

```

clf; clc; clear;
filepath='C:\Users\Akshay\Desktop\demo db\A\session1\A.mat';
file_dat='C:\Users\Akshay\Desktop\demo db\session 1 bins\A.bin';
g='A';
data=load(filepath);
fid=fopen('CMUSUBJ15.txt','wt');
height=480;
width=640;
SpecCube_F=data.A;
tot=0;
for j=1:480
    for i=1:640
        a=double(data.A(j,i,25));
        fprintf(fid,'%d ',a);
        mat(i,j)=a;
        tot=tot+a;
    end;
    fprintf(fid,'\n');
end;
for j=1:480
    for i=1:640
        for z=1:65f
            u=double(data.A(j,i,z));
            mt(i,j,z)=u;
        end;
    end;
end;

for j = 1:50

    % a(j,i,1)=SpecCube_F(j,i,1);
    matrix(j)=SpecCube_F(300,279,j);

    matrix2(j)=SpecCube_F(370,333,j);
    matrix3(j)=SpecCube_F(335,341,j);
end;
for j=1:50
    wavel(j)=400+(10*(j-1));
end;
figure(1);
a1=plot(wavel,matrix);
hold all;
set(a1,'Color','r');
a2=plot(wavel,matrix2);
hold all;

```

```

    set(a2,'Color','g');
a3=plot(wavel,matrix3);
    set(a3,'Color','b');
    xlabel('Wavelength [nm]');
    ylabel('Radiance');
    %legend(leg,'Location', 'Best');
    title('Wavelength-Radiance', 'FontWeight', 'bold');
    grid on
    hold all;
% A=imread('C:\Users\Akshay\Desktop\CMU data\Subj17\session1\POW550.bmp');

% Find top, right, left limits using hair reflection in IR (very very low)

avgcol=tot/(640*480);
flag=0;
for y=1:480
    for x=1:640
        if(mat(x,y)<=(0.2*avgcol))
            flag=1;
            break;
        end;
    end;
    if(flag==1)
        break;
    end;
end;
for j=y:480
    if(mat(x,j)>(0.7*avgcol))
        break;
    end;
end;
upperbound=j;
if(upperbound<100)
    for j=1:480
        if(mat(x,480-j)<(0.5*avgcol))
            break;
        end;
    end;
    lowerb=480-j;
end;

flag=0;
for x=0:639
    for y=1:240
        if(mat(640-x,y)<=(0.2*avgcol))
            flag=1;

```

```

        rby=y;
    end;
end;
if(flag==1)
    break;
end;
end;
y=rby;
for j=x:640
    if(mat(640-j,y)>(0.5*avgcol))
        break;
    end;
end;
flag=0;
rightbound=640-j;
rb=x*0.6;
rb=rb-mod(rb,1);
for x=145:640
    for y=1:240
        if(mat(x,y)<=(0.2*avgcol))
            flag=1;
            lby=y;
        end;
    end;
    if(flag==1)
        break;
    end;
end;
y=lby;
for j=x:640
    if(mat(j,y)>(0.5*avgcol))
        break;
    end;
end;
flag=0;
leftbound=j;
leftboundy=y;

sumcenter=0;
center_x=(leftbound+rightbound)/2;
if(mod(center_x,1)~=0)
    center_x=center_x-0.5;
end;
for o=upperbound:480
    sumcenter=sumcenter+mat(center_x,o);
end;

```

```

avgcenter=mean(sumcenter);
center_y=(upperbound)+(480-upperbound)*0.4 -20;
if(upperbound<100)
    center_y=upperbound+(0.5*300);
end;
center_y=center_y-mod(center_y,1);

siz=(rightbound-leftbound)/30;
siz=siz-(mod(siz,1));
a=zeros((rightbound-leftbound)*(640-upperbound),2,'double');
a(1,1)=center_x;
a(1,2)=center_y;
x=1;
top1=center_y;
dist=0;
count=1;
flags(center_x*center_y)=1;
m=1;
while(count<(center_y-upperbound))
    prevtop=m;
    i=1;
    leftlim=(center_x-leftbound)*0.8;
    leftlim=leftlim-mod(leftlim,1);
    for i=1:leftlim
        m=m+1;
        if(i>1)
            a(m,1)=a(m-1,1)-1;
            a(m,2)=center_y-count;
        else a(m,1)=center_x;
            a(m,2)=center_y-count;

        %if(i==count)
        %    a(m,1)=a(1,1)-count;
        %    a(m,2)=a(1,2)-count;
        %    top1=a(m,1);
        %end;
        % else if(i>(count+1))
        % a(m,1)=a(m-1,1);
        % a(m,2)=a(m-1,2)+1;
    end;
end;

