Experiment No.: 3 Filtering on image (LPF, HPF, HBF, Negative of HBF) Date : 26/7/13

Program:

low pass filter 1

high pass filter 1

clc;

clear all;

close all;

r1=imread('bhumish.png');

rn=rgb2gray(r1);

%%rn=imnoise(r,'gaussian');

rn=double(rn);

## low pass filter

lp=[1 1 1; 1 1 1; 1 1 1]/9;

[rows,cols]=size(rn);

for x=2:1:rows-1

 for y=2:1:cols-1

 lpf(x,y)=[lp(1)\*rn(x-1,y-1)+lp(2)\*rn(x-1,y)+lp(3)\*rn(x-1,y+1)+lp(4)\*rn(x,y-1)+lp(5)\*rn(x,y)+lp(6)\*rn(x,y+1)+lp(7)\*rn(x+1,y-1)+lp(8)\*rn(x+1,y)+lp(9)\*rn(x+1,y+1)];

 end;

end;

## high pass filter

hp=[-1 -1 -1; -1 8 -1; -1 -1 -1]/9;

for x=2:1:rows-1

 for y=2:1:cols-1

 hpf(x,y)=[hp(1)\*rn(x-1,y-1)+hp(2)\*rn(x-1,y)+hp(3)\*rn(x-1,y+1)+hp(4)\*rn(x,y-1)+hp(5)\*rn(x,y)+hp(6)\*rn(x,y+1)+hp(7)\*rn(x+1,y-1)+hp(8)\*rn(x+1,y)+hp(9)\*rn(x+1,y+1)];

 end;

end;

hpn=255-hpf;

hb=[-1 -1 -1; -1 20 -1; -1 -1 -1]/9;

for x=2:1:rows-1

 for y=2:1:cols-1

 hbf(x,y)=[hb(1)\*rn(x-1,y-1)+hb(2)\*rn(x-1,y)+hb(3)\*rn(x-1,y+1)+hb(4)\*rn(x,y-1)+hb(5)\*rn(x,y)+hb(6)\*rn(x,y+1)+hb(7)\*rn(x+1,y-1)+hb(8)\*rn(x+1,y)+hb(9)\*rn(x+1,y+1)];

 end;

end;

figure

subplot(1,5,1);

imshow(uint8(rn));

title('Input');

subplot(1,5,2);

imshow(uint8(lpf));

title('Low Pass Filter');

subplot(1,5,3);

imshow(uint8(hpf));

title('High Pass Filter');

subplot(1,5,4);

imshow(uint8(hbf));

title('High Boost Filter');

subplot(1,5,5);

imshow(uint8(hpn));

title('Negative of High Pass FIlter');

**Output:**

