I. MENGHITUNG JUMLAH OBJEK

4 May 2026

```
I = imread('rice.png');
imshow(I);
 %%% Use Morphological Opening to Estimate the Background
background = imopen(I,strel('disk',15));
I2 = I - background;
figure, imshow(I2);
%%%Subtract the Background Image from the Original Image
I2 = I - background;
figure, imshow(I2);
% Increase the Image Contrast
I3 = imadjust(I2);
figure, imshow(I3);
%%Threshold the Image
level = graythresh(I3);
bw = im2bw(I3,level);
bw = bwareaopen(bw, 50);
figure, imshow(bw);
%%Identify Objects in the Image
cc=bwconncomp(bw, 4);
cc.NumObjects
```

II. MENGIDETIFIKASI SATU OBJEK KE 70

```
I = imread('rice.png');
imshow(I);
%%% Use Morphological Opening to Estimate the Background
background = imopen(I,strel('disk',15));
I2 = I - background;
figure, imshow(I2);
%%%Subtract the Background Image from the Original Image
I2 = I - background;
figure, imshow(I2);
% Increase the Image Contrast
I3 = imadjust(I2);
figure, imshow(I3);
%%Threshold the Image
level = graythresh(I3);
bw = im2bw(I3,level);
bw = bwareaopen(bw, 70);
figure, imshow(bw);
%%Identify Objects in the Image
cc=bwconncomp(bw, 4);
cc.NumObjects
%%%%%%Examine One Object
grain = false(size(bw));
```

```
grain(cc.PixelIdxList{40}) = true;
figure, imshow(grain);
```

III. MENGHITUNG LUAS OBJECT KE 70

```
 I = imread('rice.png');
imshow(I);
%%% Use Morphological Opening to Estimate the Background
background = imopen(I,strel('disk',15));
I2 = I - background;
figure, imshow(I2);
%%%Subtract the Background Image from the Original Image
I2 = I - background;
figure, imshow(I2);
% Increase the Image Contrast
I3 = imadjust(I2);
figure, imshow(I3);
%%Threshold the Image
level = graythresh(I3);
bw = im2bw(I3,level);
bw = bwareaopen(bw, 70);
figure, imshow(bw);
%%Identify Objects in the Image
cc=bwconncomp(bw, 4);
cc.NumObjects
%%%%%%Examine One Object
grain = false(size(bw));
grain(cc.PixelIdxList{50}) = true;
figure, imshow(grain);
%%Compute Area of Each Object
graindata = regionprops(cc, 'basic');
graindata(2).Area
```

IV. MENGITUNG LUAS OBJECT TERKECIL

```
I = imread('rice.png');
imshow(I);
%%% Use Morphological Opening to Estimate the Background
background = imopen(I,strel('disk',15));
I2 = I - background;
figure, imshow(I2);
%%%Subtract the Background Image from the Original Image
I2 = I - background;
figure, imshow(I2);
% Increase the Image Contrast
I3 = imadjust(I2);
```

```
figure, imshow(I3);
%%Threshold the Image
level = graythresh(I3);
bw = im2bw(I3,level);
bw = bwareaopen(bw, 50);
figure, imshow(bw);
%%Identify Objects in the Image
cc=bwconncomp(bw, 4);
cc.NumObjects
%%%%%%Examine One Object
grain = false(size(bw));
grain(cc.PixelIdxList{50}) = true;
figure, imshow(grain);
%%Compute Area of Each Object
graindata = regionprops(cc, 'basic');
graindata(50).Area;
%%Compute Area-based Statistics
grain_areas = [graindata.Area];
[min_area, idx] = min(grain_areas);
grain = false(size(bw));
grain(cc.PixelIdxList{idx}) = true;
figure, imshow(grain);
min_area;
```