

```

(Debug) In[45]:= ClearAll["Global`*"];
Needs["PlotLegends`\"](* PlotLegends is now obsolete*)
Evaluate[{FileNameSetter[Dynamic[datafilename1]], Dynamic[datafilename1]}]
If[FileExistsQ[datafilename1], Print["File exists " datafilename1],
Print["This File does not exist"]; Quit[]];
data1 = Import[datafilename1];

memoryTem = 0;
mtxw = 320; mtxh = 240; sw = 4; sh = 3;
redw = Round[mtxw / sw]; redh = Round[mtxh / sh];
Temperaturethreshold = .3; showmesh = False;

ImageSizeLocal = 450;
colorsGoody = {RGBColor[0.05374, 0, 0.333], RGBColor[0.0979, 0, 0.467],
RGBColor[0, 0, 1], RGBColor[0.2, 1, 0.96], RGBColor[0, 0.93, 0.07519],
RGBColor[1, 1, 0], RGBColor[1, 0, 0], Darker[RGBColor[1, 0, 0], .4]};

For[i = 1, i ≤ mtxw, i++, {
  For[j = 1, j ≤ Round[mtxh / 2], j++, {
    memoryTem = data1[[{(i - 1) * mtxh + j, 3}]];
    data1[[{(i - 1) * mtxh + j, 3}]] = data1[[{(i - 1) * mtxh + (mtxh + 1 - j), 3}]];
    data1[[{(i - 1) * mtxh + (mtxh + 1 - j), 3}]] = memoryTem;
  }]
}
Print["CheckPoint#1 - the matrix
rotation was done - {1..320,1..240} ->{1..320,240..1}"]
ListDensityPlot[data1, PlotRange → All, ColorFunction → (*colorsGoody*)
GrayLevel, Mesh → showmesh, Mesh → {redw - 1, redh - 1},
ImageSize → ImageSizeLocal, ClippingStyle → Automatic,
PlotLegends → Automatic, ColorFunctionScaling → True, InterpolationOrder → 0]

Mask43 = ArrayReshape[Transpose@ArrayReshape[ArrayReshape[
  Transpose@ArrayReshape[Table[i, {i, mtxw * mtxh}], {mtxw, mtxh}],
  {redw, mtxh, sw}], {mtxh, redw, sw}], {redw, redh, sw * sh}];

If[Mask43[[redw, redh, sw * sh]] == mtxw * mtxh,
Print["CheckPoint#2 - excellent"], Print["CheckPoint#2 - failed!"]]

data2 = data1; Clear[data1];
arrenged = Array[{#/ #} &, {redw, redh, 3}];
For[i = 1, i ≤ Length[arrenged], i++, {
  For[j = 1, j ≤ Length[arrenged[[i]]], j++, {
    arrenged[[i, j, 1]] = (i - 0.5) * sw;
    arrenged[[i, j, 2]] = sh * (j - 0.5);

    arrenged[[i, j, 3]] =
      Sum[data2[[Mask43[[i, j, a]], 3]], {a, sw * sh}] * (1 / (sw * sh));
    noiseF[x_, av_] := x - av;
    For[a := 1, a ≤ (sw * sh), a++, {data2[[Mask43[[i, j, a]], 3]] =
      noiseF[data2[[Mask43[[i, j, a]], 3]], arrenged[[i, j, 3]]];}]
  }]
}

```

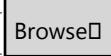
2 | script gss 21113 gray crosses.nb

```
}

Clear[arrenged, Mask43];
(*For[i=1,i<=Length[data2],i++,
  If[Abs[data2[[i,3]]]>Temperaturethreshold,data2[[i,3]]=0]]
For[i=1,i<=Length[data2],i++,
  If[Abs[data2[[i,3]]]>0.1,data2[[i,3]]=Temperaturethreshold])*)

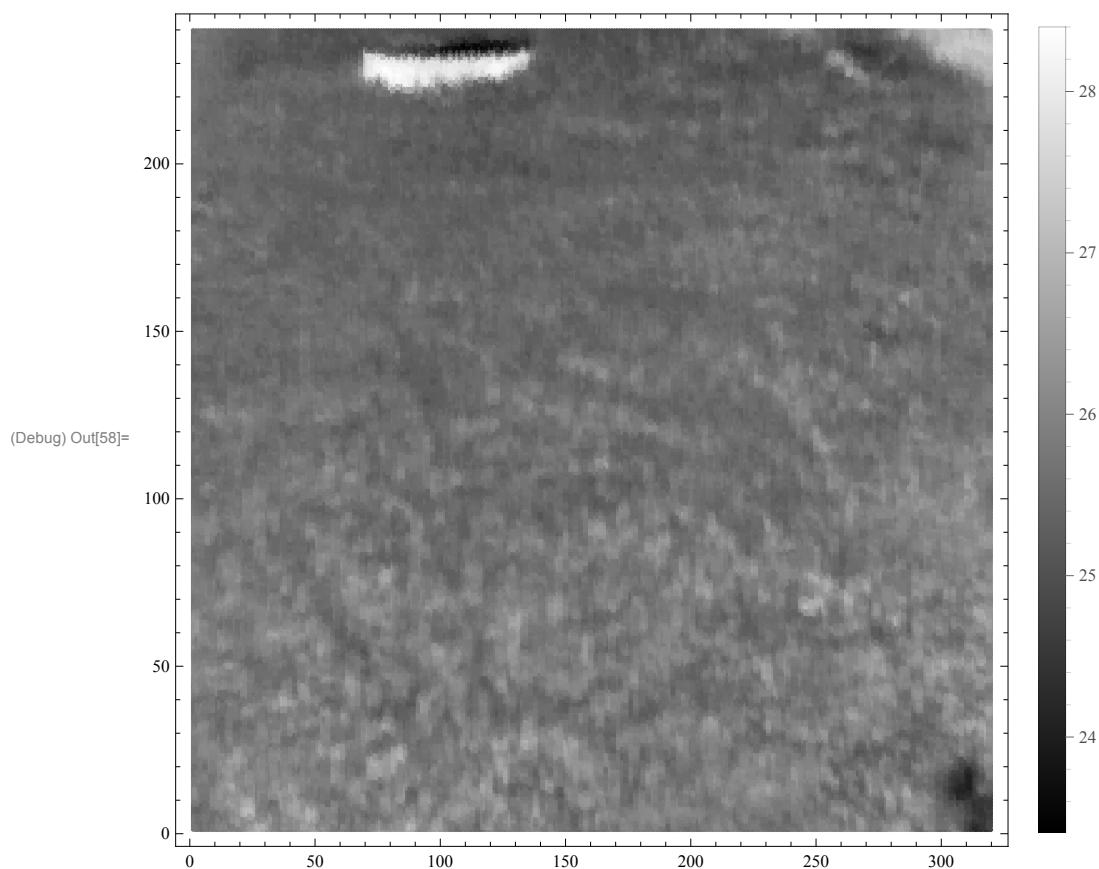
ListDensityPlot[data2, PlotRange → All,
 ColorFunction → (*colorsGoody*)GrayLevel, Mesh → showmesh,
 Mesh → {redw - 1, redh - 1}, ImageSize → ImageSizeLocal,
 ClippingStyle → Automatic, PlotLegends → Automatic,
 ColorFunctionScaling → True, InterpolationOrder → 0]
(*ListPointPlot3D[data1,ColorFunction→Function[{x,y,z},Hue[-z]]]*)
```

```
Clear[data2];
```

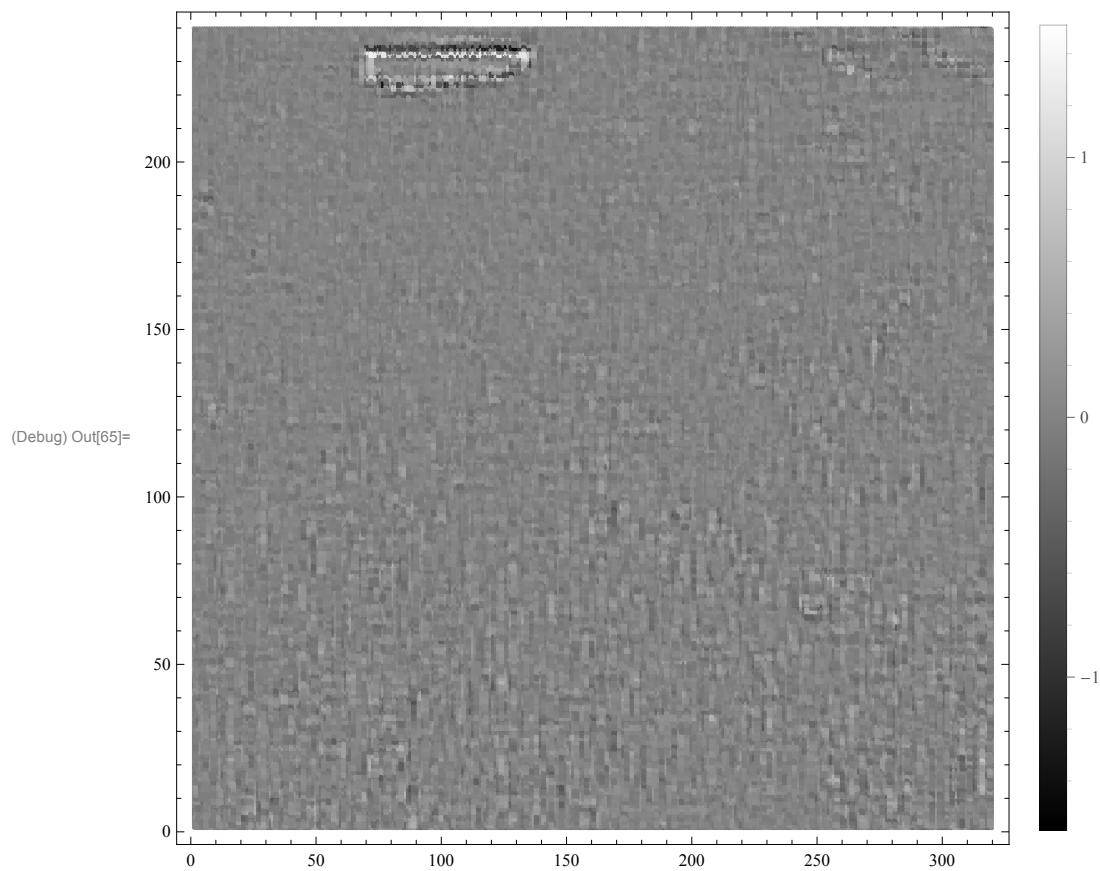
(Debug) Out[47]=  C:\A\Notes\PRG\W\gjIR000110.dat

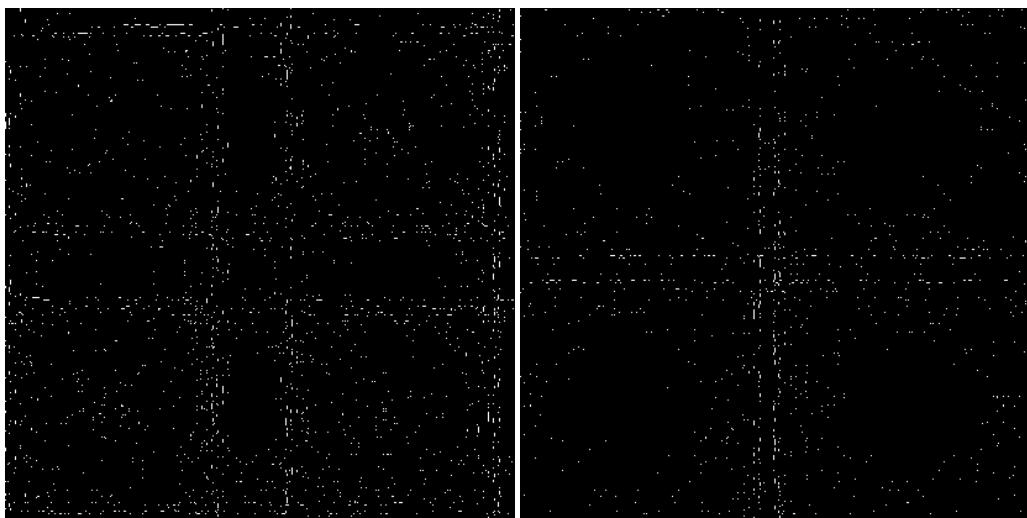
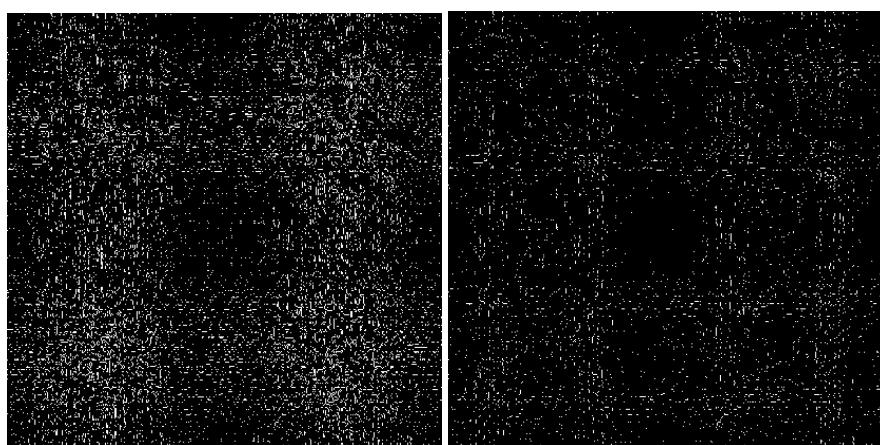
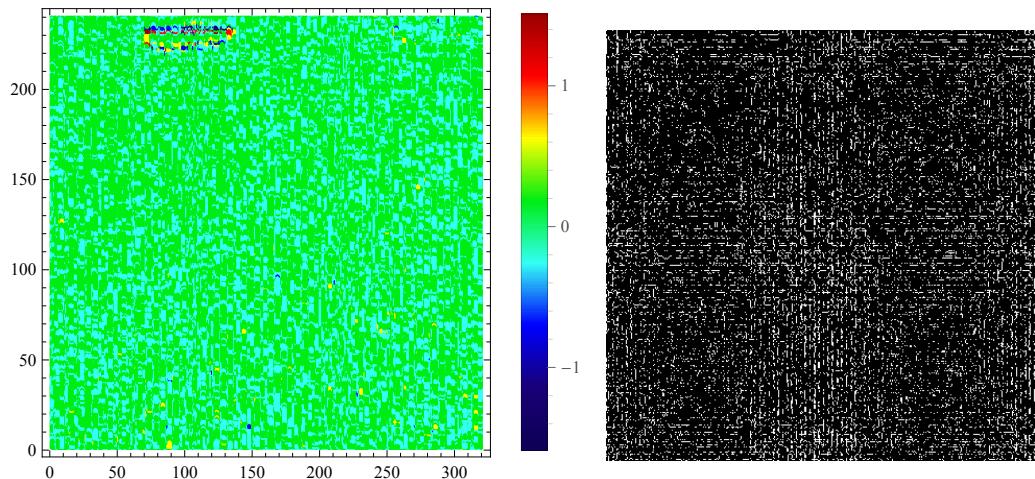
C:\A\Notes\PRG\W\gjIR000110.dat File exists

CheckPoint#1 - the matrix rotation was done - {1..320,1..240}→{1..320,240..1}

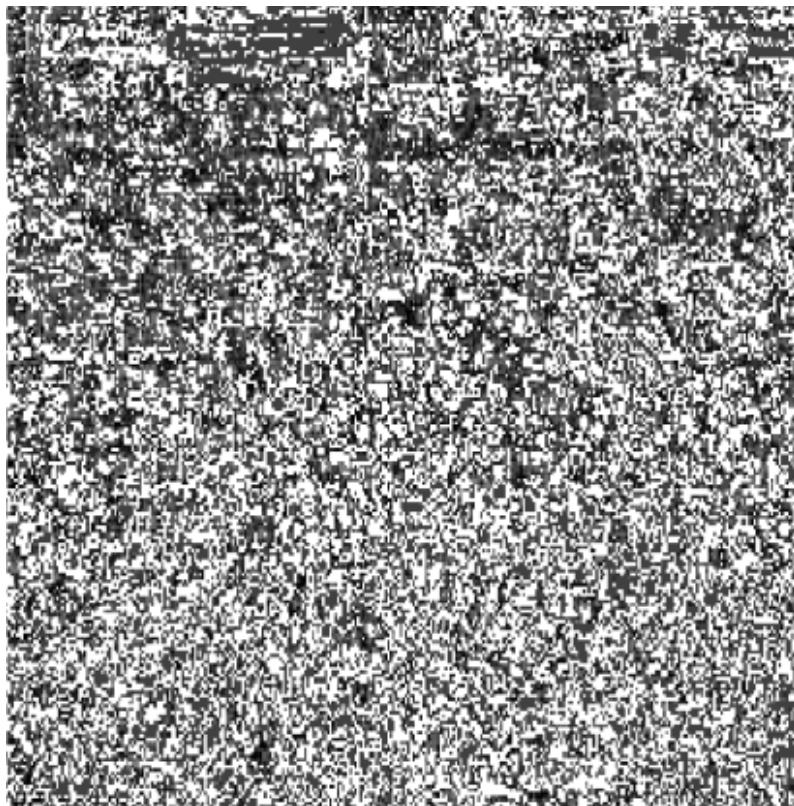


CheckPoint#2 - excellent





(Debug) In[107]:= **imgq** =



```
Manipulate[ImageSubtract[Binarize[imgq, a1], Binarize[imgq, a2]],
{a1, 0, a2, .01}, {a2, a1, 1, .01}]
```

(Debug) Out[108]=

a1

a2

ImageSubtract[Binarize[imgq, 0.6], Binarize[imgq, 0.64]]