```

```

count=count+1;
end;
sa=size(a);
sa=sa(1);
fid=fopen('a1.txt','wt');
for i=1:sa

    fprintf(fid,'%d ',a(i,1));
    fprintf(fid,'%d ',a(i,2));

    fprintf(fid,'\n');
end;
offsetvertical=(rightbound-leftbound)/4;
offsetvertical=offsetvertical-mod(offsetvertical,1);

s=1;
sq=zeros((siz+1)*(siz+1),1,'double');
sa=m*0.75;
sa=sa-mod(sa,1);
m=1;
for m=1:sa
    flag2=0;
    flag=0;
    curry=a(m,2);
    currx=a(m,1);
    leftx=center_x;
    lefty=curry;
    upy=curry-offsetvertical;
    upx=currx;
    downy=curry+offsetvertical;
    downx=currx;
    leftpix=mat(leftx,lefty);
    uppix=mat(upx,upy);
    downpix=mat(downx,downy);
    currpix=mat(currx,curry);
    if(currpix/downpix<0.45)
        flag=flag+1;
    end;
    if(currpix/uppix<0.45)
        flag=flag+1;
    end;
    if(currpix/leftpix<0.45)
        flag=flag+1;
    end;
    sz=siz/2;
    sz=sz-mod(sz,1);

```

```

if(flag>=2)
    startx=currx-sz;
    starty=curry-sz;
    for xl=0:(sz*2)
        for yl=0:(sz*2)
            sq(xl*(sz*2+1)+yl+1)=mat(startx+xl,starty+yl);
        end;
    end;
    for l=1:((2*sz+1)*(2*sz+1))
        if((((sq(l)-currpix)/currpix)<0.6 && sq(l)>=currpix) || (sq(l)
<=currpix && ((currpix-sq(l))/currpix)<0.6))
            flag2=flag2+1;
            if(s==2)
                npix=currpix;
                f2=flag2;
                nx=currx;
                ny=curry;
            end;
            end;
        end;
    end;
    if(flag2>(0.5*((2*sz)+1)*((2*sz)+1)))

        if(s==1)
            goldenvalx(1)=currx;
            goldenvaly(1)=curry;
            s=s+1;

        else
            if(currx<goldenvalx(1))
                dist=(goldenvalx(1)-currx)*(goldenvalx(1)-currx);
                dist_x=goldenvalx(1)-currx;
            else
                dist=(currx-goldenvalx(1))*(currx-goldenvalx(1));
                dist_x=currx-goldenvalx(1);
            end;
            if(goldenvaly(1)>curry)
                dist=dist+((goldenvaly(1)-curry)*(goldenvaly(1)-
curry));
                dist_y=goldenvaly(1)-curry;
            else
                dist=dist+((curry-goldenvaly(1))*(curry-goldenvaly(1)));
                dist_y=curry-goldenvaly(1);
            end;
            if( ((dist_y<=(4*sz))&& (dist_x<=50)))
                goldenvalx(s)=currx;

```

```

        goldenvaly(s)=curry;
        s=s+1;
        end;
    end;

    end;

    end;

end;
goldenx=0;
goldeny=0;

s=s-1;
for p=1:s
    goldenx=goldenx+goldenvalx(p);
    goldeny=goldeny+goldenvaly(p);
end;
goldenx=goldenx/s;
goldeny=goldeny/s;
n=1;
flag3=0;
lefteyex(1)=goldenvalx(1);
lefteyex(2)=goldenvalx(2);
n=3;
for p=3:s

    for f=1:size(lefteyex,2)
        if(lefteyex(f)==goldenvalx(p))
            flag3=1;
            break;
        end;
    end;
    if(flag3==0)
        lefteyex(n)=goldenvalx(p);
        n=n+1;
    end;
    flag3=0;
end;

x_avg_left=sum(lefteyex)/size(lefteyex,2);
if(mod(x_avg_left,1)~=0)
    x_avg_left=x_avg_left-(mod(x_avg_left,1));
end;

