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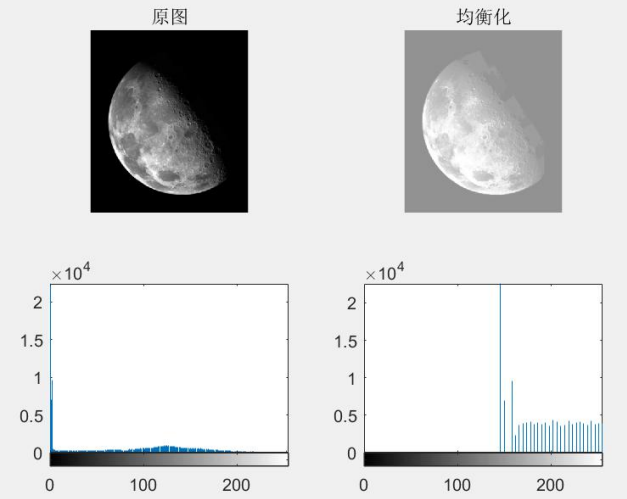
作业 1 图像空间域增强算法实验与分析

1. 灰度级变换增强

```
I=imread(['E:\Digital image and video processing',...
'\work\proj01-images\Fig0354(a)(einstein_orig).tif']);
I = double(I);
J = (I-80)*255/70;
[row,col] = size(I);
for i=1:row
    for j=1:col
        if J(i,j)<0; J(i,j)=0; end
        if J(i,j)>255; J(i,j)=255; end
    end
end
subplot(121); imshow(uint8(I)); title('原图');
subplot(122); imshow(uint8(J)); title('灰度增强');
```

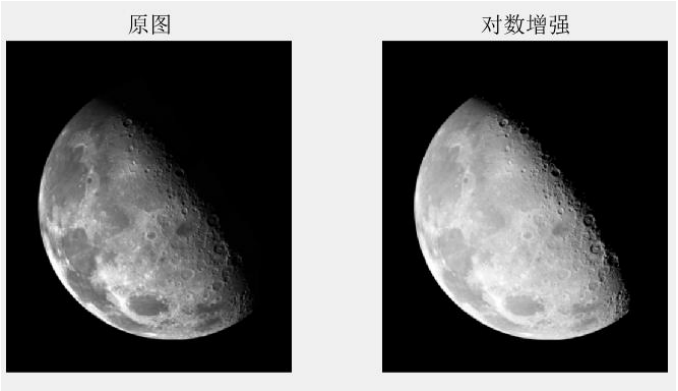
2. 直方图均衡增强

```
I=imread(['E:\Digital image and video processing',...
'\work\proj01-images\Fig0338(a)(blurry_moon).tif']);
I2 = histeq(I);
subplot(221);imshow(I);title('原图');
subplot(222);imshow(I2);title('均衡化');
subplot(223);imhist(I);
subplot(224);imhist(I2);
```



3. 对数变换增强

```
I=imread(['E:\Digital image and video processing',...
  '\work\proj01-images\Fig0338(a)(blurry_moon).tif']);
[X,map]=gray2ind(I);
subplot(121);
imshow(I);
v=10;title('原图');
map=log(1+v*map)/(log(v+1));
subplot(122);
imshow(X,map);title('对数增强');
```



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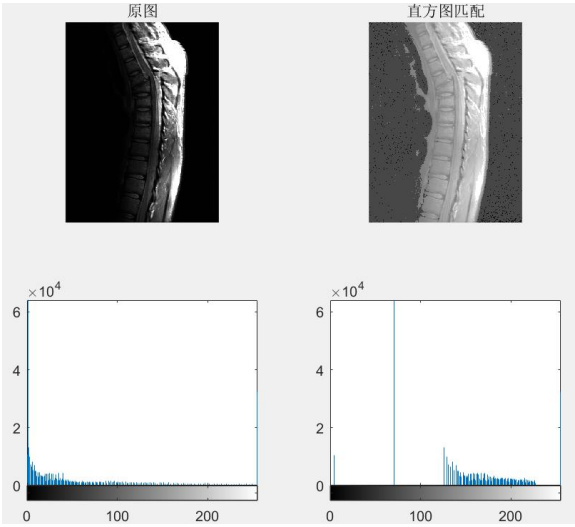
4. 幂次变换

```
I=imread(['E:\Digital image and video processing',...
  '\work\proj01-images\Fig2.22(b).jpg']);
C = 1.1;
I2 = C*I.*1.3;
subplot(121);
imshow(I);title('原图');
subplot(122);imshow(I2);
title('幂次变换增强');
```

5. 直方图匹配（自选）

```
I=imread(['E:\Digital image and video processing',...
  '\work\proj01-images\Fig0308(a)(fractured_spine).tif']);
n=0:255; b=100; c=90;
hspec=exp(-(n-b).^2./(2*c^2))/5;
[I2,t]=histeq(I,hspec);%直方图匹配
subplot(221);imshow(I);title('原图');
subplot(223);imhist(I);
subplot(222);imshow(I2);title('直方图匹配');
subplot(224);imhist(I2);
```



6. 位图分割（自选）

```
I=imread(['E:\Digital image and video processing',...
  '\work\proj01-images\Fig2.22(b).jpg']);
J = im2double(I);
[I2,thresh] = edge(J,'roberts',25/255);    %边缘切割
I3 = I>110;          %  阈值分割
subplot(131);imshow(I);title('原图');
subplot(132);imshow(I2);title('边缘分割');
subplot(133);imshow(I3);title('阈值分割');
```