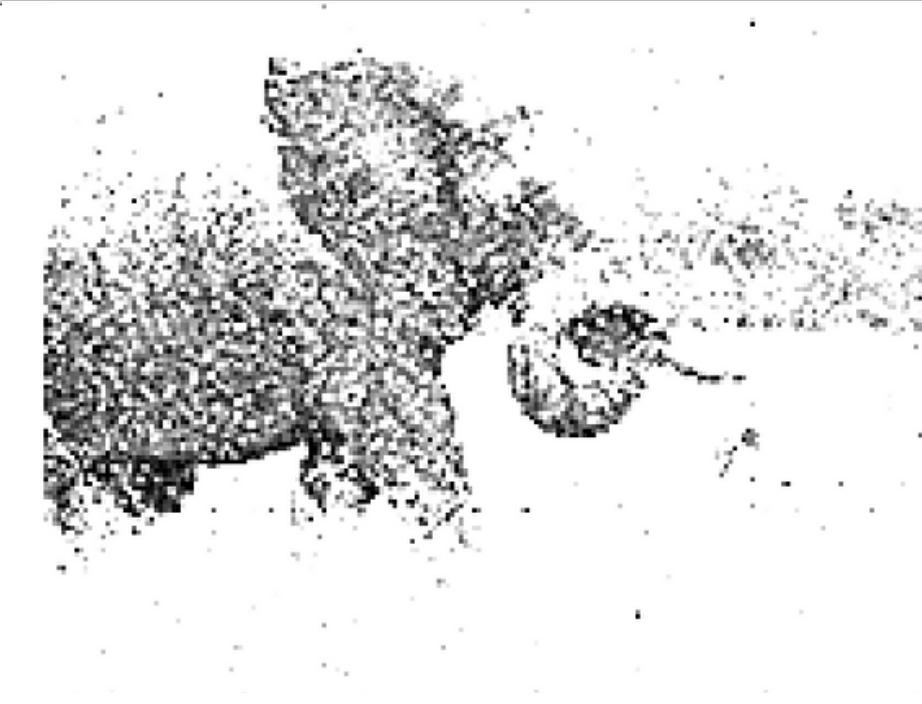
Original Image



Processed Image



Processed Image



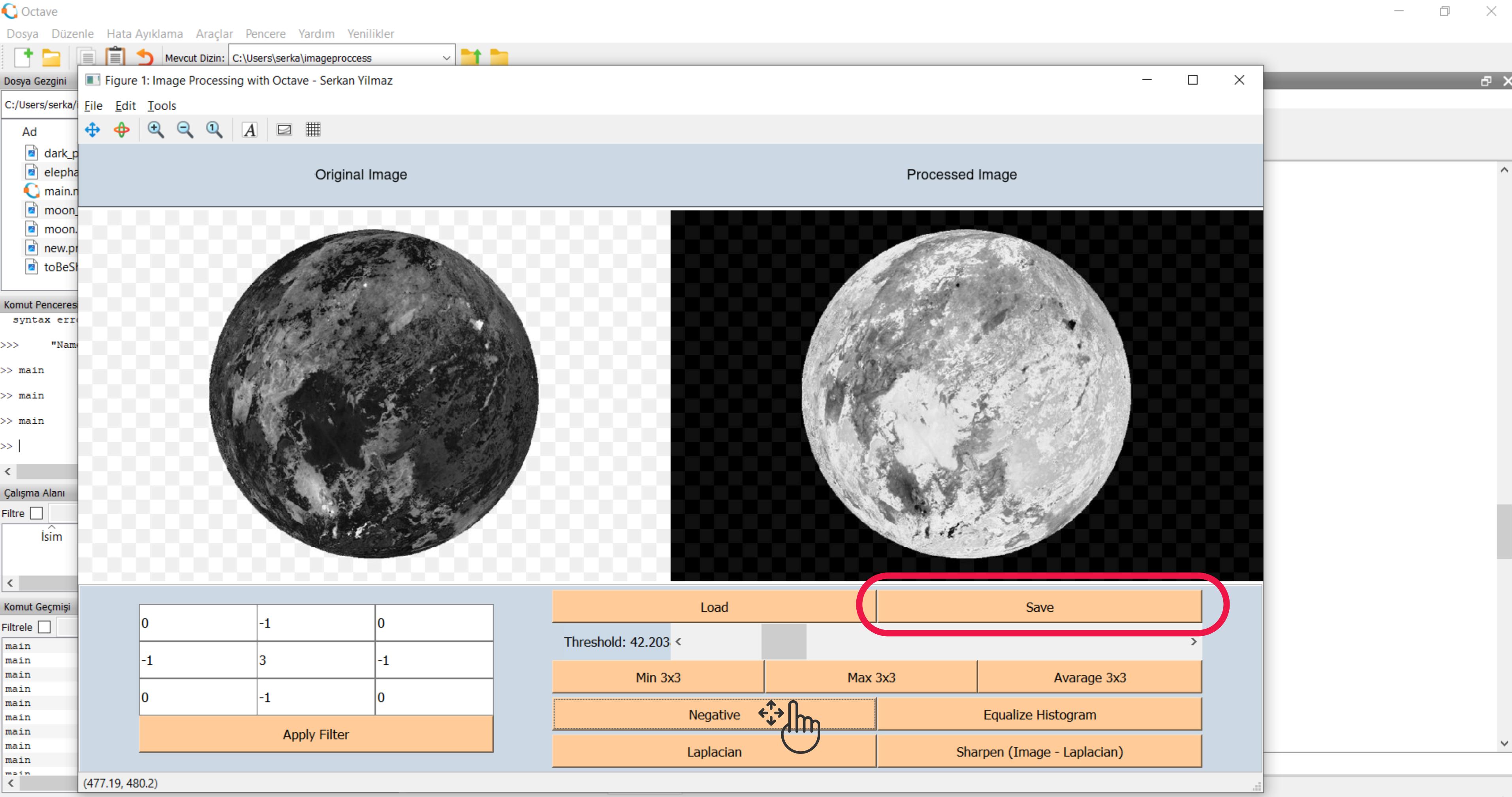
Processed Image



0	-1	0
-1	5	-1
0	-1	0
Apply Filter		

0	-1	0
-1	7	-1
0	-1	0
Apply Filter		

0	-1	0
-1	9	-1
0	-1	0
Apply Filter		





Dosya Düzenle Hata Ayıklama Araçlar Pencere Yardım Yenilikler



Dosya Gezgini

C:/Users/serka/

Ad

dark_p...
elephant...
main.n...
moon.p...
moon.p...
new.p...
toBeSh...

Komut Penceresi