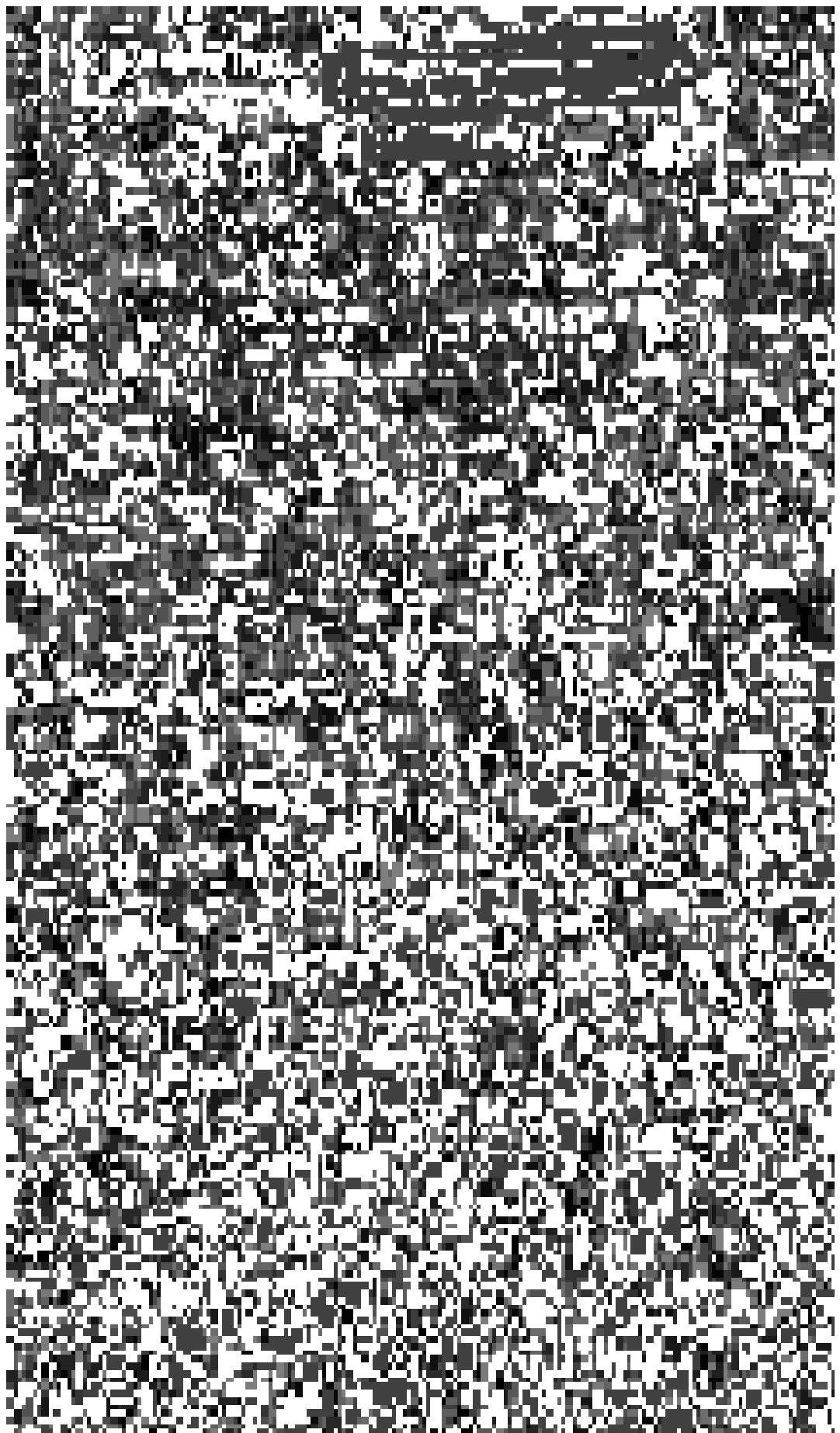
Binarize::imginv : Expecting an image or graphics instead of imgq. >>

Binarize::imginv : Expecting an image or graphics instead of imgq. >>

ImageSubtract::imginv : Expecting an image or graphics instead of Binarize[imgq, 0.6]. >>

ImageSubtract::imginv : Expecting an image or graphics instead of Binarize[imgq, 0.6]. >>

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```
Manipulate[ImageSubtract[Binarize[imgq, a1], Binarize[imgq, a2]],
{a1, 0, a2, .01}, {a2, a1, 1, .01}]
```

(Debug) Out[106]=

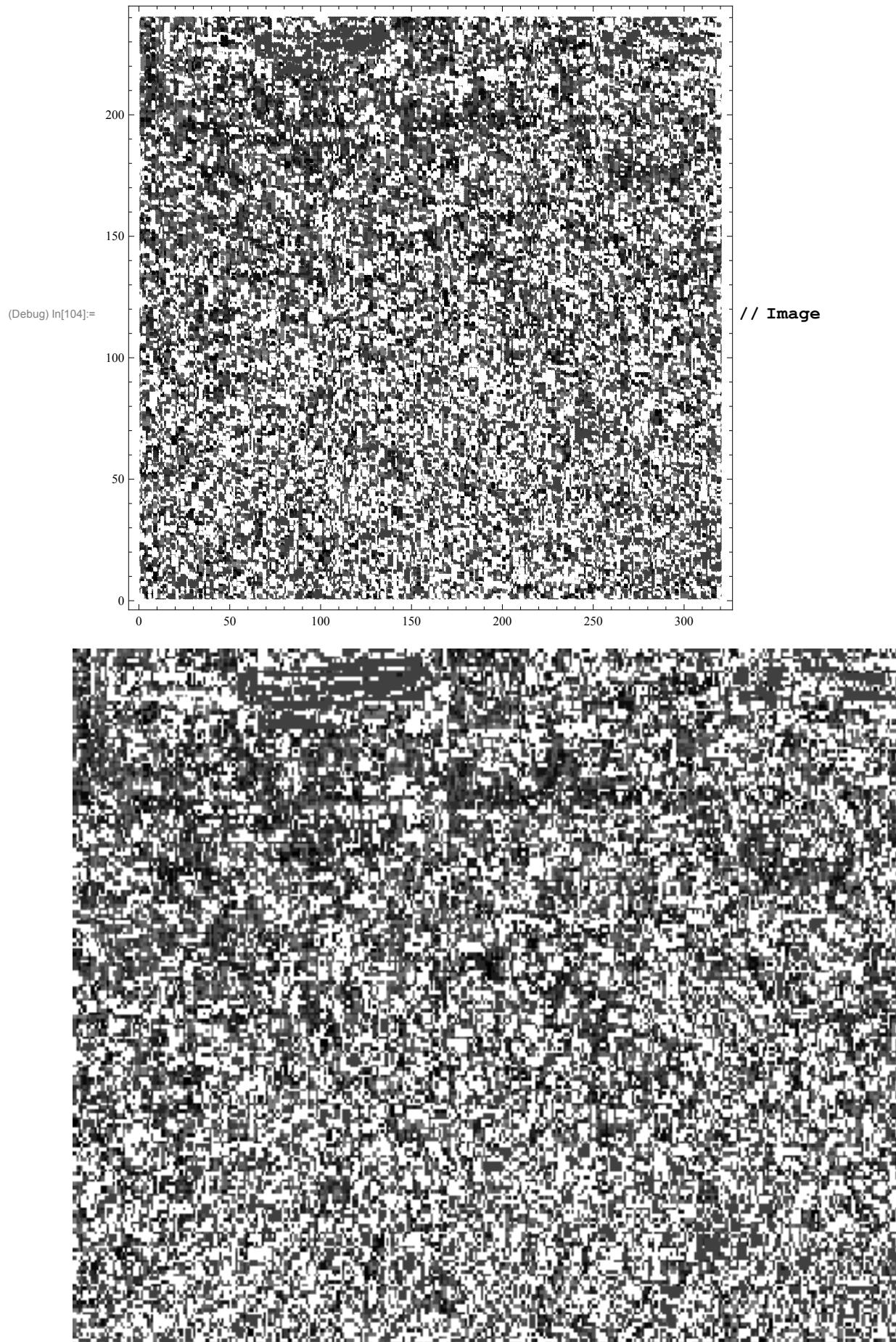
The image shows a Manipulate interface. At the top, there is a text input field containing the command `Manipulate[ImageSubtract[Binarize[imgq, a1], Binarize[imgq, a2]], {a1, 0, a2, .01}, {a2, a1, 1, .01}]`. Below this are two horizontal sliders labeled `a1` and `a2`. Each slider has a numerical input field next to it (0.53 for a1, 0.62 for a2), a range indicator, and a set of control buttons (minus, plus, up, down, right). A large rectangular box at the bottom contains the output expression `ImageSubtract[Binarize[imgq, 0.53], Binarize[imgq, 0.62]]`.

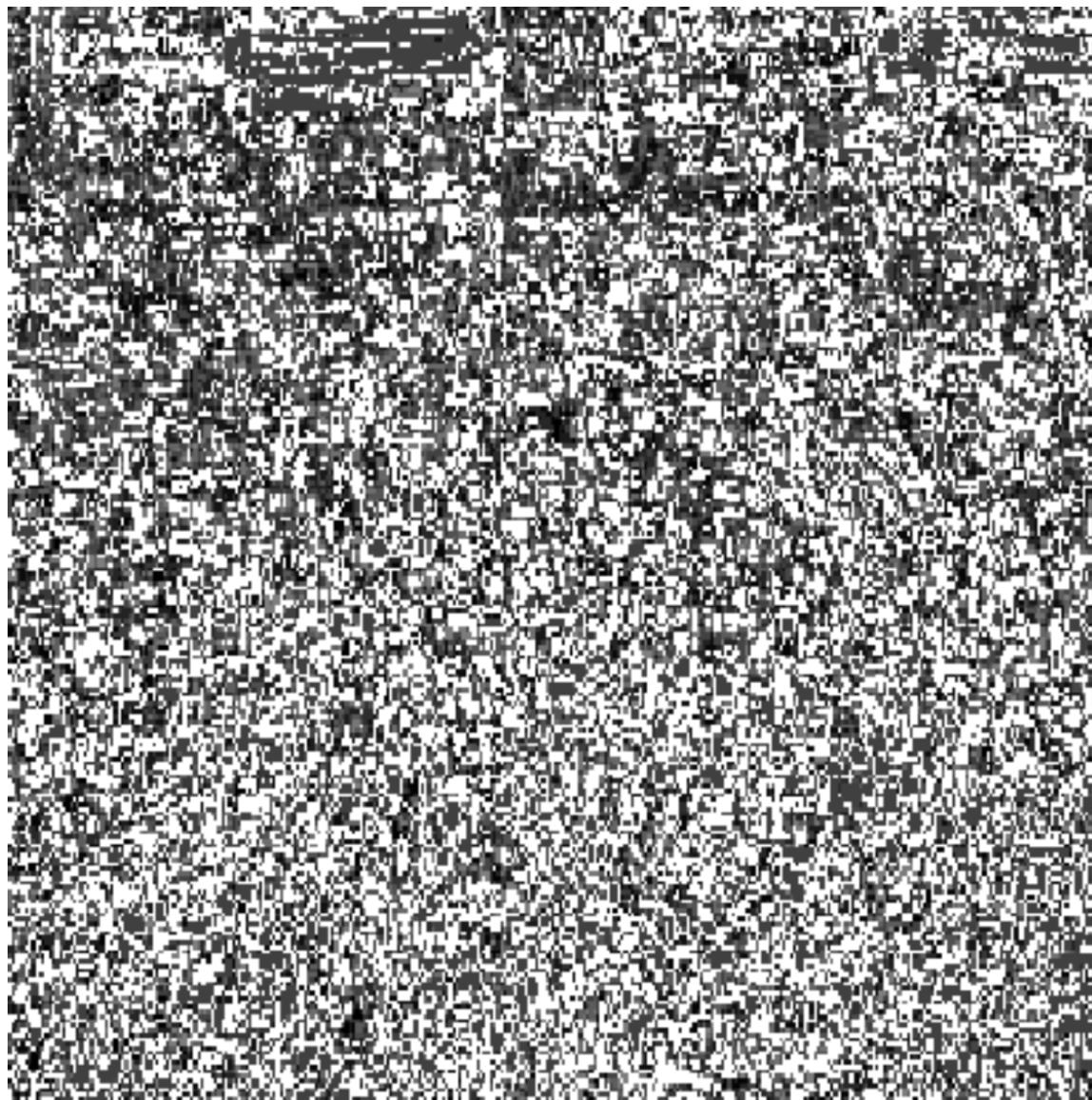
Binarize::imginv : Expecting an image or graphics instead of imgq. >>

Binarize::imginv : Expecting an image or graphics instead of imgq. >>

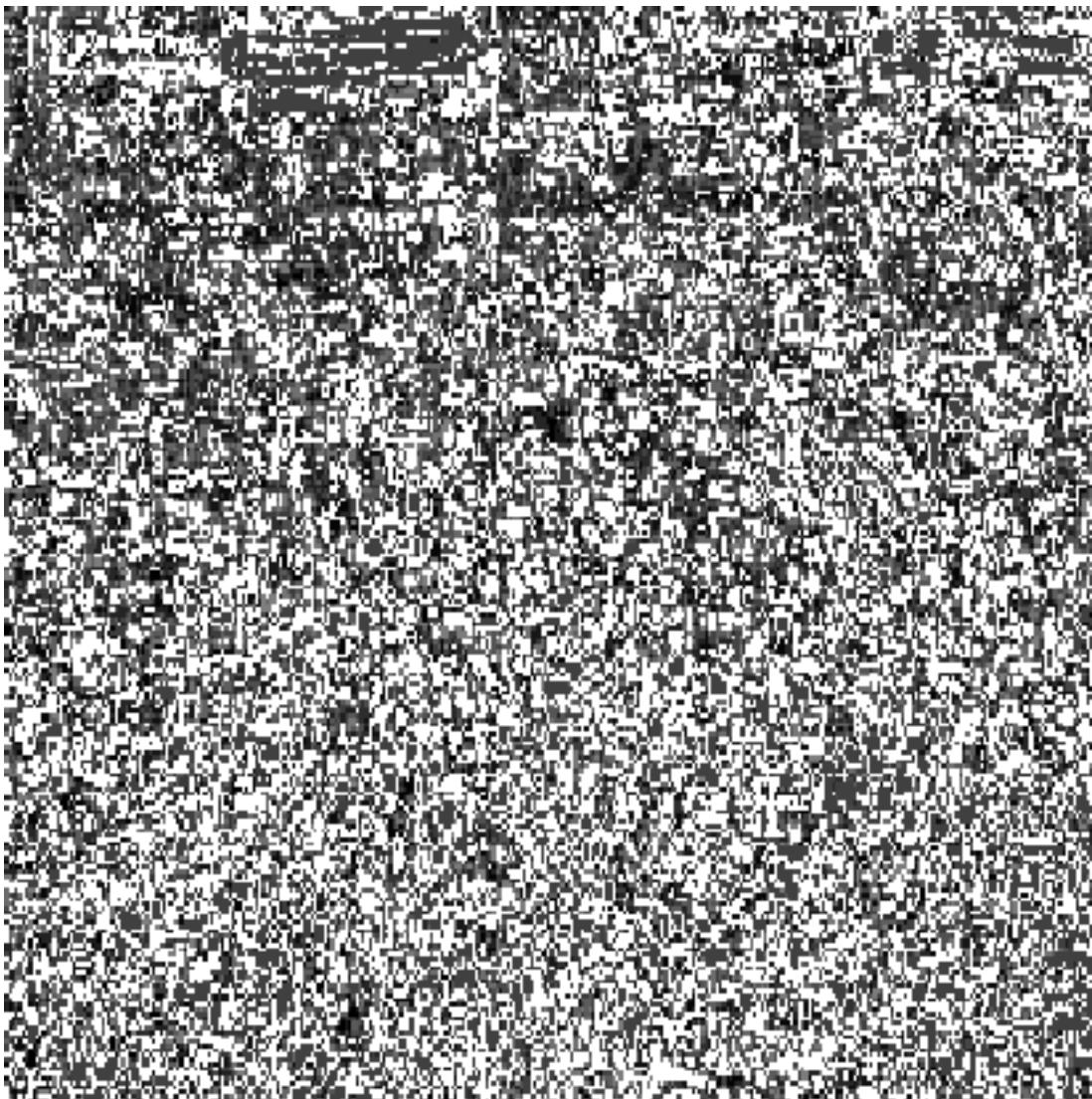
ImageSubtract::imginv : Expecting an image or graphics instead of Binarize[imgq, 0.53]. >>

8 | script gss 21113 gray crosses.nb

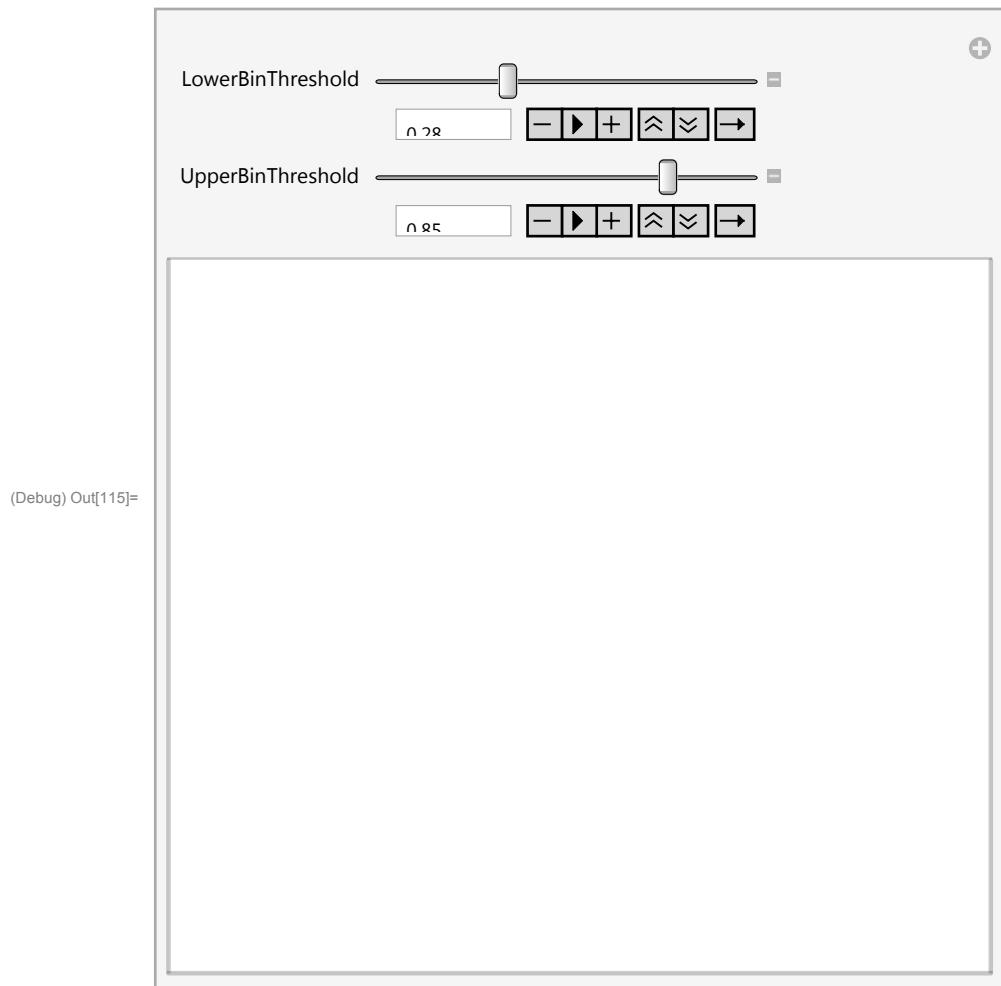




(Debug) In[114]:= **Img** =