```

```

end;
flag3=0;
n=1;
for p=1:s

    if(p==1)
        lefteyey(n)=goldenvaly(p);
        n=n+1;
    else
        for f=1:size(lefteyey,2)
            if(lefteyey(f)==goldenvaly(p))
                flag3=1;
                break;
            end;
        end;
        if(flag3==0)
            lefteyey(n)=goldenvaly(p);
            n=n+1;
        end;
        flag3=0;
    end;

end;
y_avg_left=sum(lefteyey)/size(lefteyey,2);
if(mod(y_avg_left,1)~=0)
    y_avg_left=y_avg_left-(mod(y_avg_left,1));

end;

%subplot(222);
%h = fspecial('gaussian',20,10);    %# Create filter
%filteredImg = imfilter(mat,h);    %# Filter image
%image(filteredImg);                %# Show filtered line image
%title('Filtered line');

a=zeros((rightbound-leftbound)*(640-upperbound),2,'double');
a(1,1)=center_x;
a(1,2)=center_y;
x=1;
top1=center_y;
dist=0;
count=1;
flags(center_x*center_y)=1;

```



```

m=1;
while(count<(rightbound-center_x))
    prevtop=m;
    i=1;
    rightlim=(rightbound-center_x)*0.8;
    rightlim=rightlim-mod(rightlim,1);
    for i=1:rightlim
        m=m+1;
        if(i>1)
            a(m,1)=a(m-1,1)+1;
            a(m,2)=center_y-count;
        else a(m,1)=center_x;
            a(m,2)=center_y-count;

        %if(i==count)
        %    a(m,1)=a(1,1)-count;
        %    a(m,2)=a(1,2)-count;
        %    top1=a(m,1);
        %end;
        % else if(i>(count+1))
        % a(m,1)=a(m-1,1);
        % a(m,2)=a(m-1,2)+1;
        end;
    end;
count=count+1;
end;
fid=fopen('a.txt','wt');
for i=1:8100

    fprintf(fid,'%d ',a(i,1));
    fprintf(fid,'%d ',a(i,2));

    fprintf(fid,'\n');
end;
offsetvertical=(rightbound-leftbound)/4;
offsetvertical=offsetvertical-mod(offsetvertical,1);

s=1;
sq=zeros((siz+1)*(siz+1),1,'double');
sa=m*0.75;
sa=sa-mod(sa,1);
m=1;
for m=1:sa
    flag2=0;
    flag=0;

```

```

curry=a(m,2);
currx=a(m,1);
leftx=center_x;
lefty=curry;
upy=curry-offsetvertical;
upx=currx;
downy=curry+offsetvertical;
downx=currx;
leftpix=mat(leftx,lefty);
uppix=mat(upx,upy);
downpix=mat(downx,downy);
currpix=mat(currx,curry);
if(currpix/downpix<0.45)
    flag=flag+1;
end;
if(currpix/uppix<0.45)
    flag=flag+1;
end;
if(currpix/leftpix<0.45)
    flag=flag+1;
end;
sz=siz/2;
sz=sz-mod(sz,1);
if(flag==3)
    startx=currx-sz;
    starty=curry-sz;
    for xl=0:(sz*2)
        for yl=0:(sz*2)
            sq(xl*((2*sz)+1)+yl+1)=mat(startx+xl,starty+yl);
        end;
    end;
    for l=1:((2*sz+1)*(2*sz+1))
        if((((sq(l)-currpix)/currpix)<0.4 && sq(l)>=currpix) || (sq(l)
<=currpix && ((currpix-sq(l))/currpix)<0.6))
            flag2=flag2+1;
        end;
    end;
    if(flag2>(0.5*((2*sz)+1)*((2*sz)+1)))

        if(s==1)
            goldenvalx_right(1)=currx;
            goldenvaly_right(1)=curry;
            s=s+1;

        else