```
syntax error  
>>> "Name  
>> main  
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```

Çalışma Alanı

Filtre

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Komut Geçmişi

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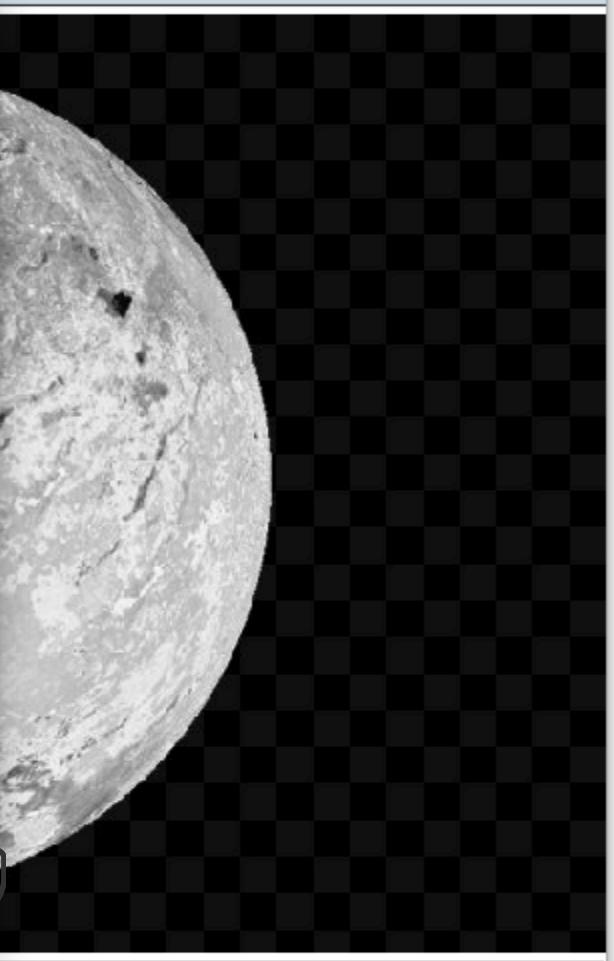
main

(477.19, 480.2)

Original Image



Processed Image



Save Processed Image As

Arama konumu: C:\Users\serka\imageprocess

Bilgisayarım
serka

Ad	Boyut	Tür	Değiştirilm...