```
Manipulate[ImageSubtract[Binarize[Img, LowerBinThreshold],  
Binarize[Img, UpperBinThreshold]],  
{LowerBinThreshold, 0, UpperBinThreshold, .01},  
{UpperBinThreshold, LowerBinThreshold, 1, .01}]
```



Binarize::imginv : Expecting an image or graphics instead of Img. >>

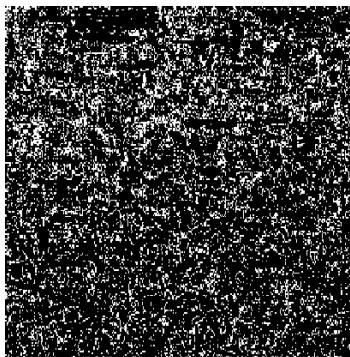
Binarize::imginv : Expecting an image or graphics instead of Img. >>

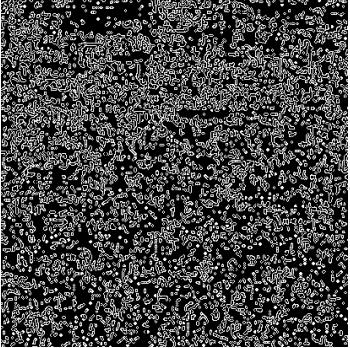
ImageSubtract::imginv : Expecting an image or graphics instead of Binarize[Img, 0.28]. >>



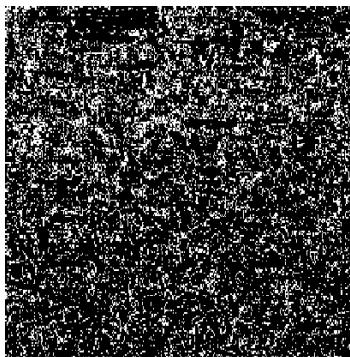
difference:: start point UpperBinThreshold=0.87; 1- appearance of difference; 22~0.28. Input:: thr1=.3, thr2=.1. Cell: 8x8.

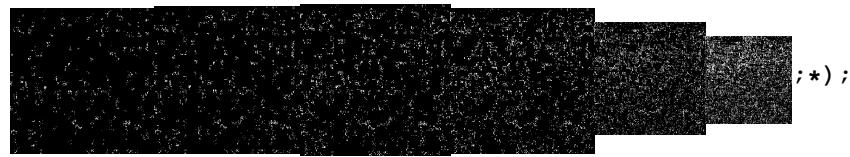
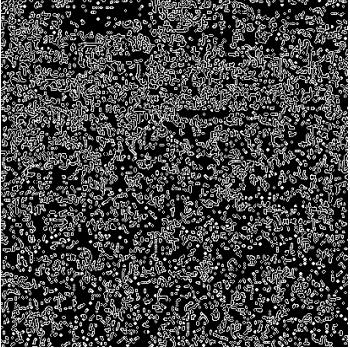
```



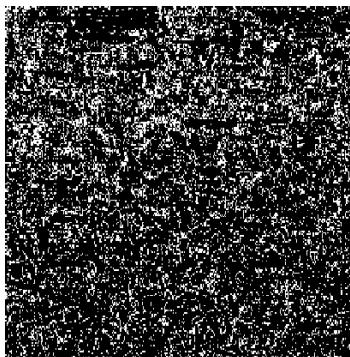



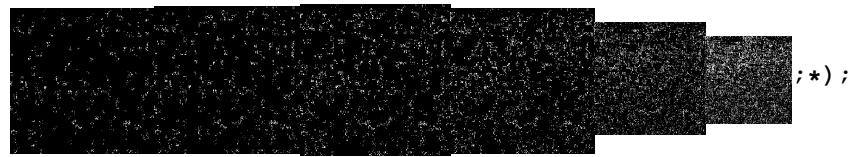
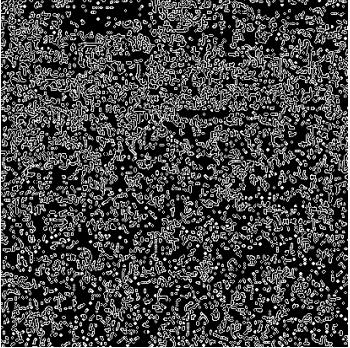
```



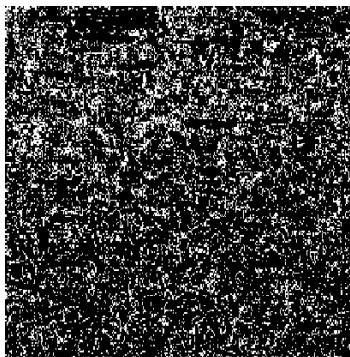



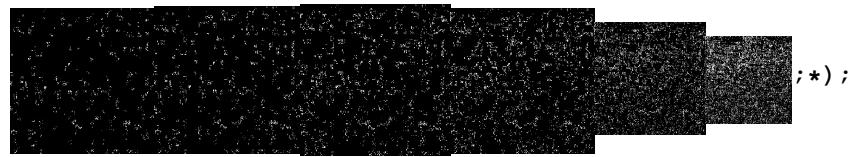
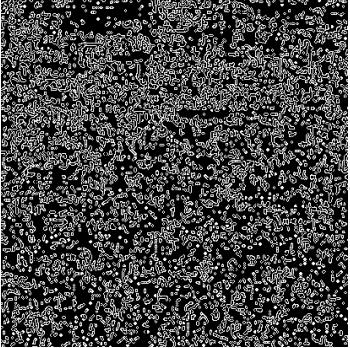
```



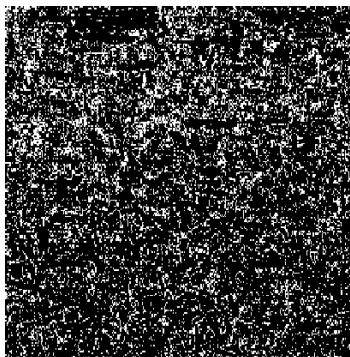
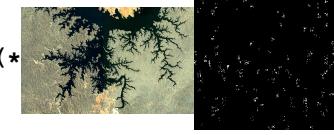



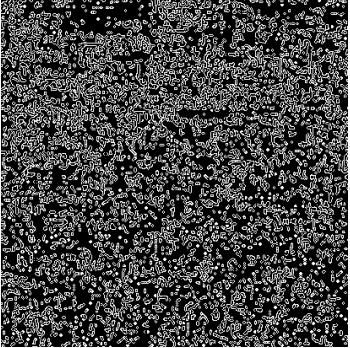
```



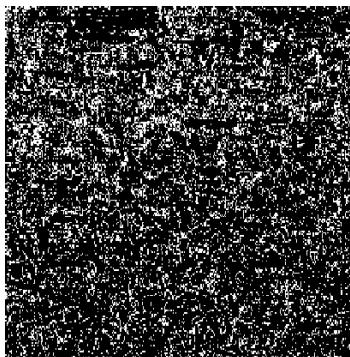



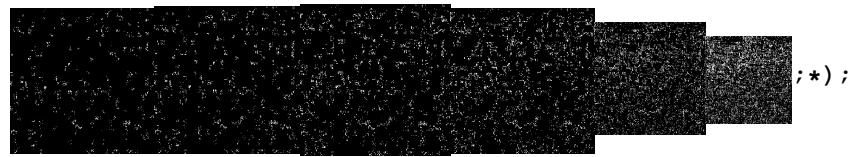
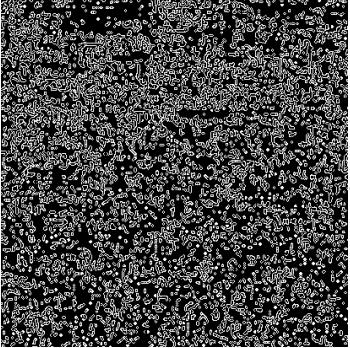
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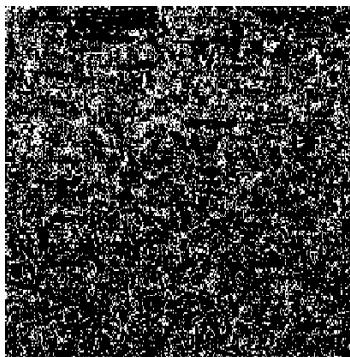


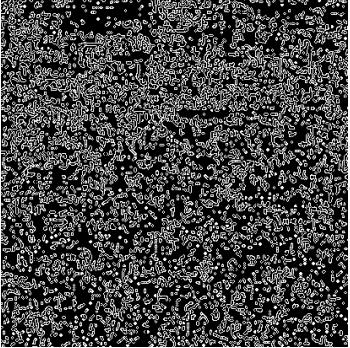
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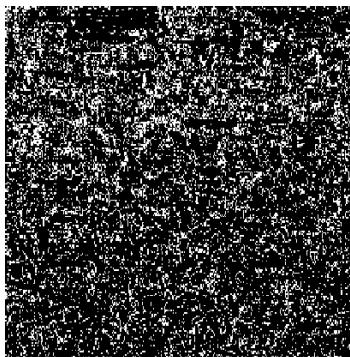
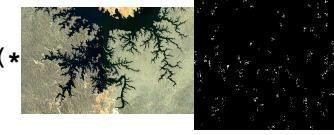
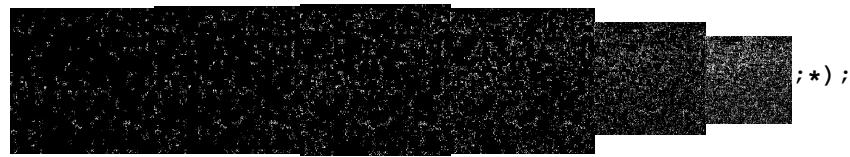
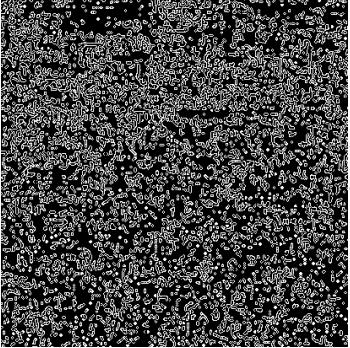



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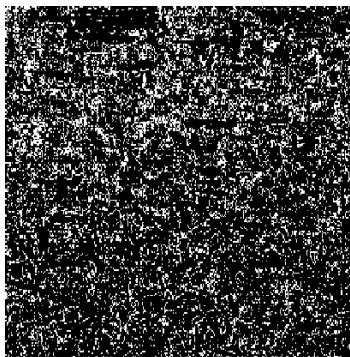
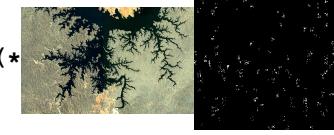
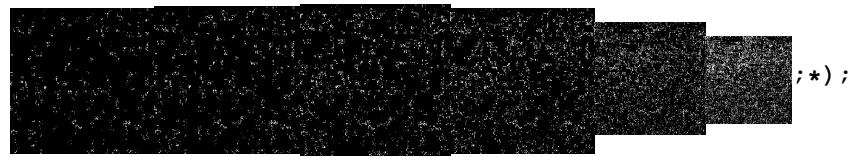
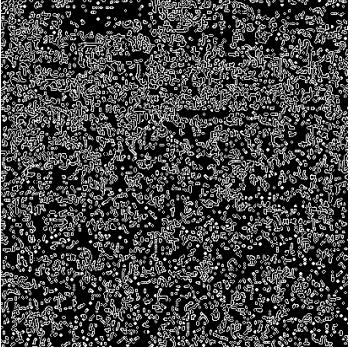


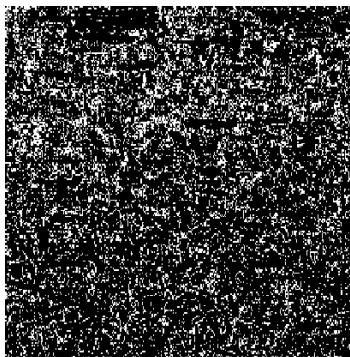
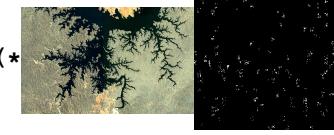
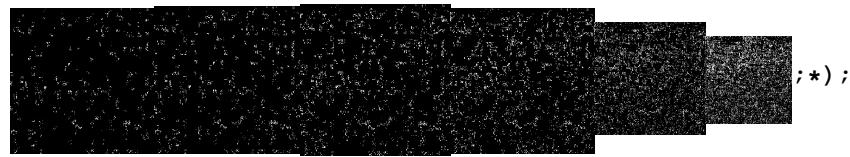
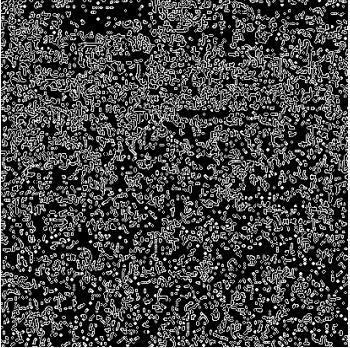
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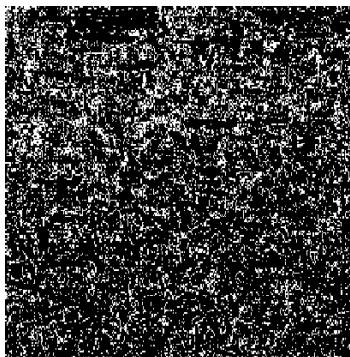
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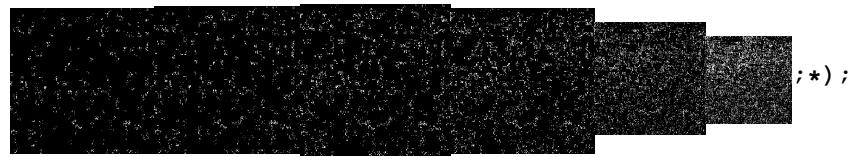
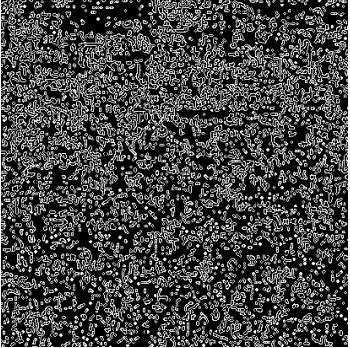





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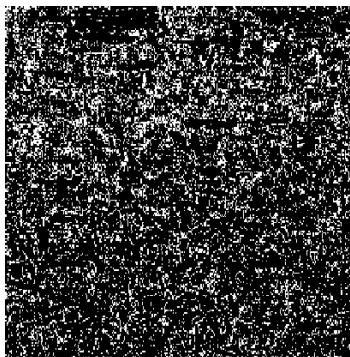





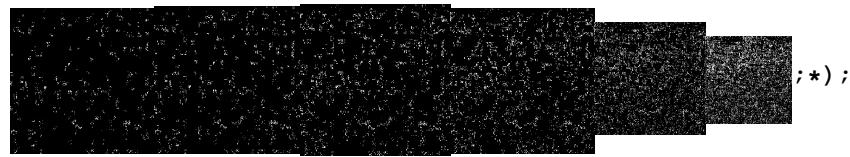
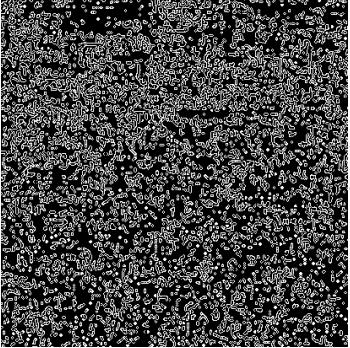
```



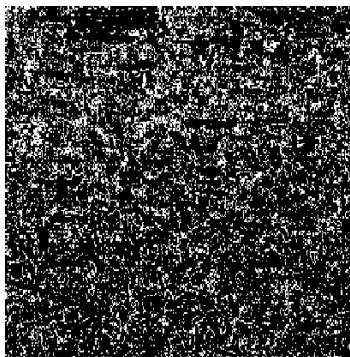



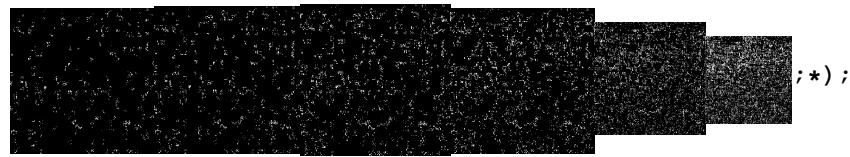
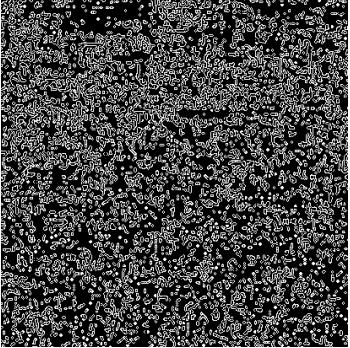
```



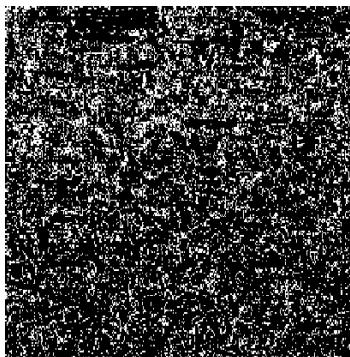
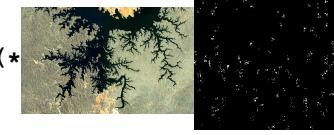
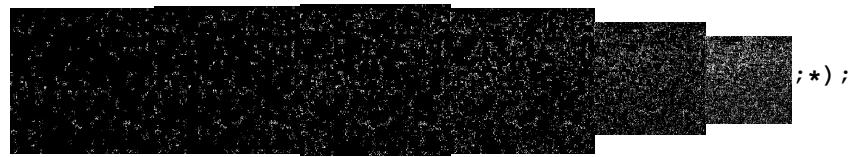
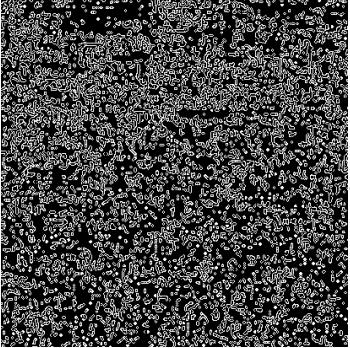



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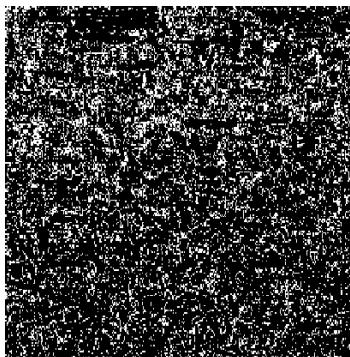


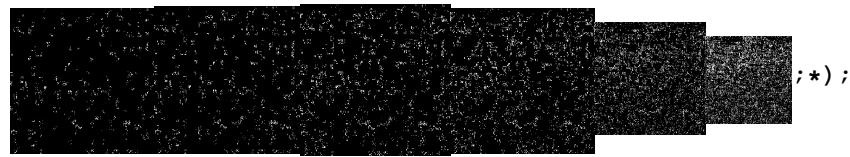
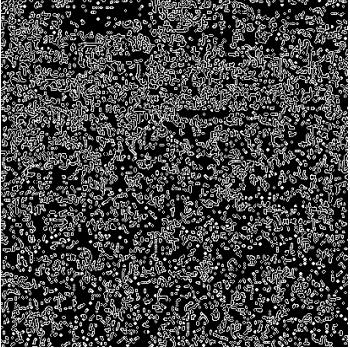



