Deep Learning –HW#2

About the Assignment

The main aim of the assignment is to gain some fundamental knowledge about image processing on Python. Assuming that you are given a sample cat image as shown in Fig. 1.

Fig. 1: Original image.

Tasks:

Appy histogram equalization by implement the following matlab code in Python. Don't use special functions such as imhist or histeq.

```
GIm=imread('tire.tif');

numofpixels=size(GIm,1)*size(GIm,2);

figure,imshow(GIm);
title('Original Image');
```

```
HIm=uint8(zeros(size(GIm,1),size(GIm,2)));
freq=zeros(256,1);
probf=zeros(256,1);
probc=zeros(256,1);
cum=zeros(256,1);
output=zeros(256,1);

%freq counts the occurrence of each pixel value.
%The probability of each occurrence is calculated by probf.
```

```
for i=1:size(GIm,1)
    for j=1:size(GIm,2)
        value=GIm(i,j);
        freq(value+1)=freq(value+1)+1;
        probf(value+1)=freq(value+1)/numofpixels;
    end
end

sum=0;
no_bins=255;

%The cumulative distribution probability is calculated.
for i=1:size(probf)
   sum=sum+freq(i);
   cum(i)=sum;
   probc(i)=cum(i)/numofpixels;
   output(i)=round(probc(i)*no_bins);
end
for i=1:size(GIm,1)
    for j=1:size(GIm,2)
            HIm(i,j)=output(GIm(i,j)+1);
    end
end
figure,imshow(HIm);
title('Histogram equalization');
```

- finally, displays input and output images

Send your code as zip. Yourname-surname.zip