dark_pic.png	61,67 KiB	png Dosyası	12.12.... 14:
elephant.png	43,66 KiB	png Dosyası	12.12.... 14:
moon.png	82,78 KiB	png Dosyası	12.12.... 14:
new.png	53,00 KiB	png Dosyası	12.12.... 19:
toBeSharpened.png	152,74 KiB	png Dosyası	12.12.... 22:

Dosya adı: whitemoon

Dosyaların türü: PNG Files (*.png)

Kaydet

İptal

Load

Save

Threshold: 42.203 <

Min 3x3

Max 3x3

Avarage 3x3

Negative

Equalize Histogram

Laplacian

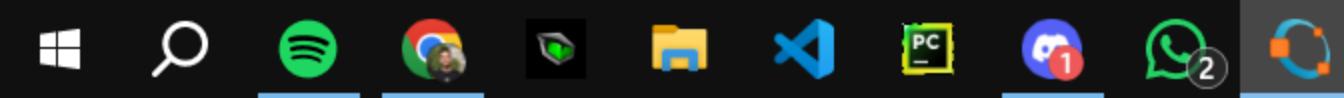
Sharpen (Image - Laplacian)

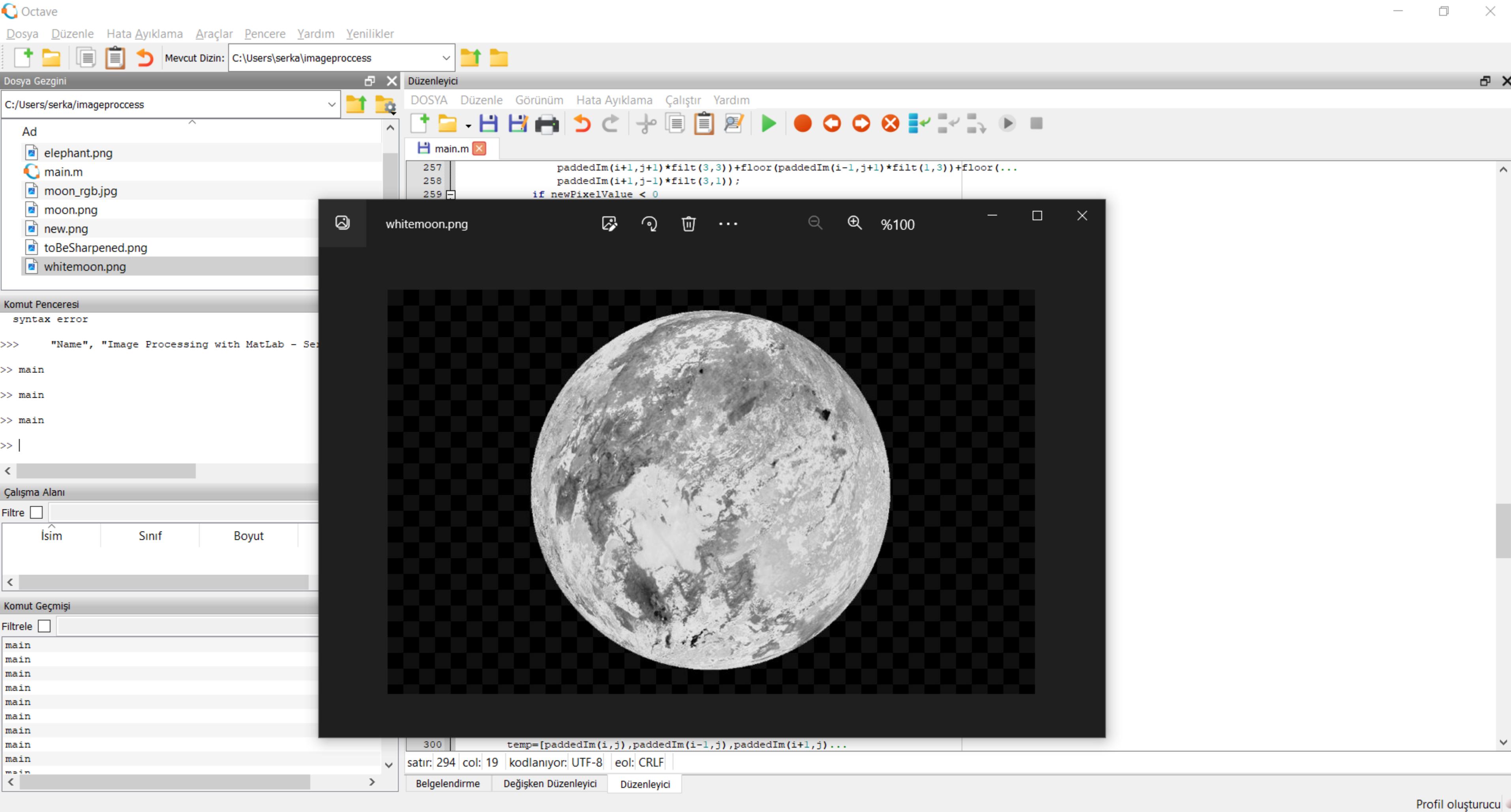
Apply Filter

Profil oluşturucu

22:51

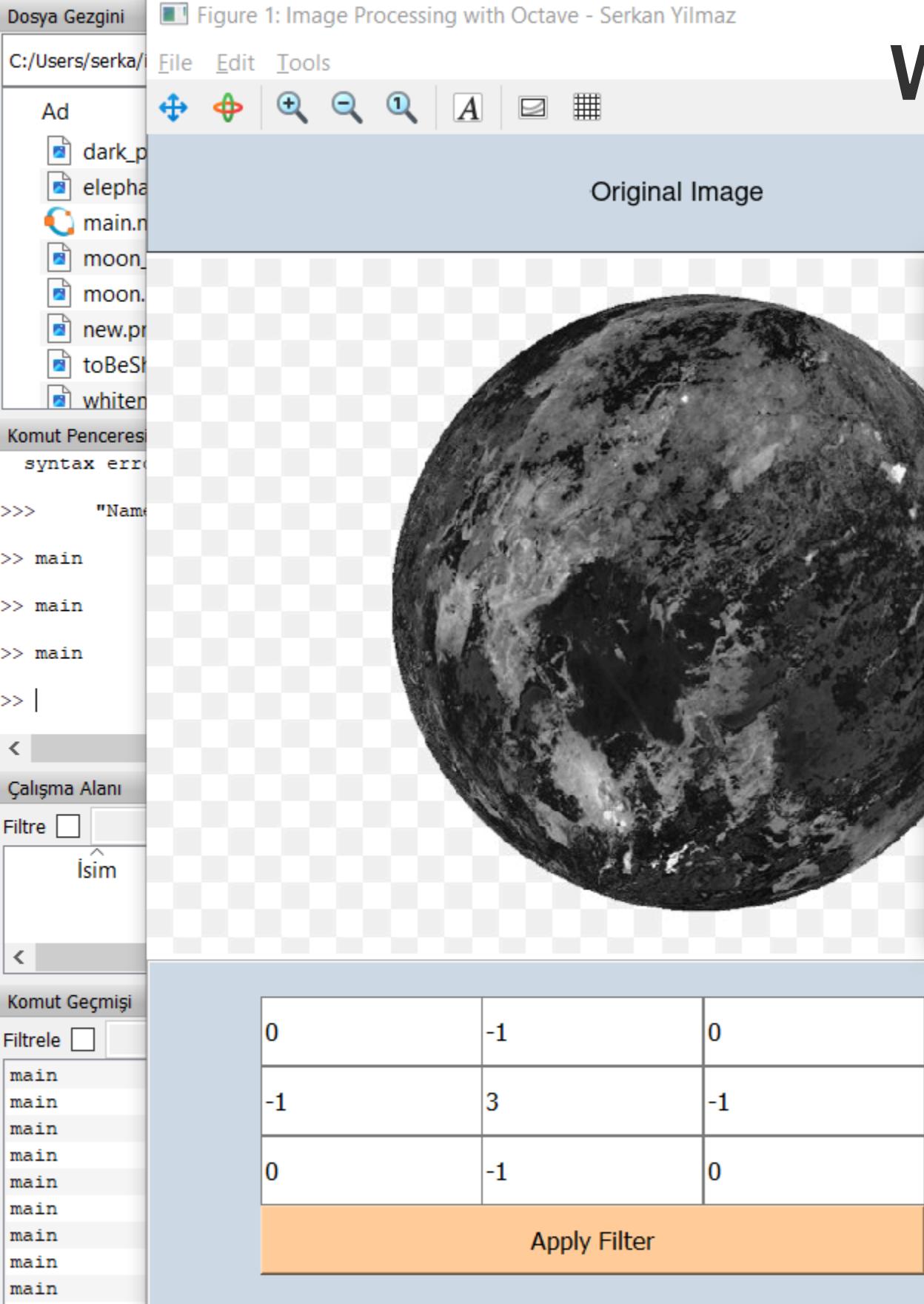
12.12.2023



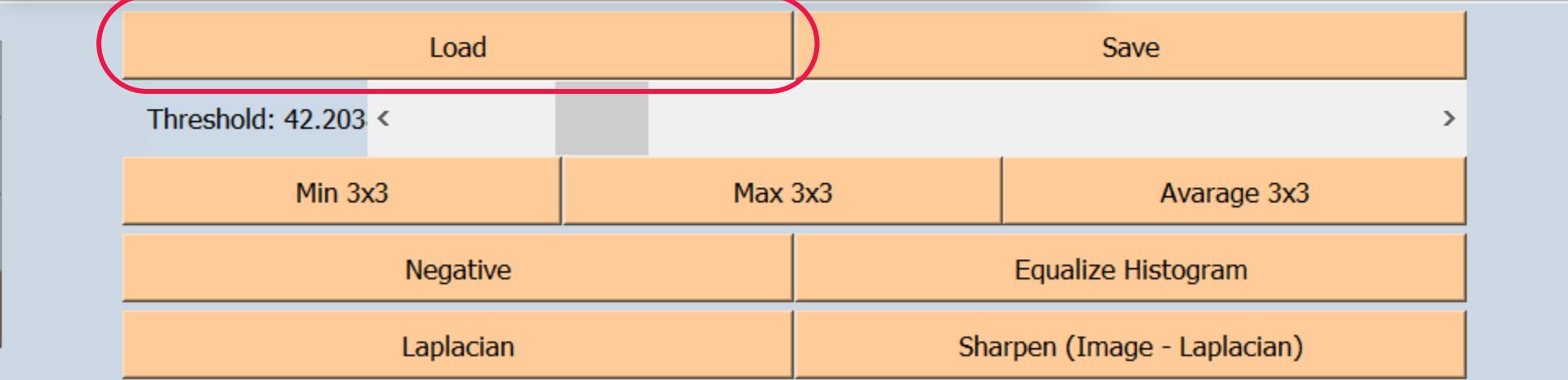