```

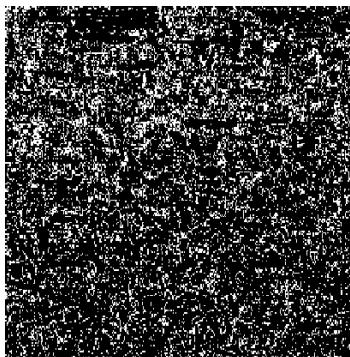
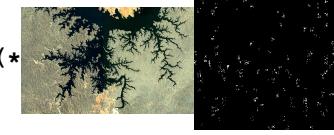





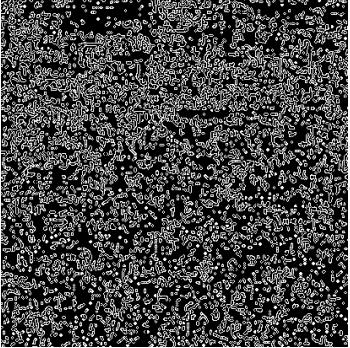
```



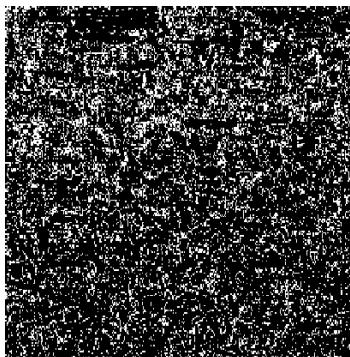
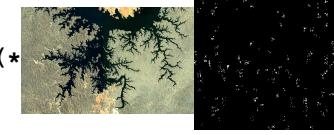
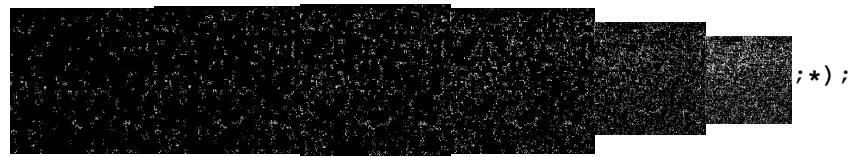
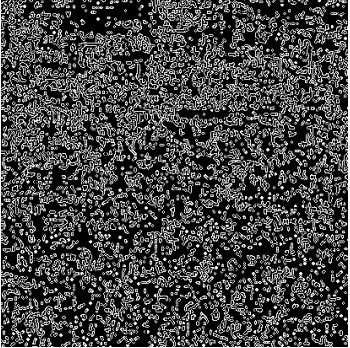



```

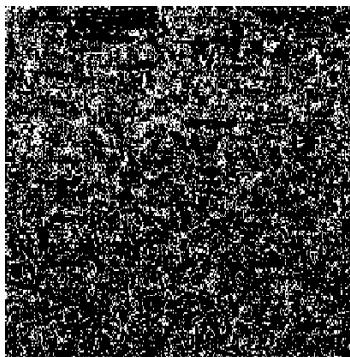
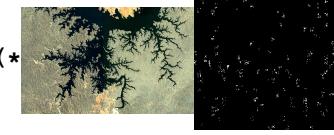
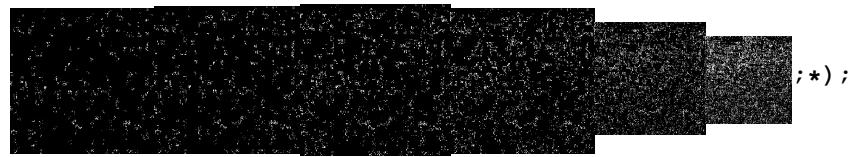
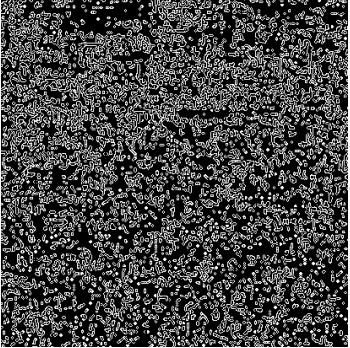





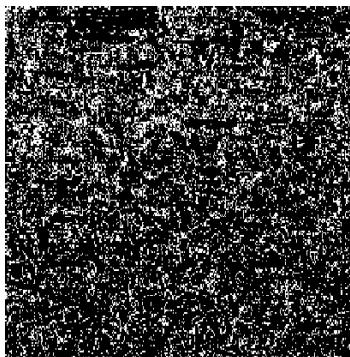
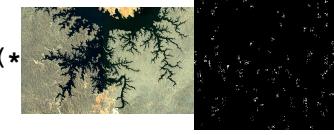
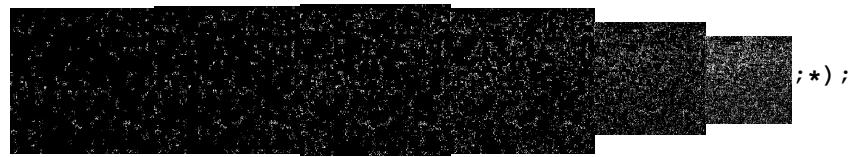
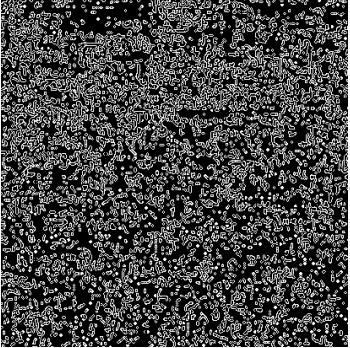
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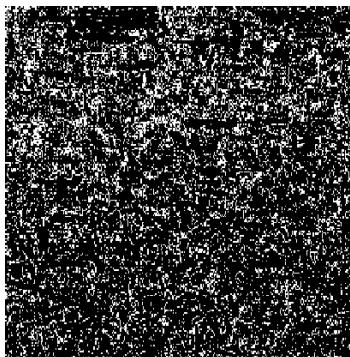
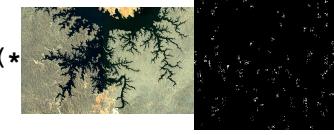
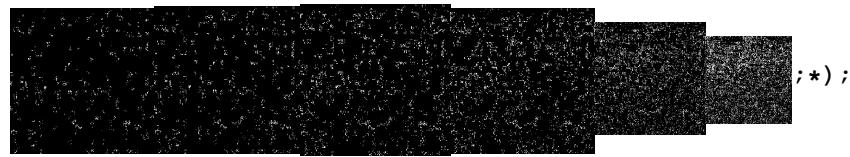
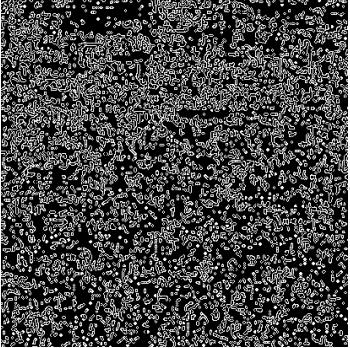
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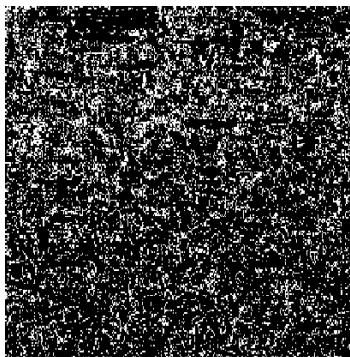
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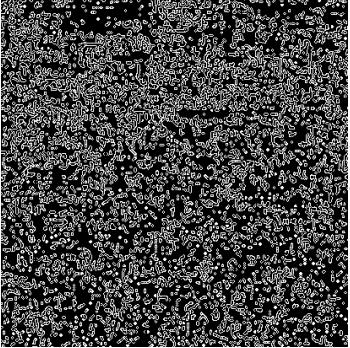





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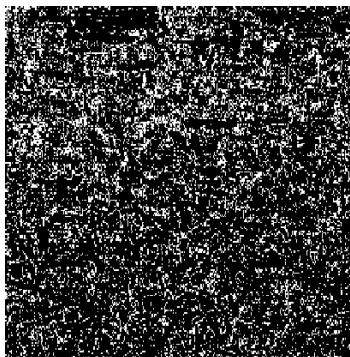
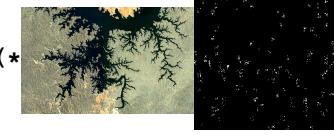
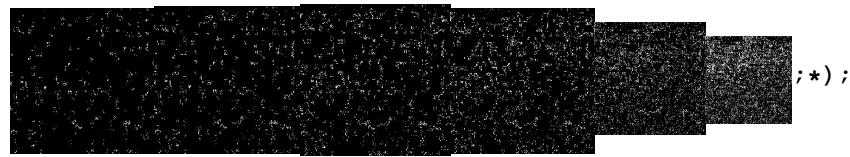
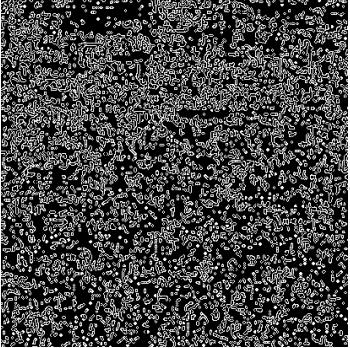





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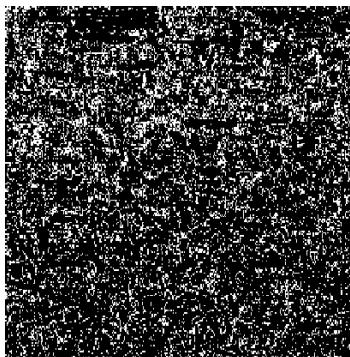
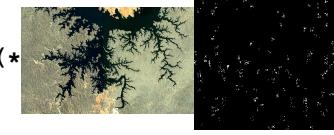
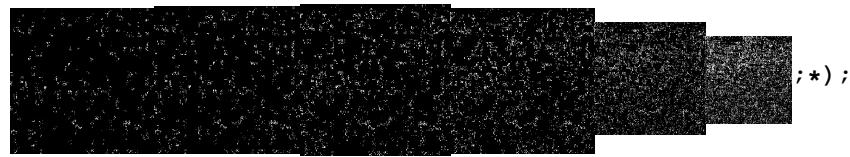
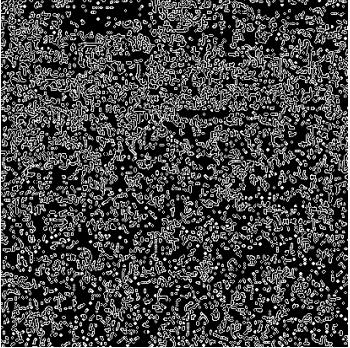


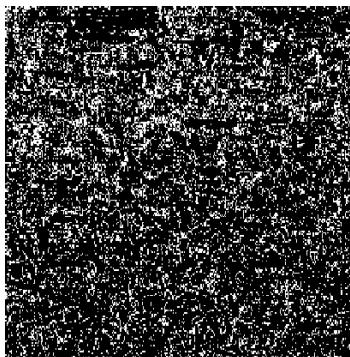
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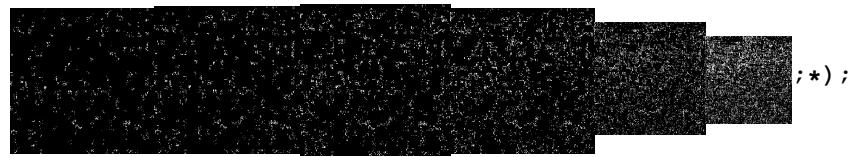
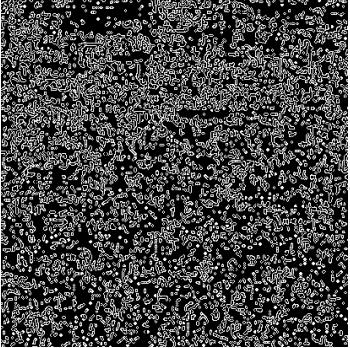





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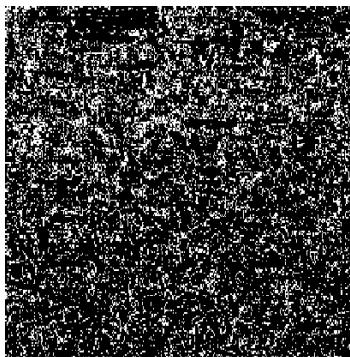
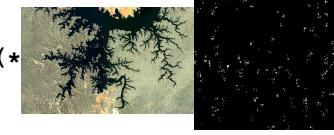
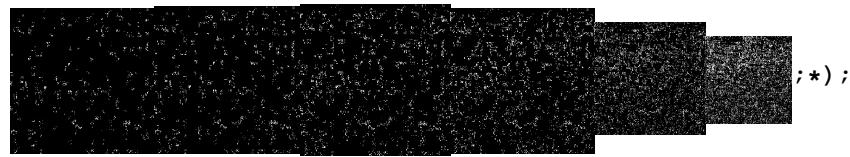
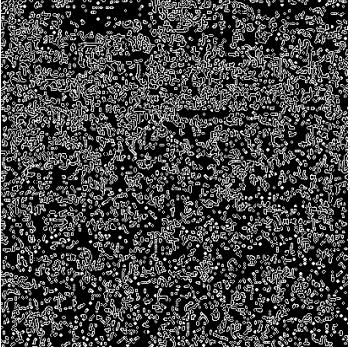





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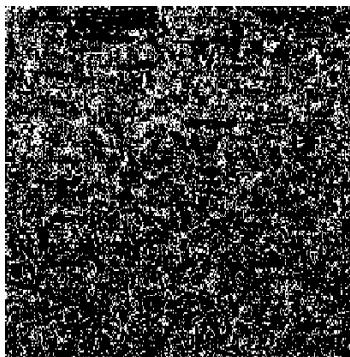


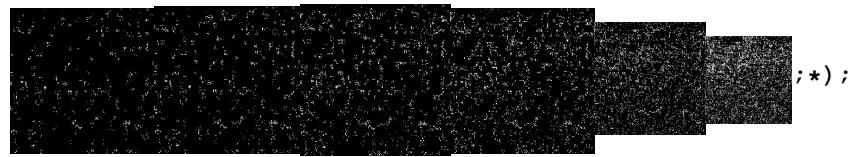
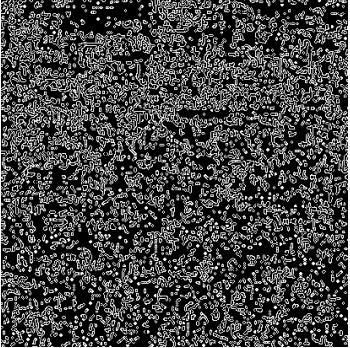



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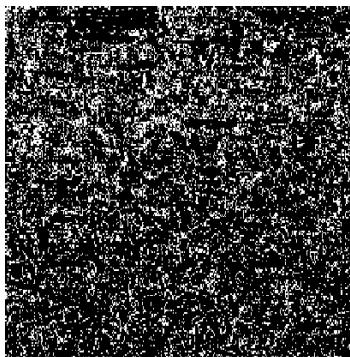





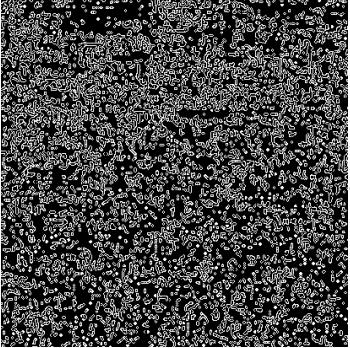
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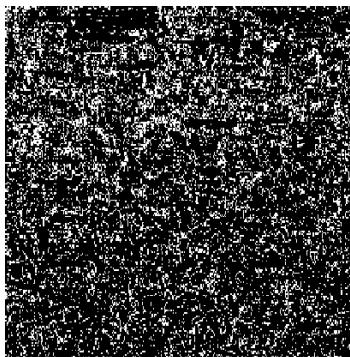
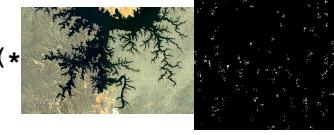
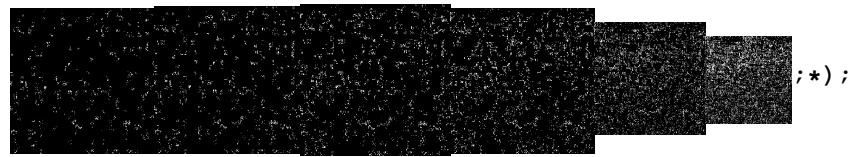
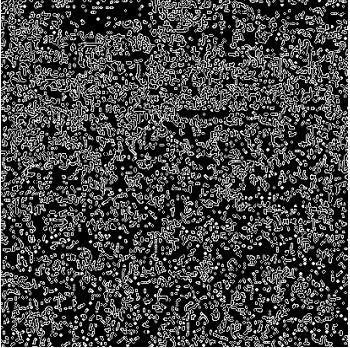



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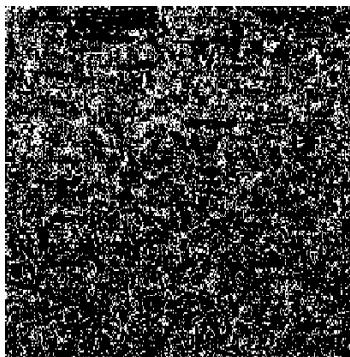


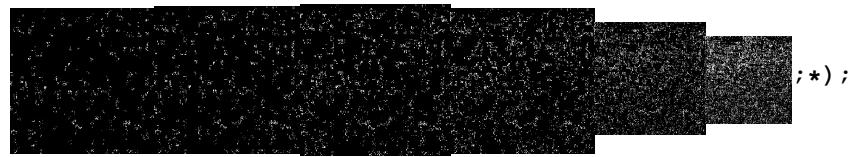
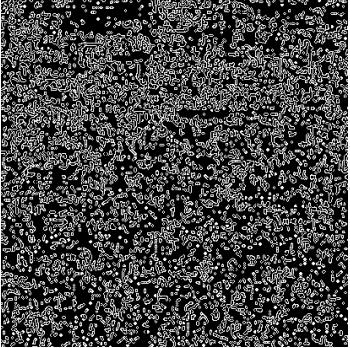



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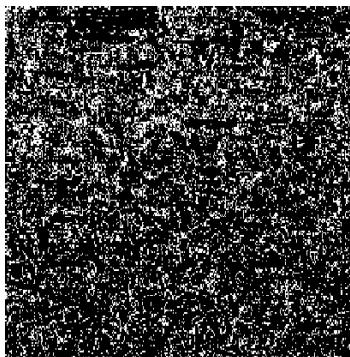
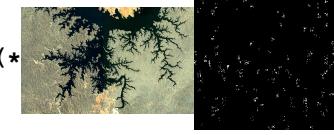
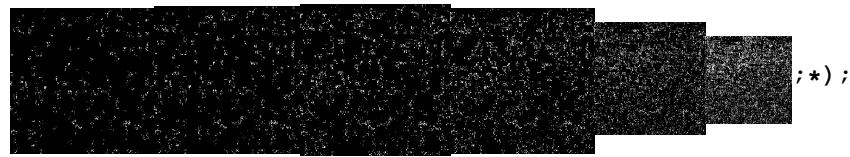
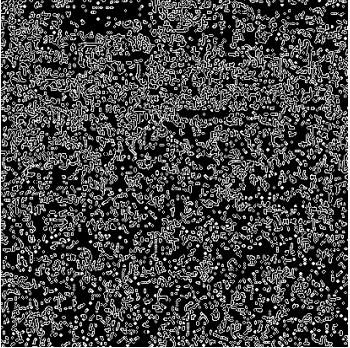