```

```

        if(currx<goldenvalx_right(1))
            dist=(goldenvalx_right(1)-currx)*(goldenvalx_right(1)-
currx);
            dist_x=goldenvalx_right(1)-currx;
        else
            dist=(currx-goldenvalx_right(1))*(currx-goldenvalx_right
(1));
            dist_x=goldenvalx_right(1)-currx;
        end;
        if(goldenvaly_right(1)>curry)
            dist=dist+((goldenvaly_right(1)-curry)*
(goldenvaly_right(1)-curry));
            dist_y=goldenvaly_right(1)-curry;
        else
            dist=dist+((curry-goldenvaly_right(1))*(curry-
goldenvaly_right(1)));
            dist_y=curry-goldenvaly_right(1);
        end;

        if( ((dist_y<=(4*sz))&& (dist_x<=50)))
            goldenvalx_right(s)=currx;
            goldenvaly_right(s)=curry;
            s=s+1;
        end;
    end;

end;

end;

end;
goldenx_right=0;
goldeny_right=0;

s=s-1;
for p=1:s
    goldenx_right=goldenx_right+goldenvalx_right(p);
    goldeny_right=goldeny_right+goldenvaly_right(p);
end;
goldenx_right=goldenx_right/s;
goldeny_right=goldeny_right/s;
n=1;
flag3=0;
righteyex(1)=goldenvalx_right(1);

```

```

righteyex(2)=goldenvalx_right(2);
n=3;
for p=3:s

    for f=1:size(righteyex,2)
        if(righteyex(f)==goldenvalx_right(p))
            flag3=1;
            break;
        end;
    end;
    if(flag3==0)
        righteyex(n)=goldenvalx_right(p);
        n=n+1;
    end;
    flag3=0;
end;

```

```

x_avg_right=sum(righteyex)/size(righteyex,2);
x_avg_right=x_avg_right-(mod(x_avg_right,1));

```

```

flag3=0;
n=1;
for p=1:s

    if(p==1)
        righteyey(n)=goldenvaly_right(p);
        n=n+1;
    else
        for f=1:size(righteyey,2)
            if(righteyey(f)==goldenvaly_right(p))
                flag3=1;
                break;
            end;
        end;
        if(flag3==0)
            righteyey(n)=goldenvaly_right(p);
            n=n+1;
        end;
        flag3=0;
    end;
end;

```

```

end;
y_avg_right=sum(righteyey)/size(righteyey,2);

```

```

y_avg_right=y_avg_right-(mod(y_avg_right,1));

%
%
%
%
%

i=1;
m=1;
j=x_avg_left;

s2=1;
a=zeros((x_avg_right-x_avg_left+1)*(480-center_y),2,'double');
midy=(y_avg_right+y_avg_left)/2;
midy=midy-mod(midy,1);
midy=midy+x_avg_right-x_avg_left-(2*siz);
% midy=midy-mod(midy,1);
for i=midy:480
    for j=x_avg_left:x_avg_right
        a(m,1)=j;
        a(m,2)=i;
        m=m+1;
    end;
end;

sa=size(a);
sa=sa(1);
fid=fopen('a.txt','wt');
for i=1:sa

    fprintf(fid,'%d ',a(i,1));
    fprintf(fid,'%d ',a(i,2));

    fprintf(fid,'\n');
end;
db=load('a.txt');
rangex=x_avg_right-x_avg_left+1;
sq=zeros(100,1,'double');
midy=y_avg_right+y_avg_left;
midy=midy/2;
midy=midy-mod(midy,1);
midy=midy+(2*siz);

```

```

midx=(x_avg_right+x_avg_left)/2;
midx=midx-mod(midx,1);
for m=1:(sa-1000)
    flag2=0;
    flag=0;
    curry=a(m,2);
    currx=a(m,1);
    leftx=x_avg_left;
    lefty=curry;
    rightx=x_avg_right;
    righty=curry;
    upy=midy;
    upx=midx;
    %downy=curry+10;
    %downx=currx;
    leftpix=mat(leftx,upy);
    uppix=mat(upx,upy);
    rightpix=mat(rightx,upy);
    %downpix=mat(downy,downx);
    currpix=mat(currx,curry);
    tempy=upy+1;
    while((rightpix/uppix)<0.9)
        rightpix=mat(rightx,tempy);
        tempy=tempy+1;
    end;
    tempy=upy+1;
    while(leftpix/uppix<0.8)
        leftpix=mat(leftx,tempy);
        tempy=tempy+1;
    end;
    if(curry>460)
        break;
    end;

    if(currpix/rightpix<0.75 && currpix/rightpix>0.4)
        flag=flag+1;
    end;
    if(currpix/uppix<0.75 && currpix/uppix>0.4)
        flag=flag+1;
    end;
    if(currpix/leftpix<0.75 && currpix/leftpix>0.4)
        flag=flag+1;
    end;
    sz=siz/2;
    sz=sz-mod(sz,1);
    if(sz<3)