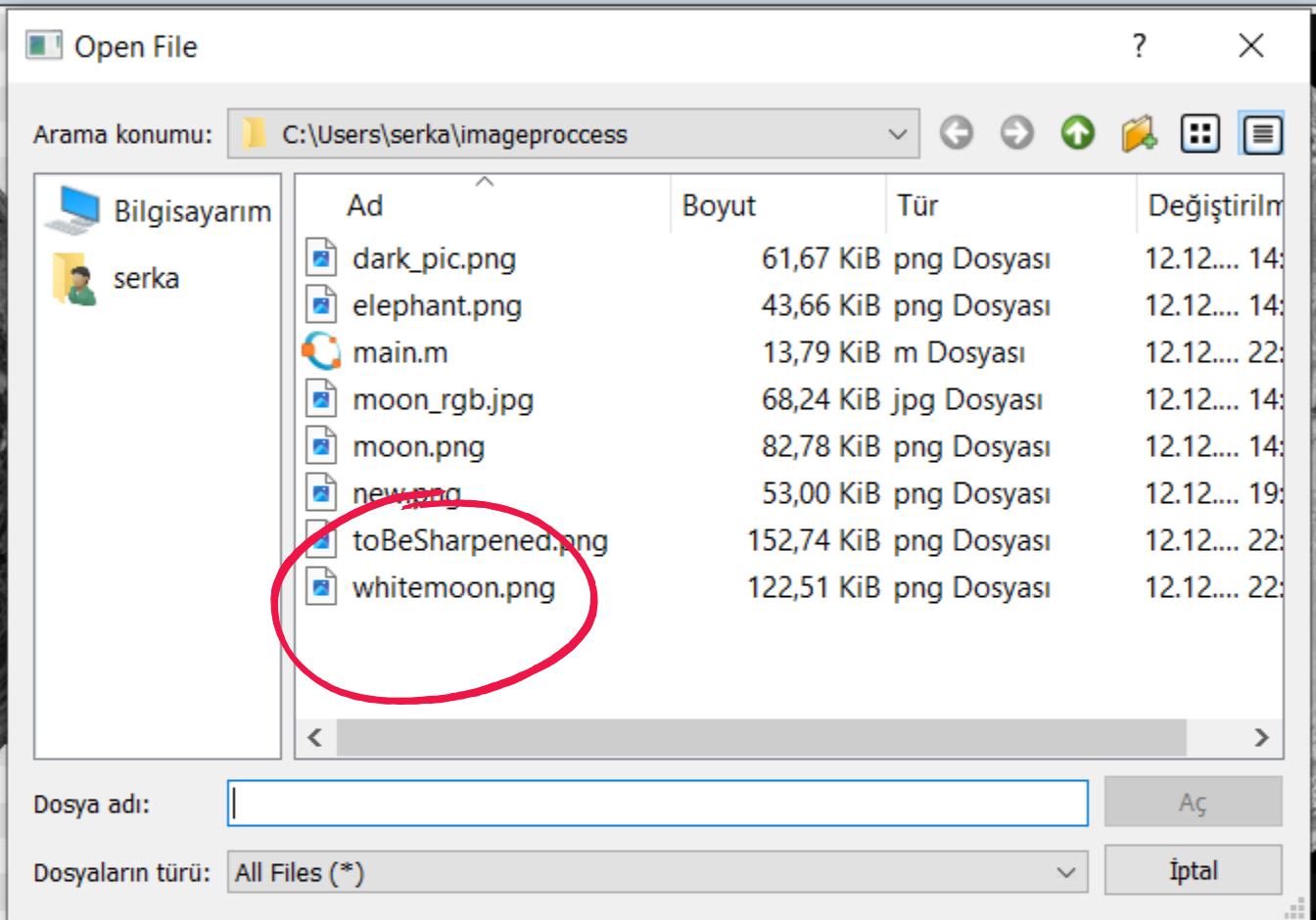




Mevcut Dizin: C:\Users\serka\imageprocess



We can also load the new image





Dosya Gezgini

C:/Users/serka/

Ad

- dark_p
- elepha
- main.p
- moon.
- moon.