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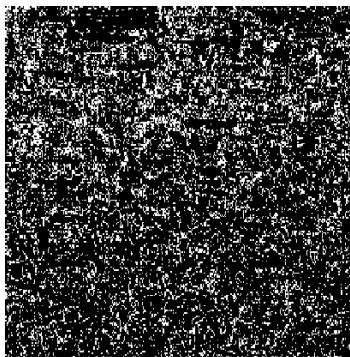
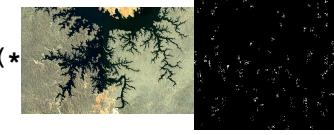
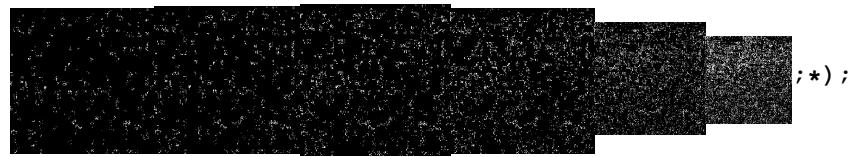
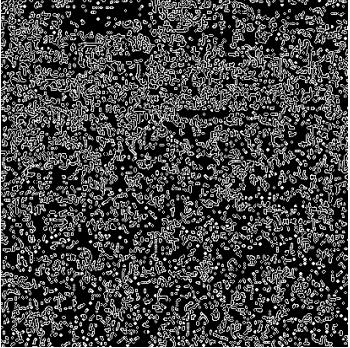


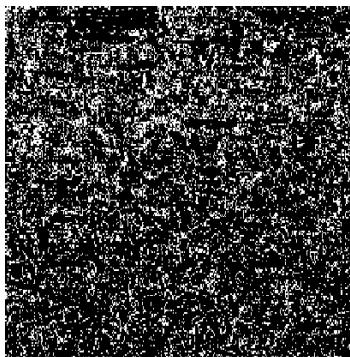
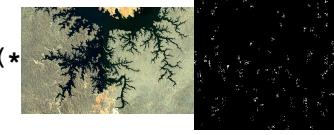
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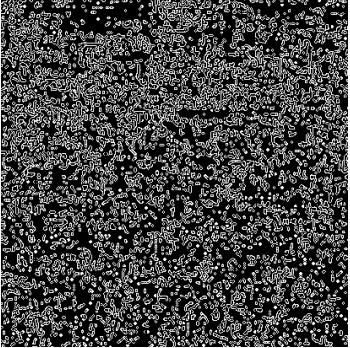





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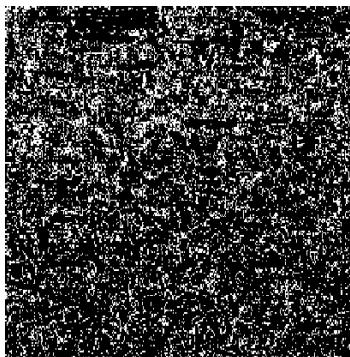
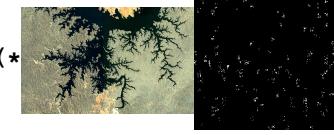
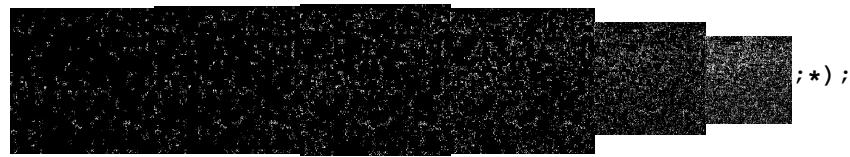
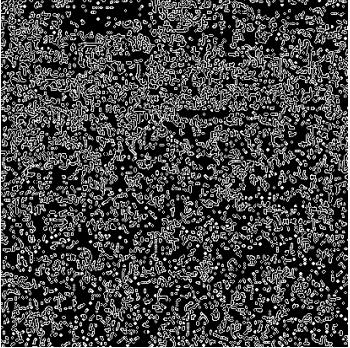





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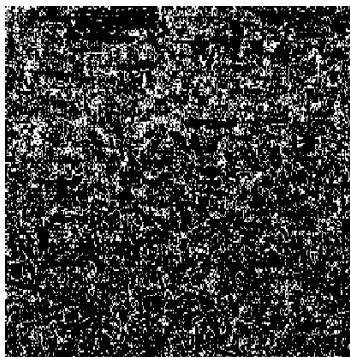



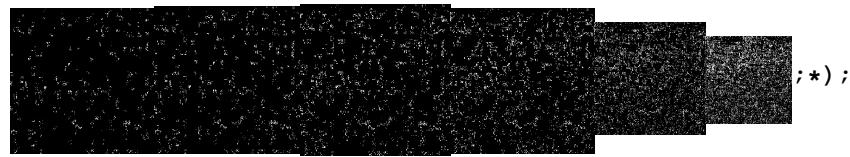
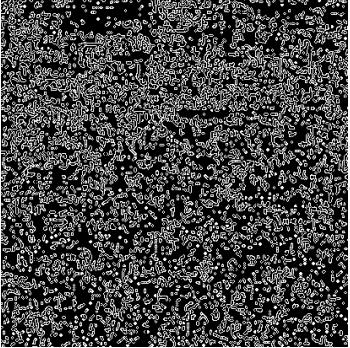


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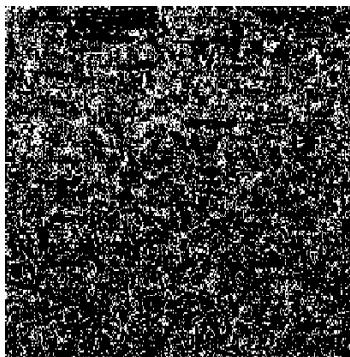





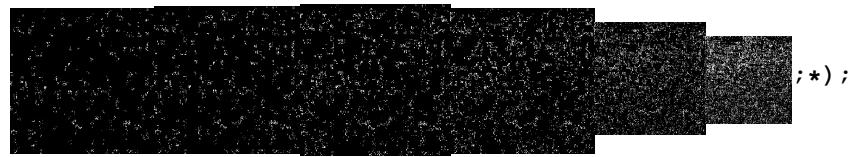
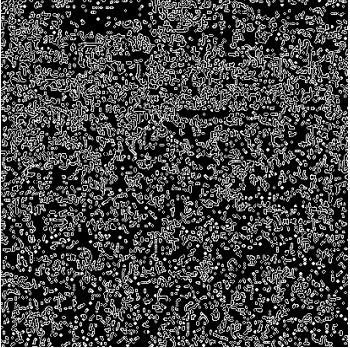
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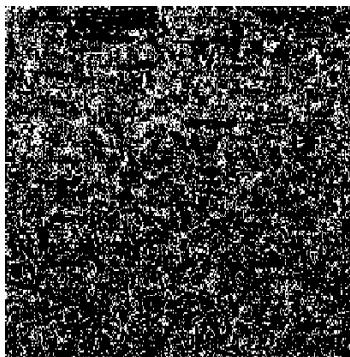



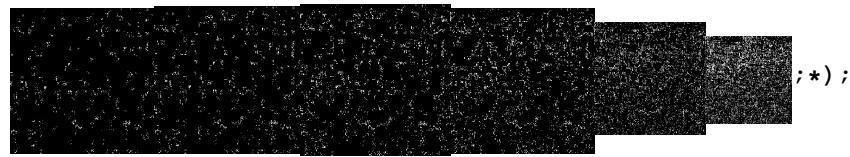
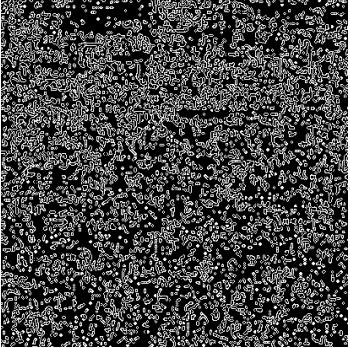
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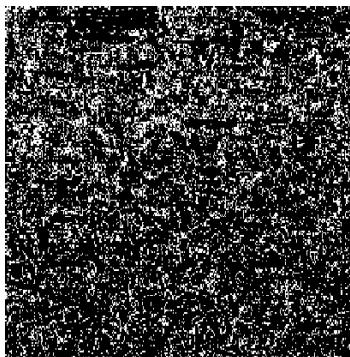
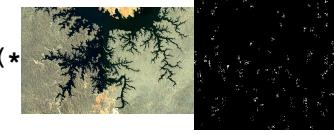



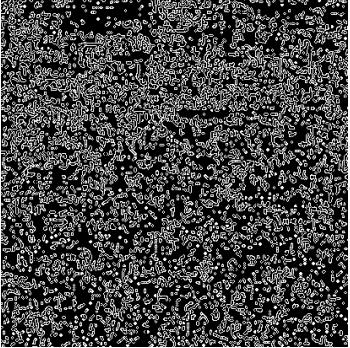
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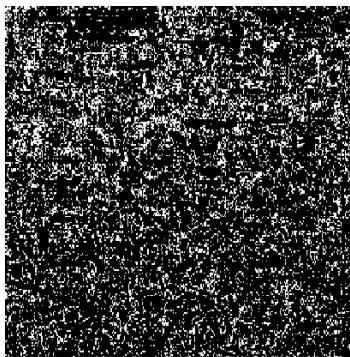



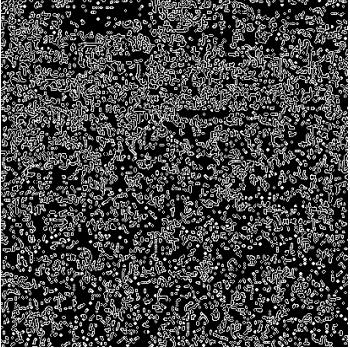
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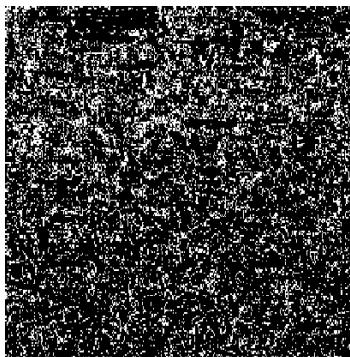
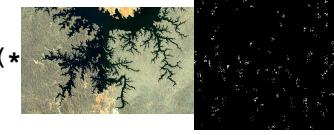
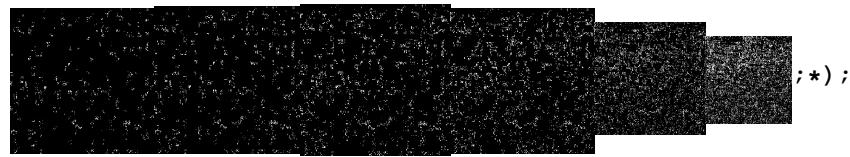
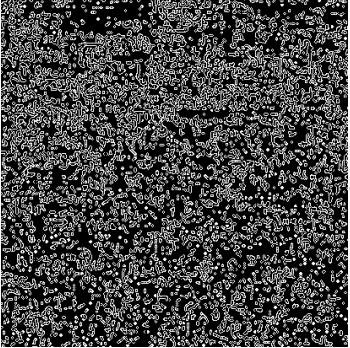


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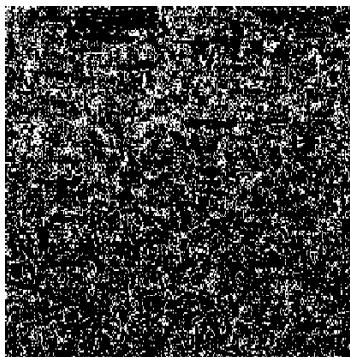


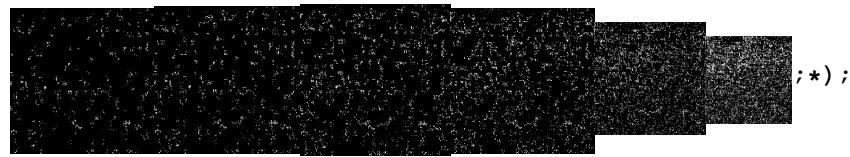
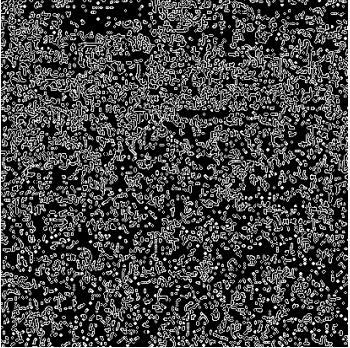



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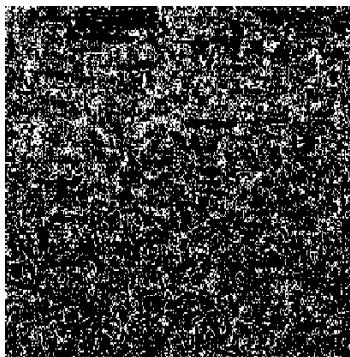
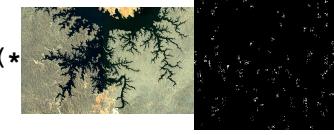
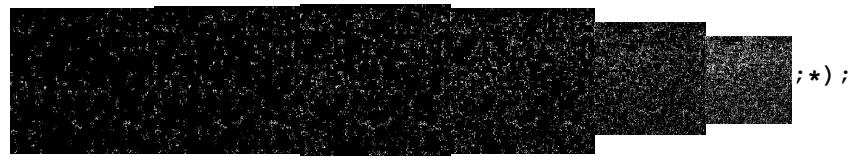
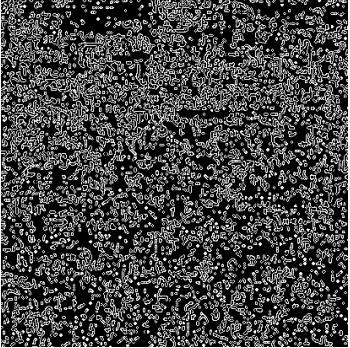





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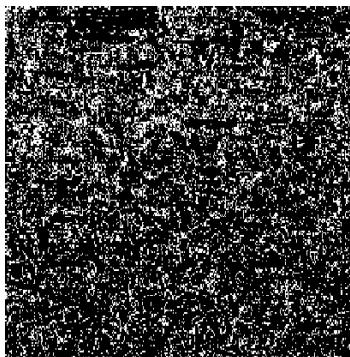


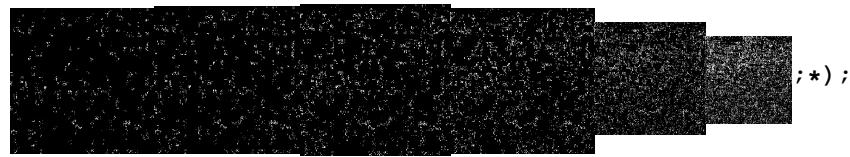
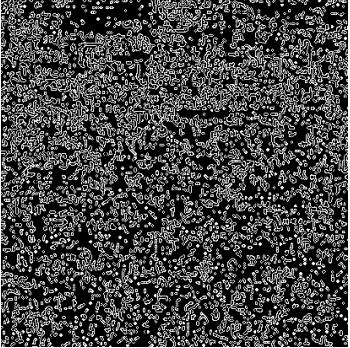



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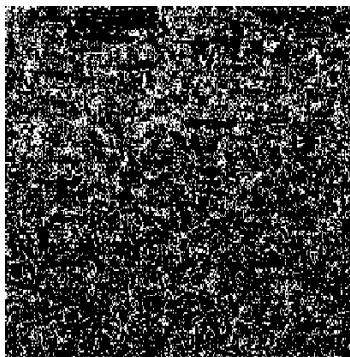
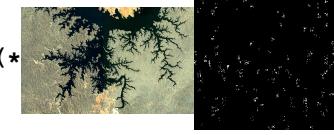
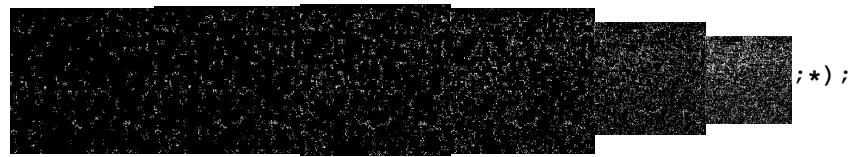
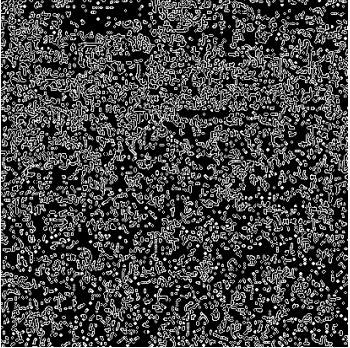





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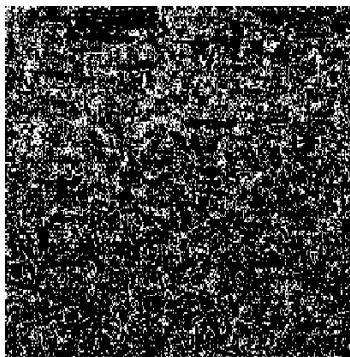
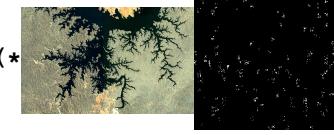
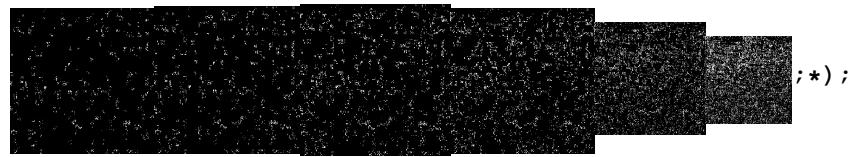
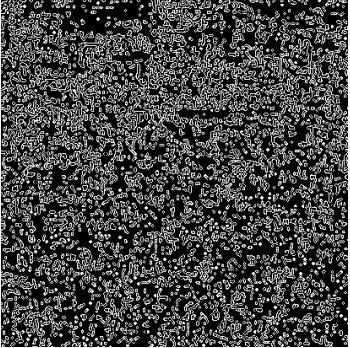