```

```

        sz=3;
    end;
    if(flag>=2)
        startx=currx-sz;
        starty=curry-sz;
        for xl=0:(sz*2)
            for yl=0:(sz*2)
                sq(xl*(2*sz+1)+yl+1)=mat(startx+xl,starty+yl);
            end;
        end;
        for l=1:((2*sz+1)*(2*sz+1))
            if((((sq(l)-currpix)/currpix)<0.4 && sq(l)>=currpix) || (sq(l)
<=currpix && ((currpix-sq(l))/currpix)<0.4))
                flag2=flag2+1;
            end;
        end;
        if(flag2>(30))
            if(currx==325 && curry==340)
                tempcurrx=currx;
            end;
            if(s2==1)
                goldenvallipx(1)=currx;
                goldenvallipy(1)=curry;
                s2=s2+1;

            else
                if(currx<goldenvallipx(1))
                    dist=(goldenvallipx(1)-currx)*(goldenvallipx(1)-currx);
                    dist_x=goldenvallipx(1)-currx;
                else
                    dist=(currx-goldenvallipx(1))*(currx-goldenvallipx(1));
                    dist_x=goldenvallipx(1)-currx;
                end;
                if(goldenvallipy(1)>curry)
                    dist=dist+((goldenvallipy(1)-curry)*(goldenvallipy(1)-
curry));
                    dist_y=goldenvallipy(1)-curry;
                else
                    dist=dist+((curry-goldenvallipy(1))*(curry-goldenvallipy
(1)));
                    dist_y=curry-goldenvallipy(1);
                end;

                if( ((dist_y<=(8*sz))&& (dist_x<=(x_avg_right-
x_avg_left))))
                    goldenvallipx(s2)=currx;

```

```

        goldenvallipy(s2)=curry;
        s2=s2+1;
        end;
    end;

    end;

    end;

end;
goldenlipx=0;
goldenlipy=0;

s2=s2-1;
for p=1:s2
    goldenlipx=goldenlipx+goldenvallipx(p);
    goldenlipy=goldenlipy+goldenvallipy(p);
end;
midx=(x_avg_left+x_avg_right)/2;
midy=(y_avg_left+y_avg_right)/2;
goldenlipy=goldenlipy/s2;
goldenlipx=goldenlipx/s2;
avglipy=goldenlipy;
for p=1:s2
    if(goldenvallipy(p)<0.9*avglipy || goldenvallipy(p)>1.1*avglipy)
        goldenvallipx(p)=0;
        goldenvallipy(p)=0;
    end;
end;
yincs=goldenlipy-midy;
n=1;
flag3=0;
num=1;
for p=1:s2
    if(goldenvallipx(p)~=0)
        break;
    else
        num=num+1;
    end;
end;
for p=1:s2
    if(p>=num)
    if(p==num)
        lipx(1)=goldenvallipx(p);
        n=n+1;

```



```

else
for f=1:size(lipx,2)
    if(lipx(f)==goldenvallipx(p))
        flag3=1;
        break;
    end;
end;
if(flag3==0)
    lipx(n)=goldenvallipx(p);
    n=n+1;
end;
flag3=0;
end;
end;
end;
x_lip=sum(lipx)/size(lipx,2);
if(mod(x_lip,1)~=0)
    x_lip=x_lip-(mod(x_lip,1));

end;

n=1;
flag3=0;
num=1;
for p=1:s2
    if(goldenvallipy(p)~=0)
        break;
    else
        num=num+1;
    end;
end;
for p=1:s2
    if(p>=num)
        if(p==num)
            lipy(1)=goldenvallipy(p);
            n=n+1;
        else
            for f=1:size(lipy,2)
                if(lipy(f)==goldenvallipy(p))
                    flag3=1;
                    break;
                end;
            end;
            if(flag3==0)
                lipy(n)=goldenvallipy(p);
                n=n+1;
            end;
        end;
    end;
end;

