**A. Code for Image Enhancement**

images ='C:\Users\Dell\Desktop\Signal Processing\Database\STARE';

files=dir(fullfile(images,'\\*.ppm\*'))

n1=numel(files);

for idx = 1:n1

im = files(idx).name

inImg = imread(fullfile(images,im));

[m,n,k] = size(inImg);

IQA(idx) = brisque(inImg);

for i = 1:3

x0 = inImg(:,:,i);

inImg(:,:,i)=ETHE(x0,1);

end

%% BRISQUE – Image Quality Evaluator

IQA1(idx) = brisque(inImg);

end

MeanIQA = mean(IQA)

MeanIQA1 = mean(IQA1)

percentagechange = [(MeanIQA-MeanIQA1)/MeanIQA]\*100

figure;

plot(IQA,'b');

hold on;

plot(IQA1,'r');

title(['\fontsize{20}Image Quality Variations']);

legend(['\fontsize{12}Initial Image Quality'],['\fontsize{12}Image Quality after Enhancement']);

xlabel('Image Number','FontSize',12)

ylabel('Image Quality','FontSize',12)

**B. Code for ETHE**

function [R]=ETHE(a,Threshold)

n0=10;

[r,c]=size(a);

len=r\*c;

t=0;

s=0;

%% Edge detection using Sobel Operator

mask1=[1,0,-1;2,0,-2;1,0,-1];

mask2=[-1,-2,-1;0,0,0;1,2,1];

Gx=filter2(mask1,a,'same');

Gy=filter2(mask2,a,'same');

Gxy=(Gx.^2+Gy.^2).^0.5;

for i=1:r

for j=1:c

if(Gxy(i,j)<Threshold)

b(i,j)=255;

c1(i,j)=0;

s=s+1;

else

b(i,j)=0;

c1(i,j)=1;

t=t+1;

end

end

end

%% Histogram Calculation

histogram=zeros(1,256);

for i=2:r-1

for j=2:c-1

if(c1(i,j)==1)

min=255;max=0;

for k=i-1:i+1

for l=j-1:j+1

if a(k,l)<min

min=a(k,l);

end

if a(k,l)>max

max=a(k,l);

end

end

end

for p=min:max

histogram(p+1)=histogram(p+1)+1;

end

end

end

end

pdf=histogram./(sum(histogram));

cdf=zeros(1,256);

cdf(1)=pdf(1);

for i=2:256

cdf(i)=cdf(i-1)+pdf(i);

end

map=(255\*cdf);

%% Histogram Equalization

R=zeros(r,c);

for i=1:r

for j=1:c

R(i,j)=map(a(i,j)+1);

end

end

end