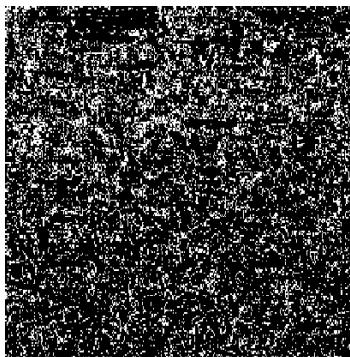
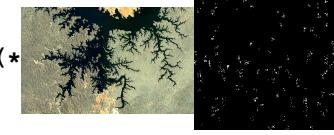
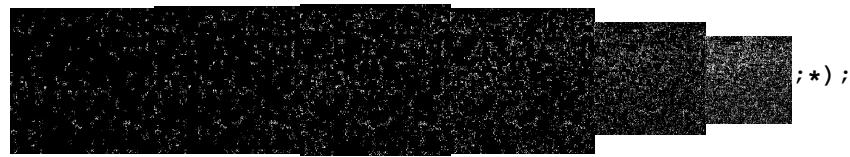
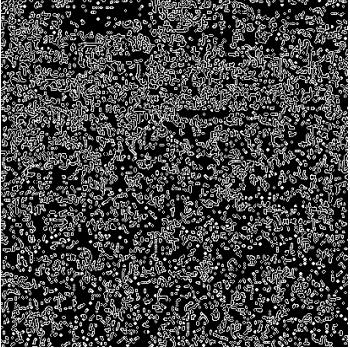
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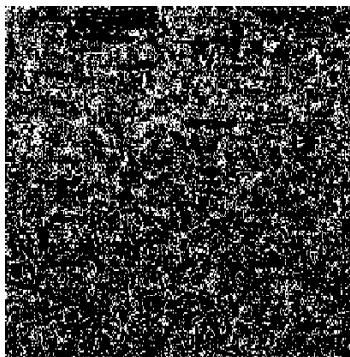
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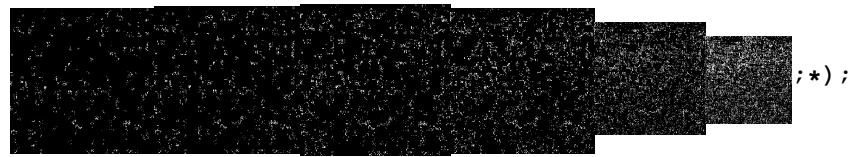
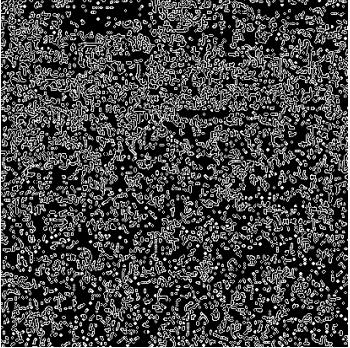





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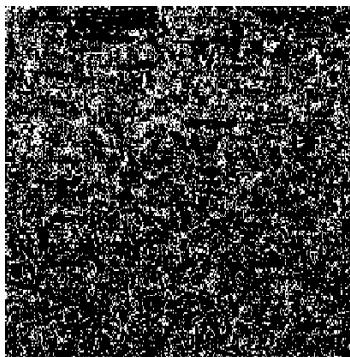





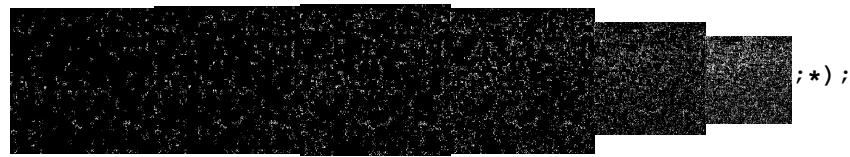
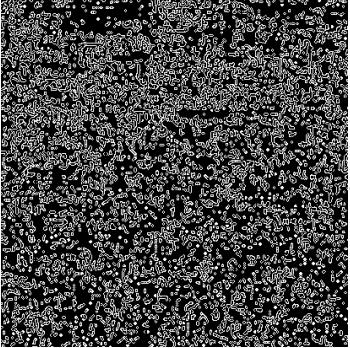
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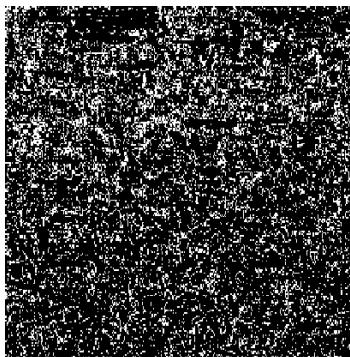



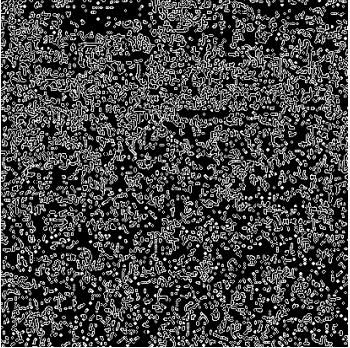
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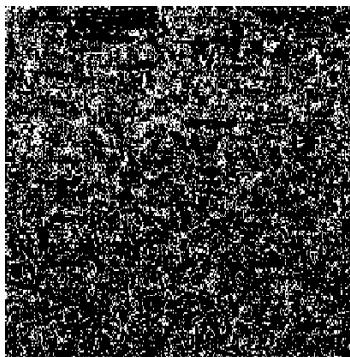



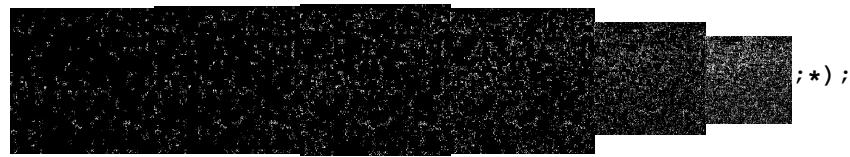
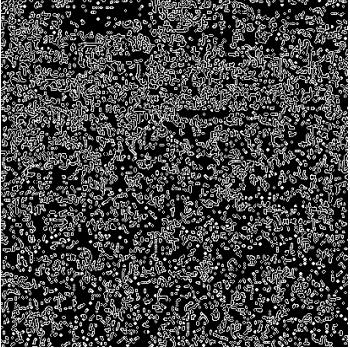
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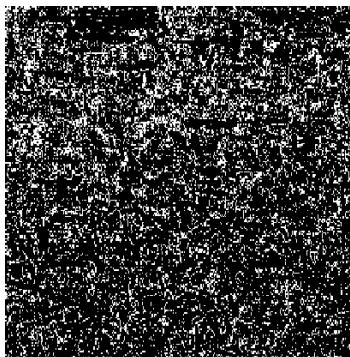



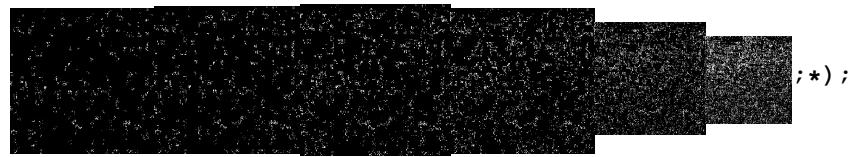
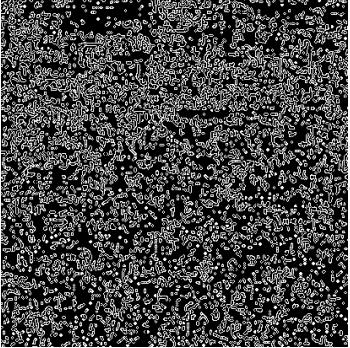
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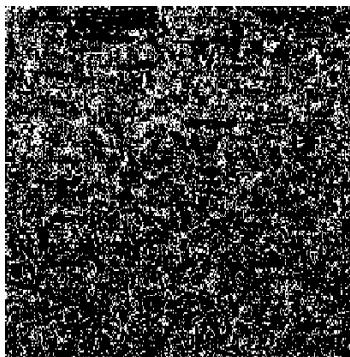



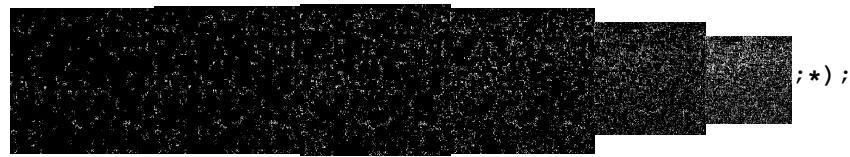
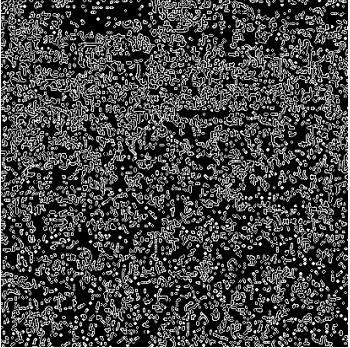
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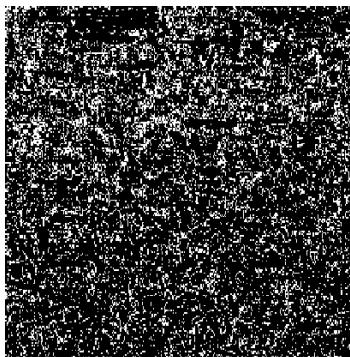



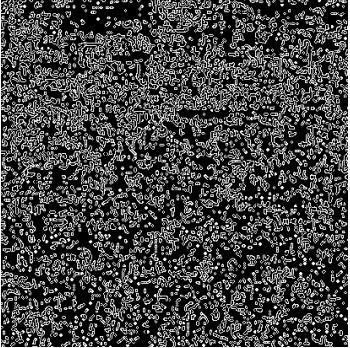
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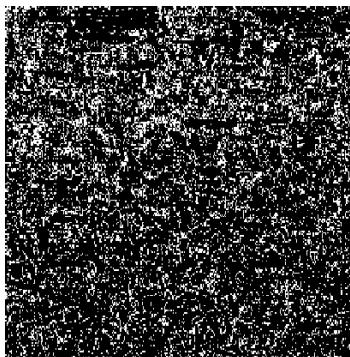



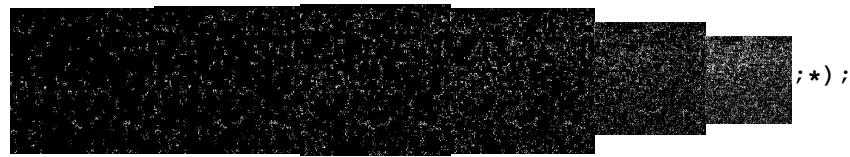
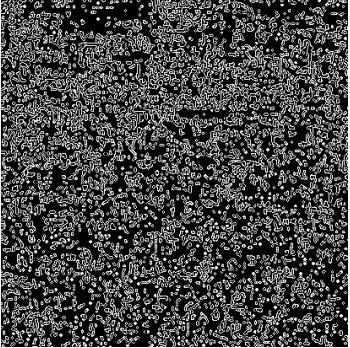
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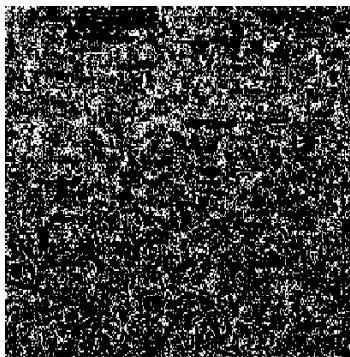



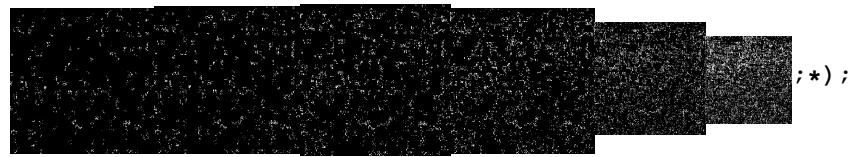
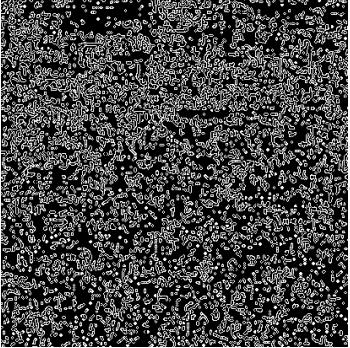
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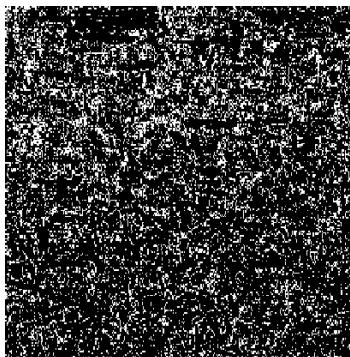
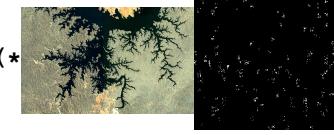
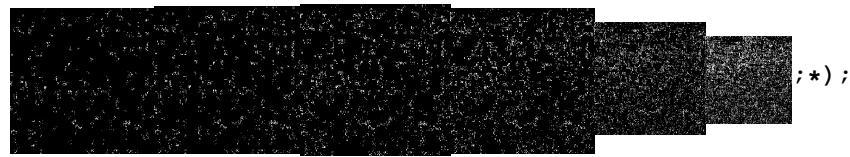
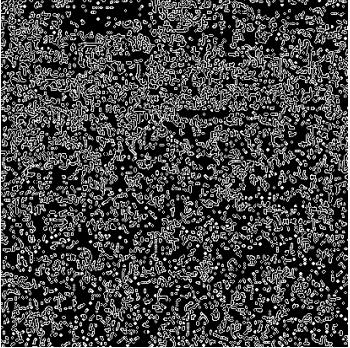



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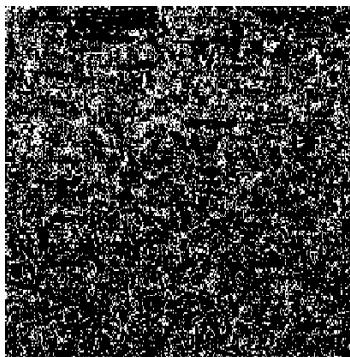


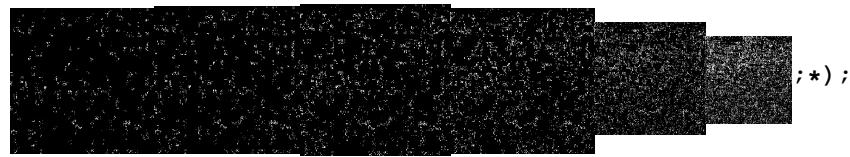
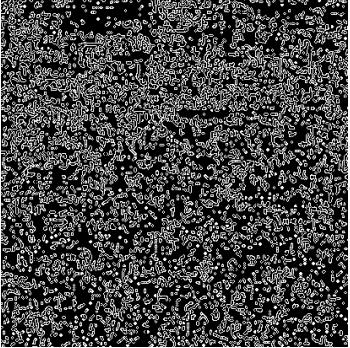



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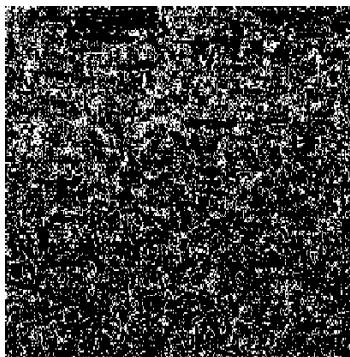





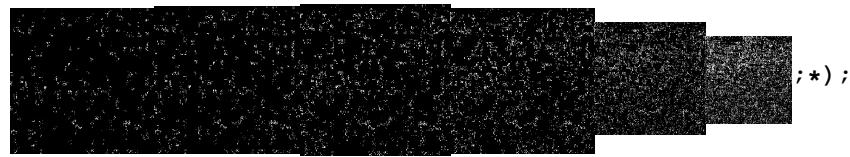
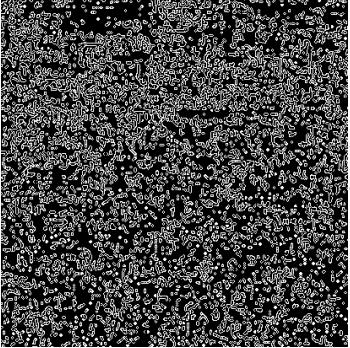
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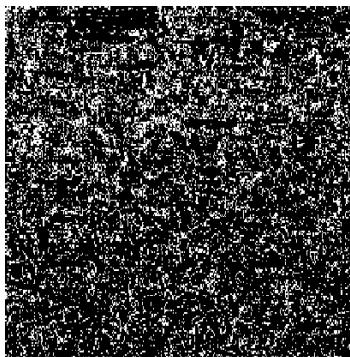
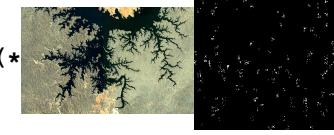



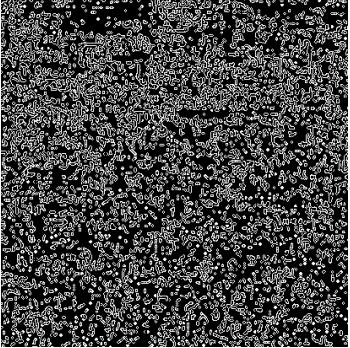
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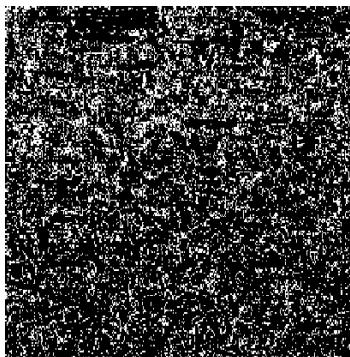



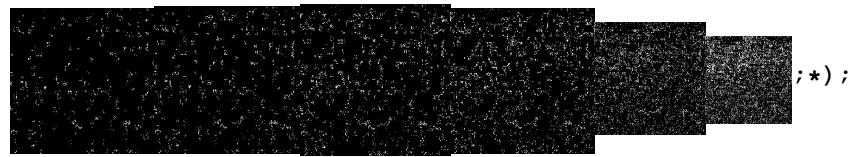
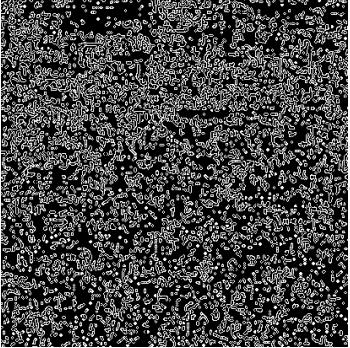
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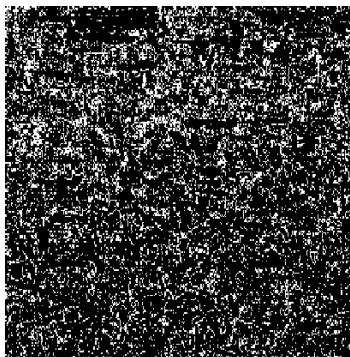


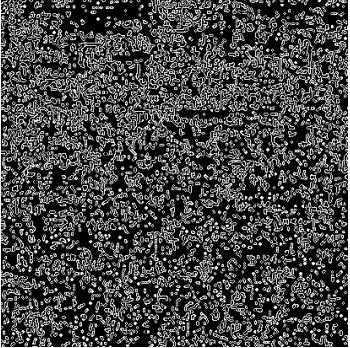
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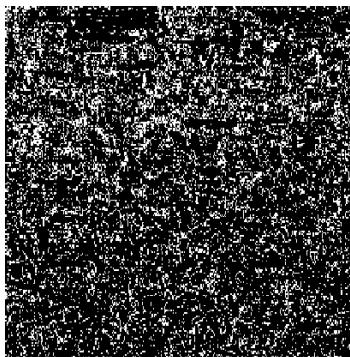