```

```

        end;
        flag3=0;
        end;
        end;
end;
y_lip=sum(lipy)/size(lipy,2);

if(mod(y_lip,1)~=0)
    y_lip=y_lip-(mod(y_lip,1));

end;

%if(goldeny_r>goldeny)
%slp=1/((goldeny_r-goldeny)/(goldenx_r-goldenx));
%goldenlipx=midx+(yincs/slp);
%else
%    slp=(goldenx_r-goldenx)/(goldeny-goldeny_r);
%    goldenlipx=midx-(yincs/slp);
%end;
%goldenlipx=midx+;
y_leftcheek=(y_lip+y_avg_left)/2;
x_leftcheek=x_avg_left;
y_leftcheek=y_leftcheek-mod(y_leftcheek,1);
y_rightcheek=(y_lip+y_avg_right)/2;
x_rightcheek=x_avg_right;
y_rightcheek=y_rightcheek-mod(y_rightcheek,1);
x_forehead=(x_avg_right+x_avg_left+(2*x_lip))/4;
x_forehead=x_forehead-mod(x_forehead,1);
y_forehead=(y_avg_left+y_avg_right)/2-((x_avg_right-x_avg_left)/2);
y_forehead=y_forehead-mod(y_forehead,1);
fid=fopen(file_dat,'w');
r=30;
dim_data=9;

fwrite(fid,g,'uint8');
for i=1:51
    fwrite(fid,g,'uint8');
end;
d=0;
fwrite(fid,x_avg_left,'float');
fwrite(fid,y_avg_left,'float');

fwrite(fid,x_avg_right,'float');
fwrite(fid,y_avg_right,'float');

fwrite(fid,d,'int');

```

```

fwrite(fid,x_lip,'float');
fwrite(fid,y_lip,'float');
fwrite(fid,r,'int');
fwrite(fid,dim_data,'int');
fwrite(fid,d,'float');
fwrite(fid,d,'float');

fwrite(fid,r,'int');
fwrite(fid,dim_data,'int');
fwrite(fid,d,'float');
fwrite(fid,d,'float');

fwrite(fid,r,'int');
fwrite(fid,dim_data,'int');
fwrite(fid,d,'float');
fwrite(fid,d,'float');

fwrite(fid,r,'int');
fwrite(fid,dim_data,'int');
fwrite(fid,d,'float');
fwrite(fid,d,'float');

fwrite(fid,r,'int');
fwrite(fid,dim_data,'int');
fwrite(fid,d,'float');
fwrite(fid,d,'float');
startx=x_rightcheek;
starty=y_rightcheek;
sum=0;
h=9;

for i=1:9
    for j=1:9
        for z=1:65
            sum=sum+(mt(startx-4+i,starty-4+j,z)*mt
(startx-4+i,starty-4+j,z));
        end;
        sum=sqrt(sum);
        for z=26:55
            t=mt(startx-4+i,starty-4+j,z)/sum;
            if(i==1 && j==1 && z==1)
                temp=t;
            end;
            fwrite(fid,t,'float');
        end;
    end;
end;

```

```

        sum=0;
    end;
end;
k=zeros(9,9,65);
startx=x_leftcheek;
starty=y_leftcheek;
h=9;

for i=1:9
    for j=1:9
        for z=1:65
            sum=sum+(mt(startx-4+i,starty-4+j,z)*mt
(startx-4+i,starty-4+j,z));
        end;
        sum=sqrt(sum);
        for z=26:55
            t=mt(startx-4+i,starty-4+j,z)/sum;
            fwrite(fid,t,'float');
        end;
        sum=0;
    end;
end;
k=zeros(9,9,65);
startx=x_lip;
starty=y_lip;
h=9;

for i=1:9
    for j=1:9
        for z=1:65
            sum=sum+(mt(startx-4+i,starty-4+j,z)*mt
(startx-4+i,starty-4+j,z));
        end;
        sum=sqrt(sum);
        for z=26:55
            t=mt(startx-4+i,starty-4+j,z)/sum;
            fwrite(fid,t,'float');
        end;
        sum=0;
    end;
end;

k=zeros(9,9,65);
startx=x_forehead;
starty=y_forehead;
h=9;

```

```

for i=1:9
    for j=1:9
        for z=1:65
            sum=sum+(mt(startx-4+i,starty-4+j,z)*mt
(startx-4+i,starty-4+j,z));
        end;
        sum=sqrt(sum);
        for z=26:55

            t=mt(startx-4+i,starty-4+j,z)/sum;

            fwrite(fid,t,'float');
        end;
        sum=0;
    end;
end;
for i=1:9
    for j=1:9
        for z=1:65
            sum=sum+(mt(startx-4+i,starty-4+j,z)*mt
(startx-4+i,starty-4+j,z));
        end;
        sum=sqrt(sum);
        for z=26:55
            t=mt(startx-4+i,starty-4+j,z)/sum;
            fwrite(fid,t,'float');
        end;
        sum=0;
    end;
end;
fclose(fid);

```