- new.pr
- toBeSh
- whiten

Komut Per

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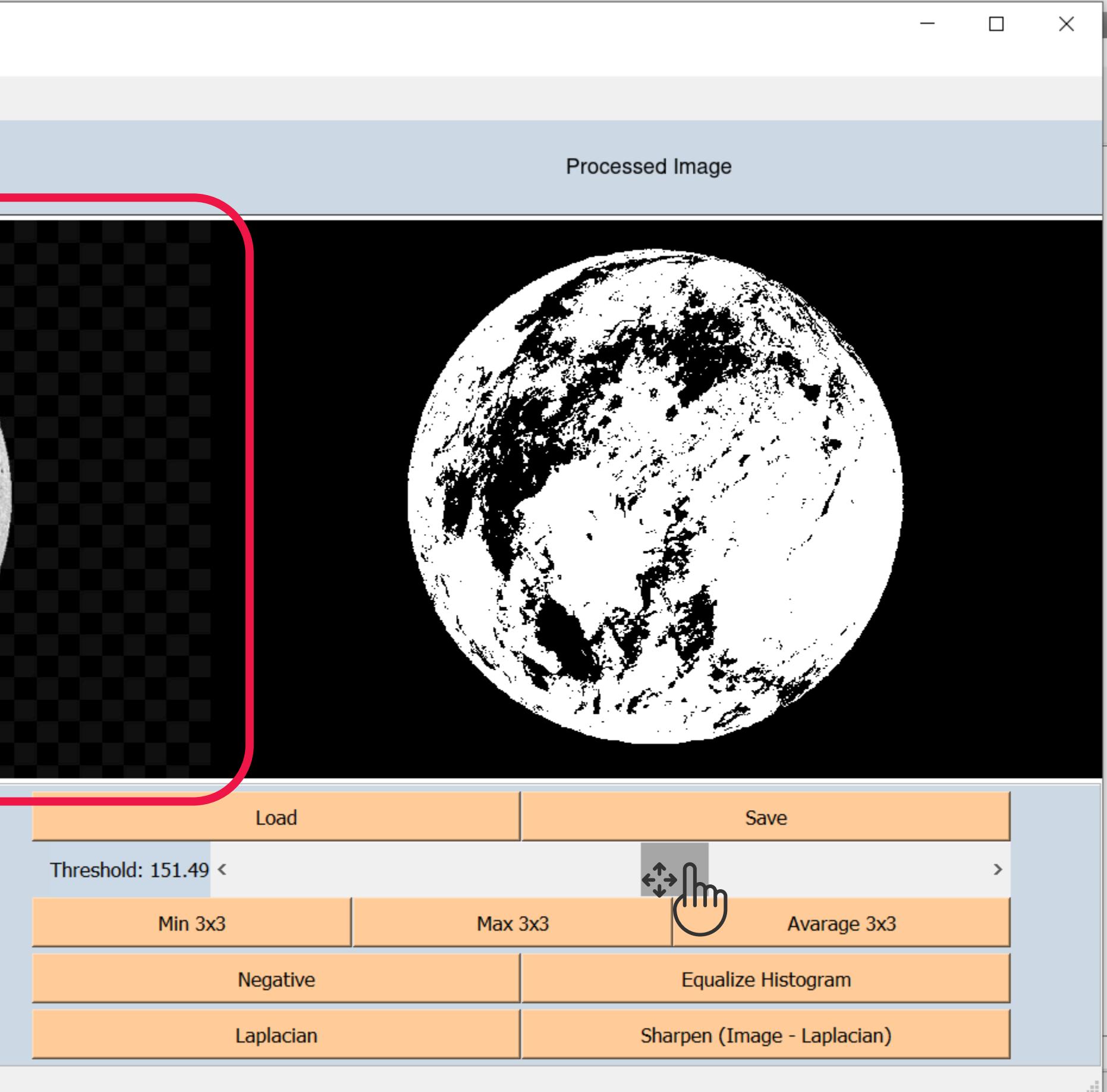
main

<

main

<

(98.9, 506.44)



THANK YOU

Serkan Yılmaz
21290681
Computer Engineering