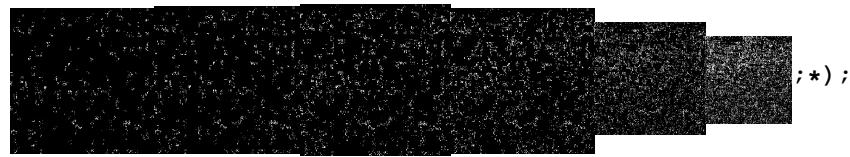
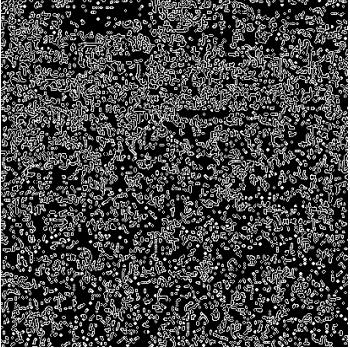
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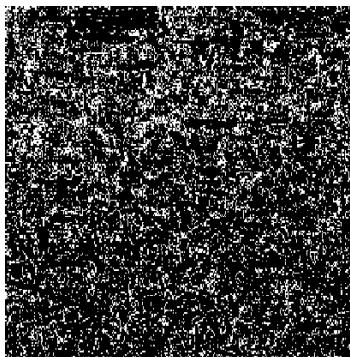
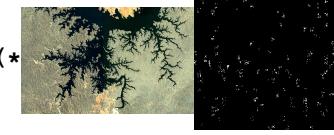
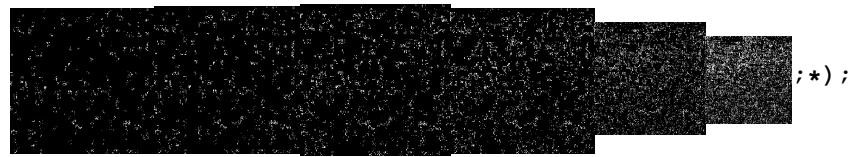
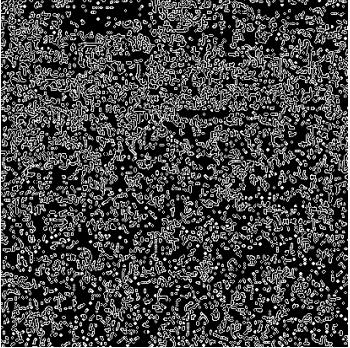



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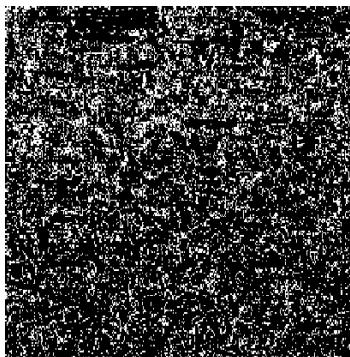
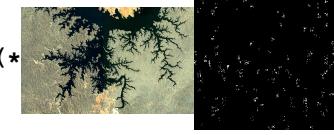
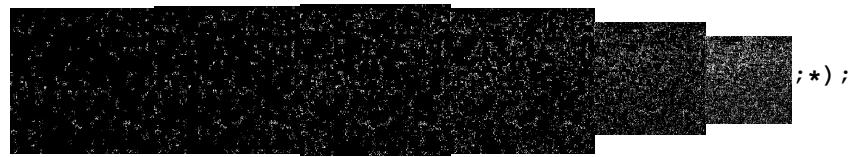
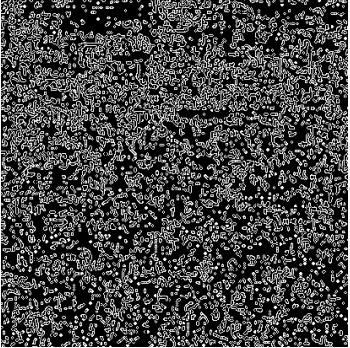


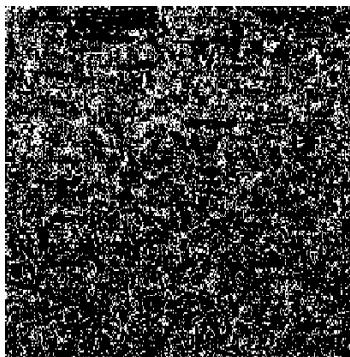
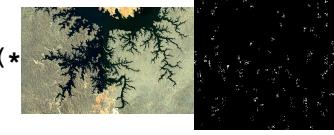
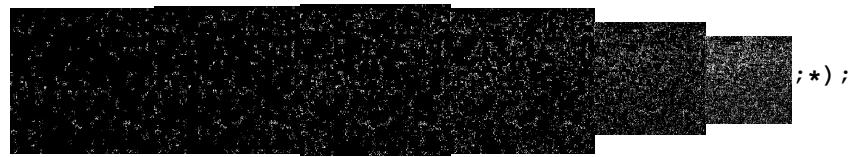
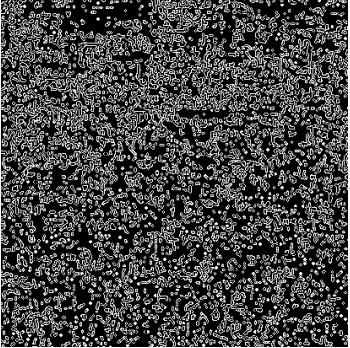
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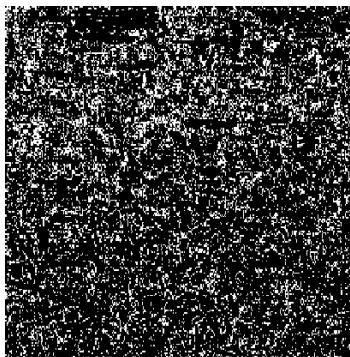
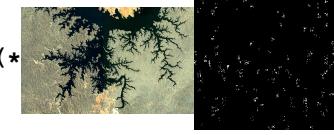
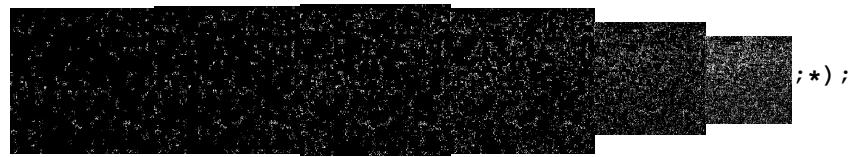
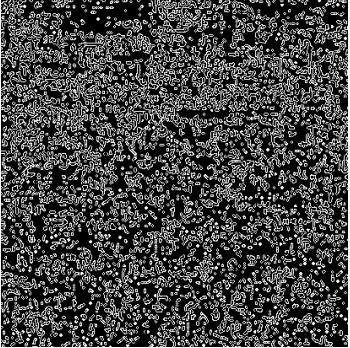
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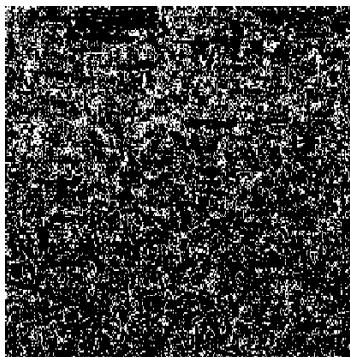
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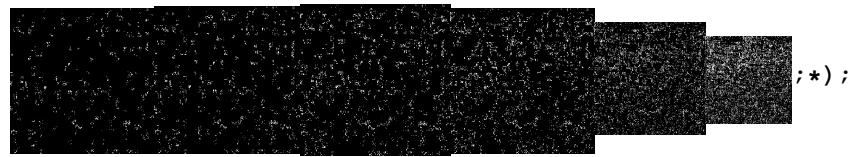
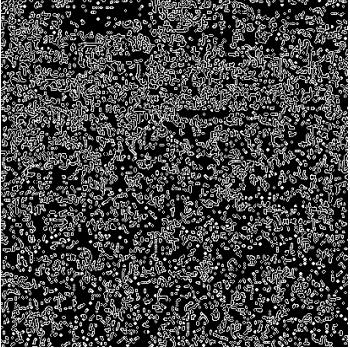





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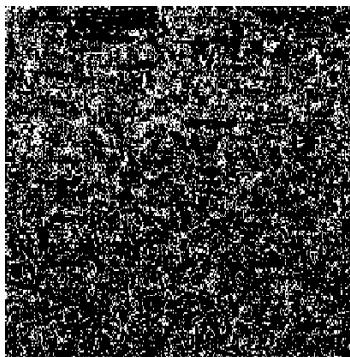





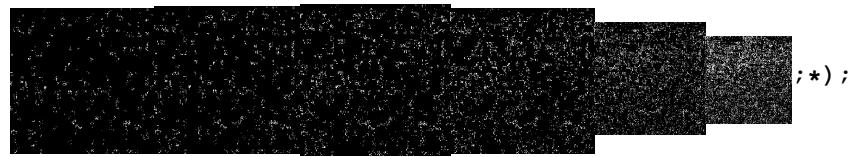
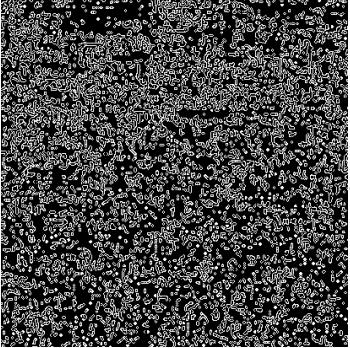
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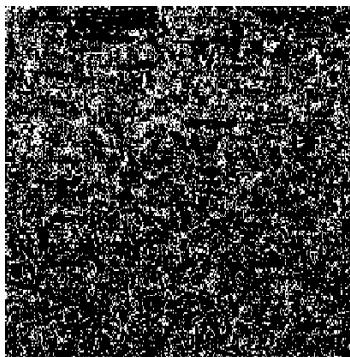



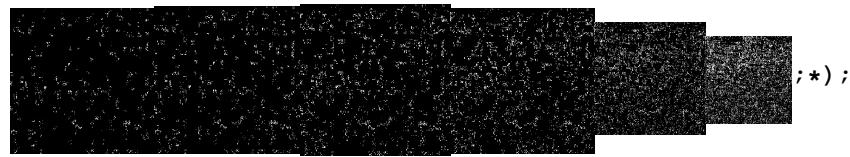
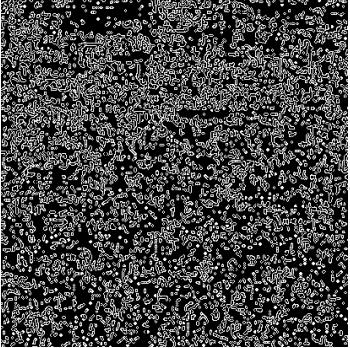
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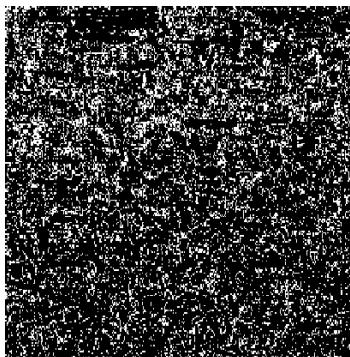
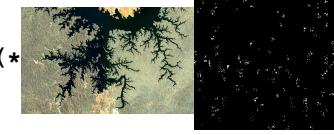



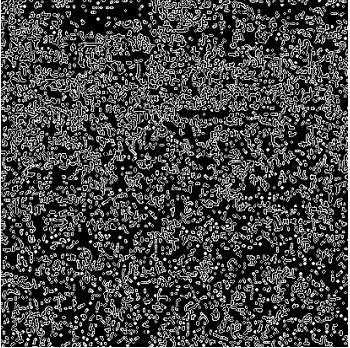
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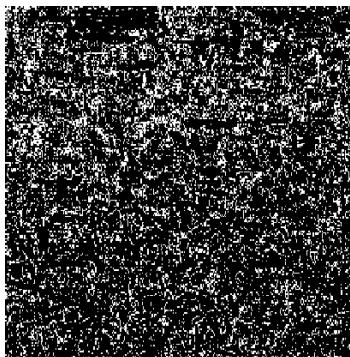



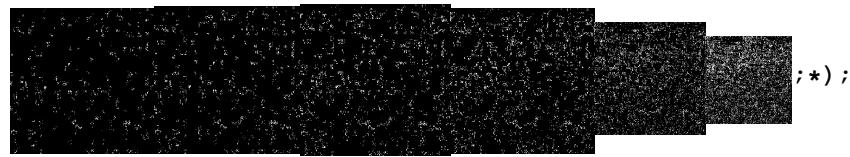
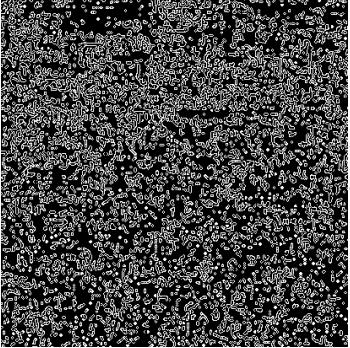
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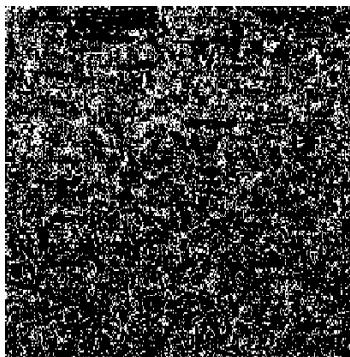
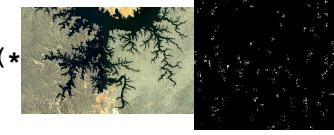
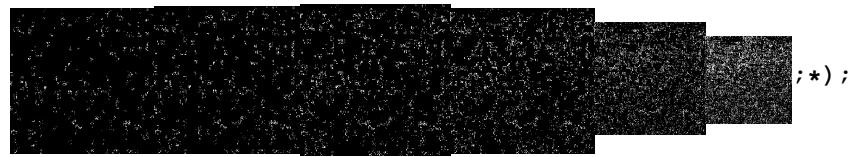
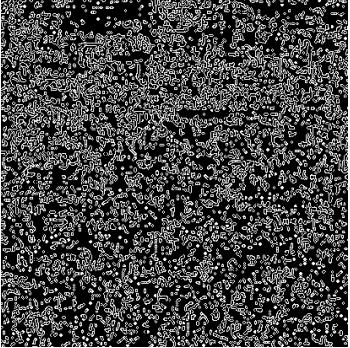


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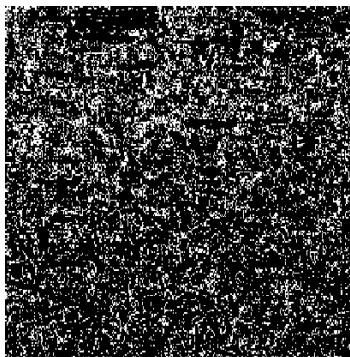


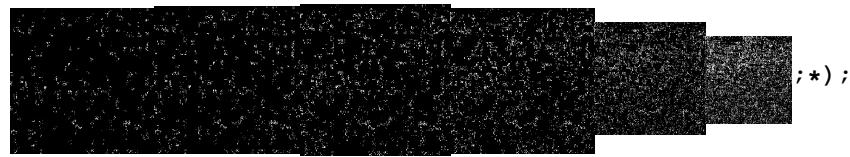
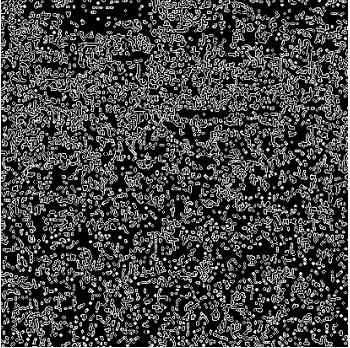



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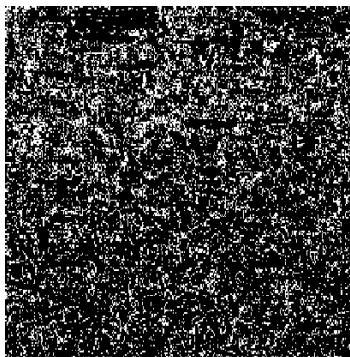





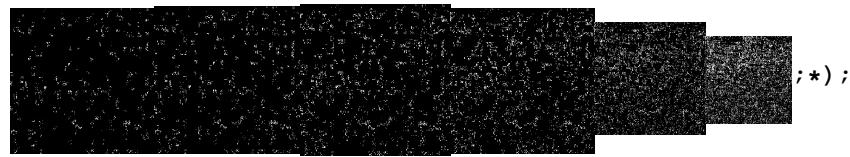
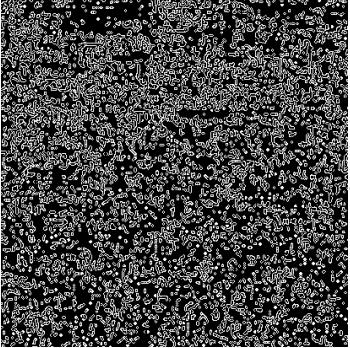
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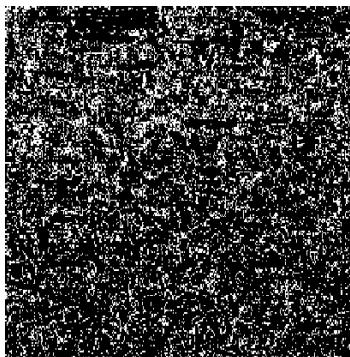
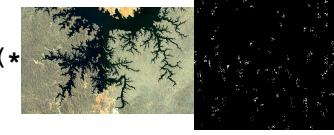
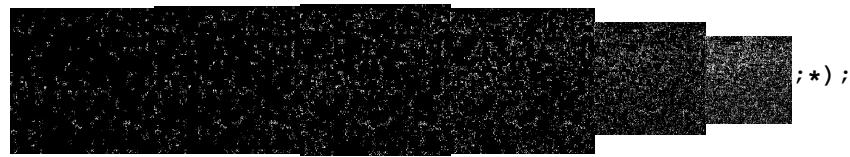
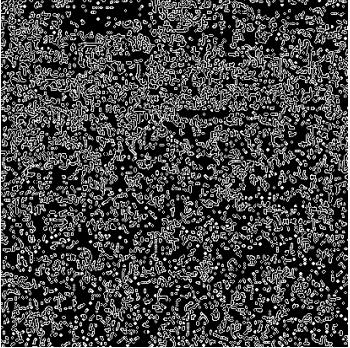



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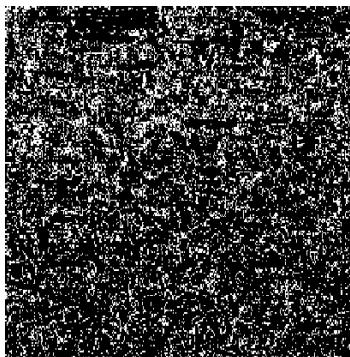
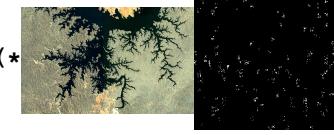


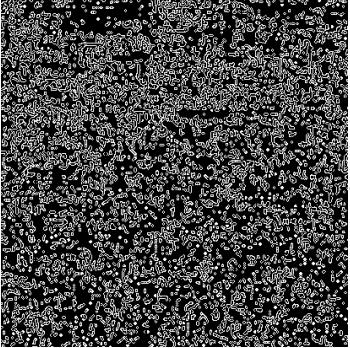



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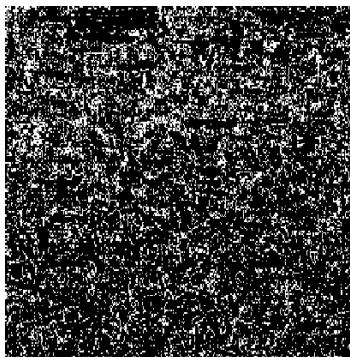
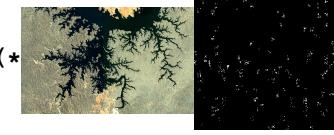
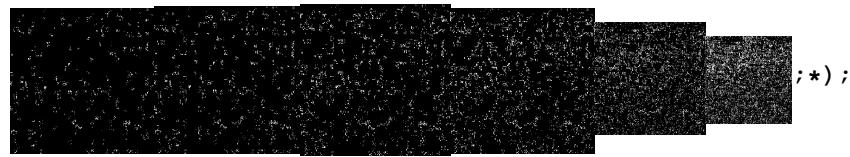
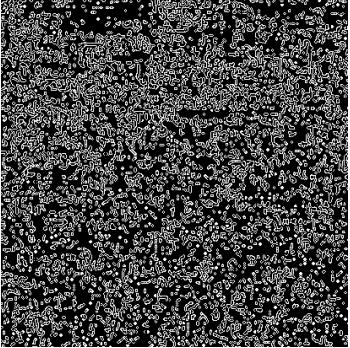





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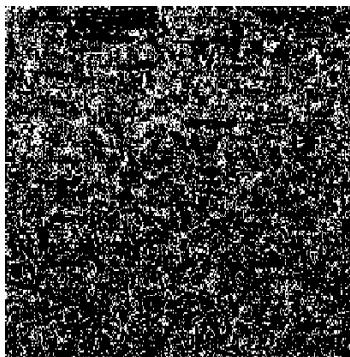





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<img alt="A noisy grayscale image of a tree branch with a red fit line overlaid." data-bbox="175 
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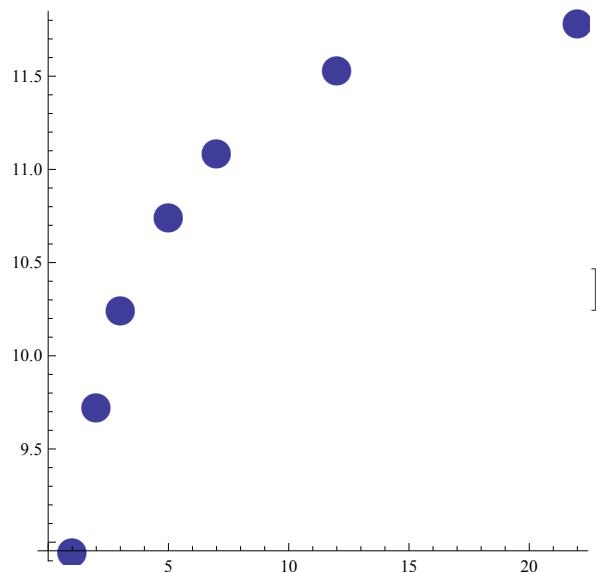
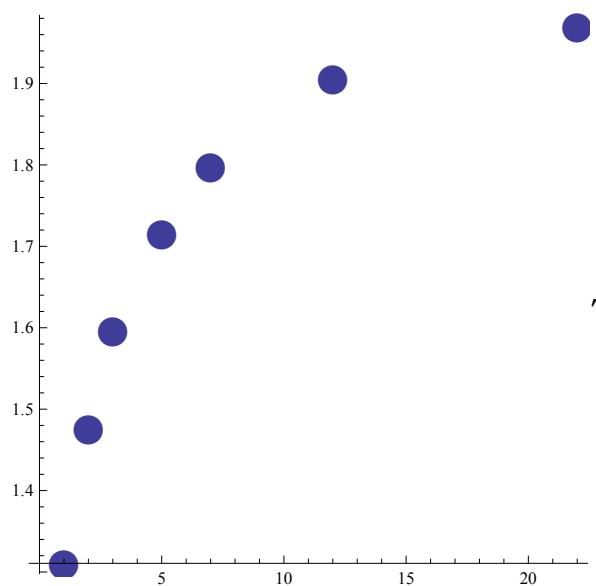
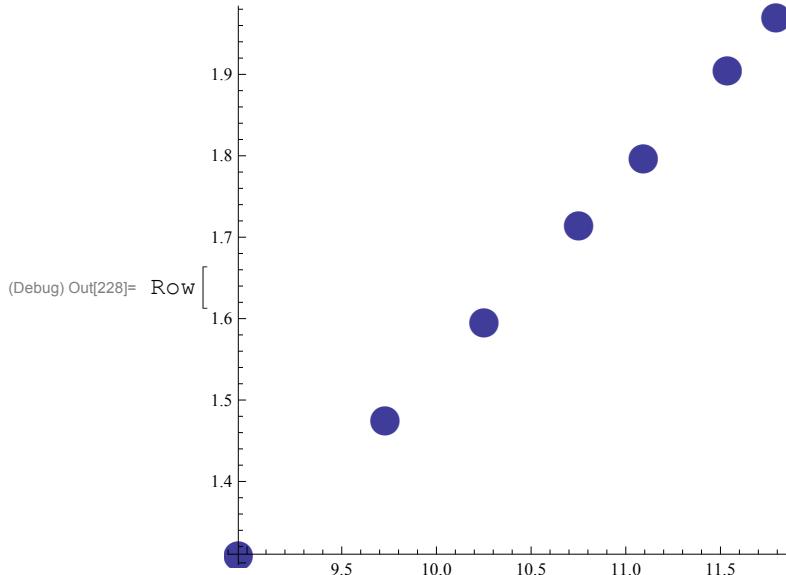

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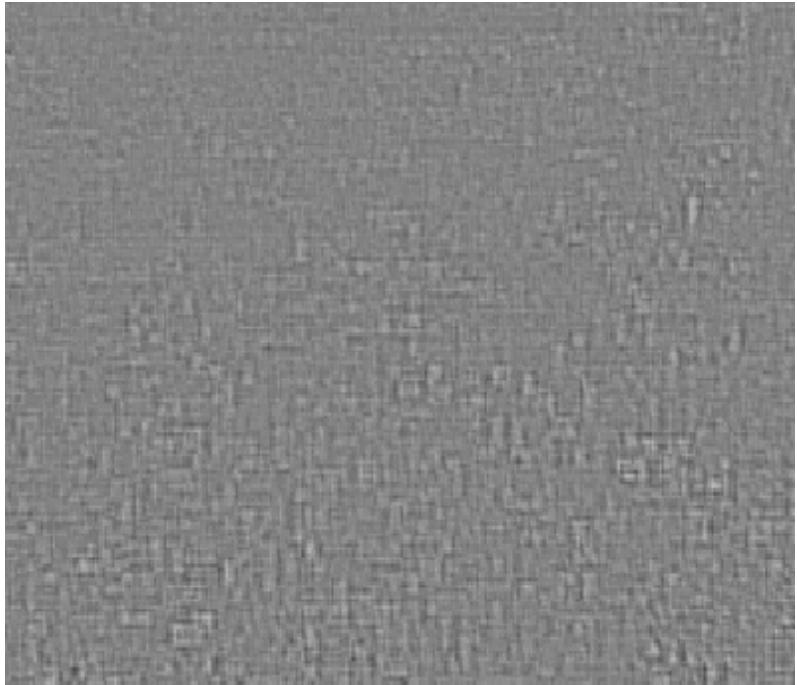

```

```
(Debug) In[225]:= points = {{8.95373, 1.31065}, {9.72871, 1.47645},  
    {10.2513, 1.5973}, {10.752, 1.71612}, {11.09411, 1.798596},  
    {11.536752, 1.9071}, {11.79334, 1.971147 }};  
pointsDim1 = {{1, 1.31065}, {2, 1.47645}, {3, 1.5973},  
    {5, 1.71612}, {7, 1.798596}, {12, 1.9071}, {22, 1.971147 }};  
pointsDim0 = {{1, 8.95373}, {2, 9.72871}, {3, 10.2513}, {5, 10.752},  
    {7, 11.09411}, {12, 11.536752}, {22, 11.79334}};  
Row[ListPlot[points, ImageSize -> 300, PlotMarkers -> {Automatic, Large},  
    AspectRatio -> 1, AxesOrigin -> Automatic],  
ListPlot[pointsDim1, ImageSize -> 300, PlotMarkers -> {Automatic, Large},  
    AspectRatio -> 1, AxesOrigin -> Automatic],  
ListPlot[pointsDim0, ImageSize -> 300, PlotMarkers -> {Automatic, Large},  
    AspectRatio -> 1, AxesOrigin -> Automatic]]
```





difference:: start point UpperBinThreshold=0.87; 1- appearance of difference; 22~0.28. Input:: thr1= No, thr2=No. Cell: 3x4. File IR000110.

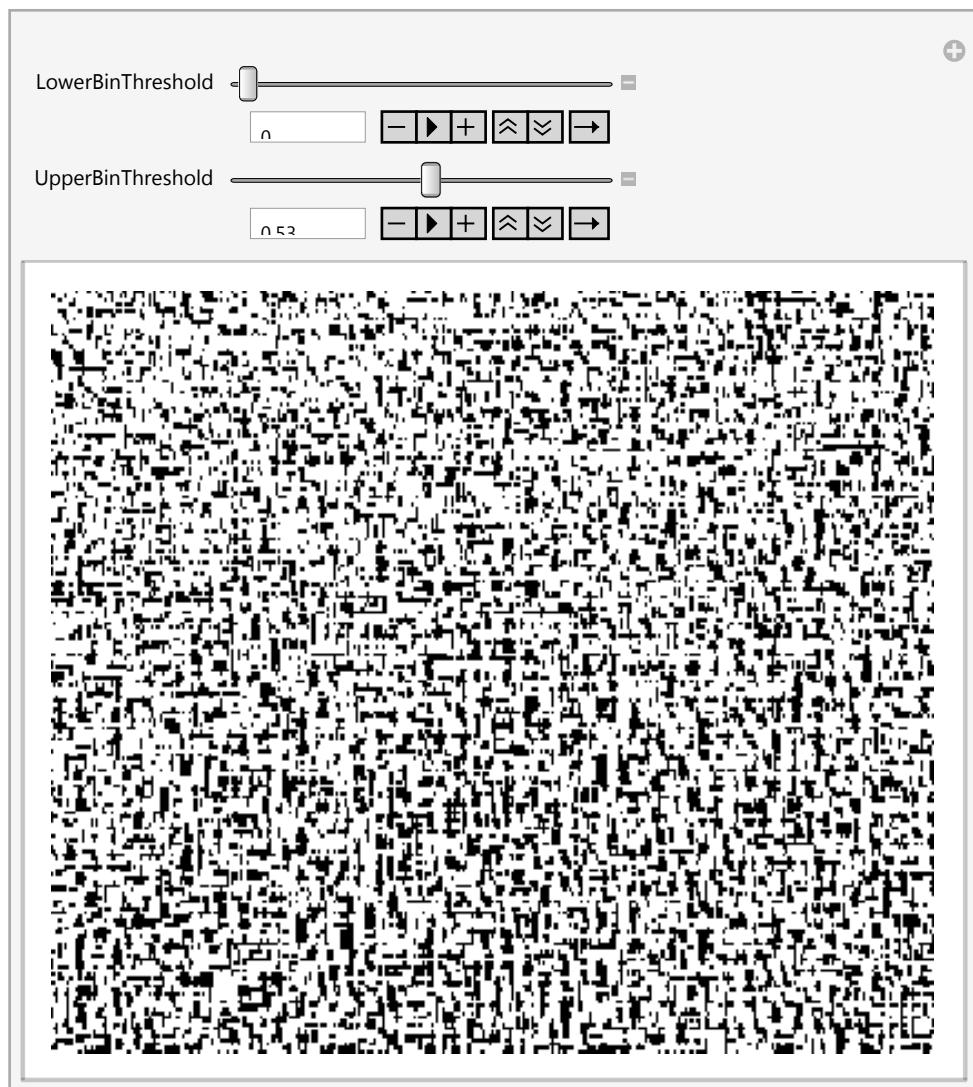


(Debug) In[68]:= **Img** =

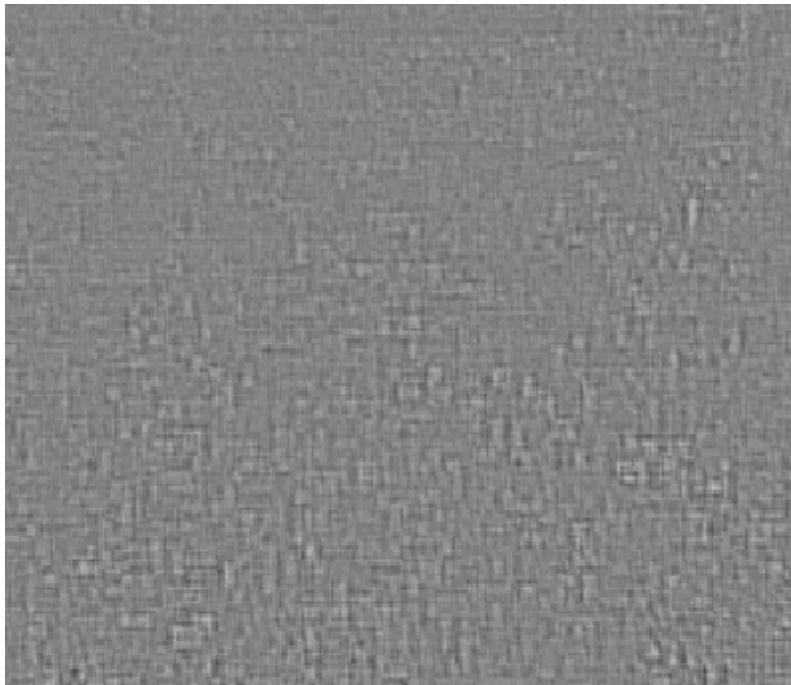
;

```
Manipulate[ImageSubtract[
  Binarize[Img, LowerBinThreshold], Binarize[Img, UpperBinThreshold]],
{LowerBinThreshold, 0, UpperBinThreshold, .01},
{UpperBinThreshold, LowerBinThreshold, 1, .01}]
```

(Debug) Out[69]=



(Debug) In[72]:= **Img** =

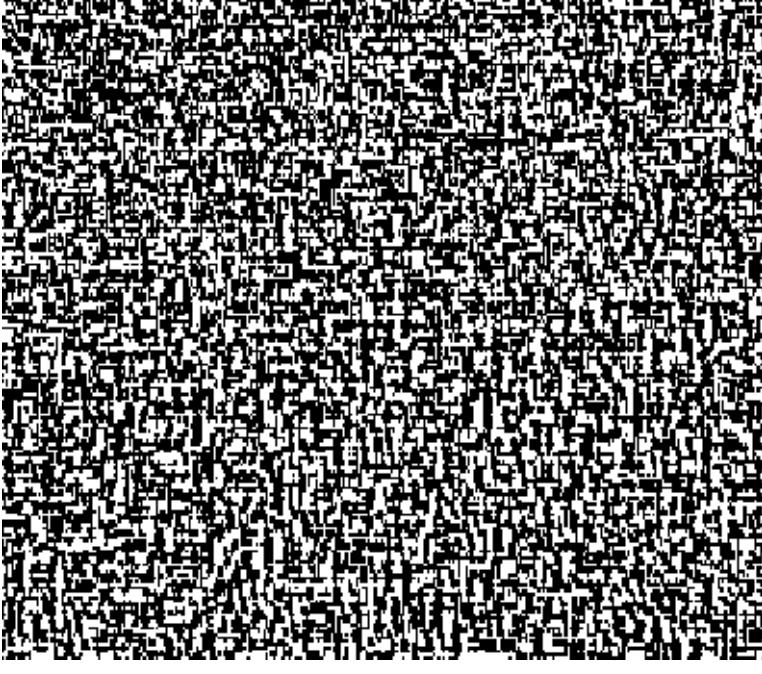


Manipulate[Binarize[Img, UpperBinThreshold], {UpperBinThreshold, 0, 1, .01}]

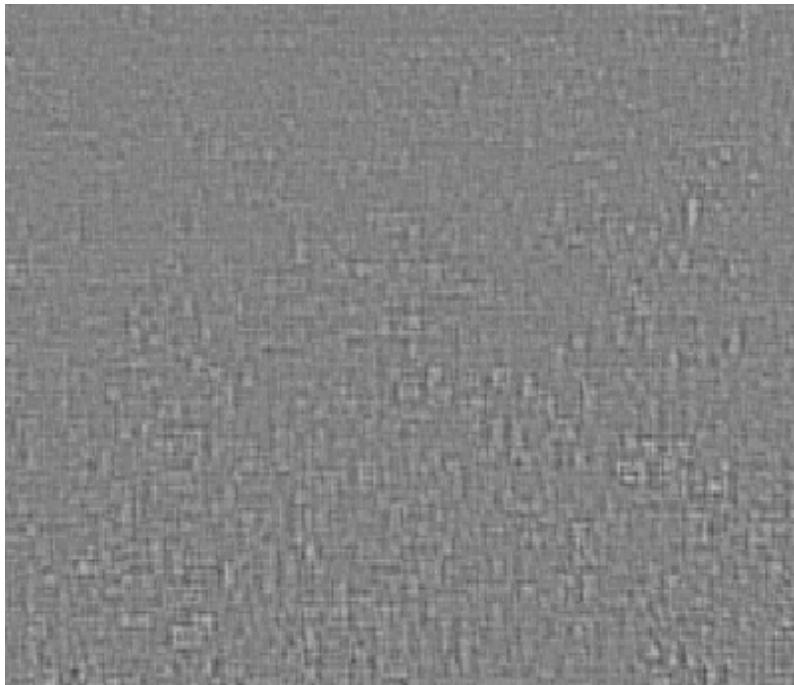
UpperBinThreshold

0.52

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(Debug) Out[73]=

(Debug) In[74]:= **img** =

(\*\*) ;

```
{Binarize[img], iEdge = EdgeDetect[Binarize[img]]}
MinS = Floor[Min[ImageDimensions[iEdge]] / 2];

data =
  ParallelTable[{1 / size, Total[Sign /@ (Total[#, 2] & /@ (ImageData /@ Flatten[
    ImagePartition[iEdge, size]]))]}, {size, 1, MinS / 2, 1}];
line = Fit[Log[data], {1, x}, x]
Plot[line, {x, -6, 0}, Epilog -> Point[Log[data]],
 PlotStyle -> Red, Frame -> True, Axes -> False]
```

