

LAMPIRAN-LAMPIRAN

MATLAB PROGRAMMING

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%PROGRAM DETEKSI SURFACE ROUGHNESS
%TESIS S2 SMO-DTM FTUI
%BUDI HARYANTO NPM 0706173162

A=imread('pelatkalibrator29.jpg'); %membaca image kalibrator 2,9
mikrometer
[a,b,c]=size(A); %membaca jumlah baris, kolom dan layer image
Rd=A(:,:,1);%membaca data layer RED
Gr=A(:,:,2);%membaca data layer GREEN
Bl=A(:,:,3);%membaca data layer BLUE
meanRo=mean(Rd)%nilai rata-rata (mean)pada setiap baris layer Red
meanGo=mean(Gr)%nilai rata-rata (mean)pada setiap baris layer
Green
meanBo=mean(Bl)%nilai rata-rata (mean)pada setiap baris layer Blue
meanR=mean(meanRo)%nilai rata-rata (mean)layer Red
meanG=mean(meanGo)%nilai rata-rata (mean)layer Green
meanB=mean(meanBo)%nilai rata-rata (mean)layer Blue

%Program perhitungan lebar edge putih dan jarak antar edge putih
B=im2bw(A,graythresh(A)); %merubah rgb image menjadi binary
C=bwareaopen(B,500); %Menghilangkan noise yang jmlnya dibawah 500
pixel
D=imfill(C,'holes'); %mengisi lubang pada edge image
[a,b]=size(D); %membaca ukuran image hasil cropping
s=round(a/2); %mencari baris tengah
x=1; %nilai awal
    for kolom=1:b-1; %looping kolom
        beda=D(s,kolom+1)-D(s,kolom); %persamaan untuk mencari nilai
edge warna putih
        if beda==1 && D(s,1)==0;
            putihawal(x)=kolom; %mencatat posisi kolom untuk nilai
putih awal
            x=x+1;
        elseif beda==-1; %mencatat posisi kolom untuk nilai putih
akhir
            putihakhir(x)=kolom;
            x=x+1;
        end
    end
    end
    putihawal; %tampilan kolom untuk edge putih pertama
    putihakhir; %tampilan kolom untuk edge putih terakhir

%Menghitung lebar edge putih
lebarege1=putihakhir(2)-putihawal(1);
lebarege2=putihakhir(4)-putihawal(3);
lebarege3=putihakhir(6)-putihawal(5);
lebarege=(lebarege1+lebarege2+lebarege3)/3;

%Menghitung jarak antar edge putih
centerpthl=((putihakhir(2)-putihawal(1))/2)+putihawal(1); %nilai
tengah edge putih pertama
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centerpth2=((putihakhir(4)-putihawal(3))/2)+putihawal(3); %nilai
tengah edge putih kedua
centerpth3=((putihakhir(6)-putihawal(5))/2)+putihawal(5); %nilai
tengah edge putih ketiga
centerpth4=((putihakhir(8)-putihawal(7))/2)+putihawal(7); %nilai
tengah edge putih keempat
jarakedge1=abs(centerpth2-centerpth1); %jarak antara edge putih
pertama dan kedua
jarakedge2=abs(centerpth3-centerpth2); %jarak antara edge putih
kedua dan ketiga
jarakedge3=abs(centerpth4-centerpth3); %jarak antara edge putih
ketiga dan keempat
jarakedge=(jarakedge1+jarakedge2+jarakedge3)/3; %nilai rata-rata
jarak edge
lebaredge
jarakedge
figure,imshow(A); %tampilan image awal
figure,imshow(D); %tampilan image akhir
figure,imhist(Rd); %tampilan histogram layer RED
figure,imhist(Gr); %tampilan histogram layer GREEN
figure,imhist(Bl); %tampilan histogram layer BLUE

%PROGRAM PLOT 3D
%BUDI HARYANTO NPM 0706173162

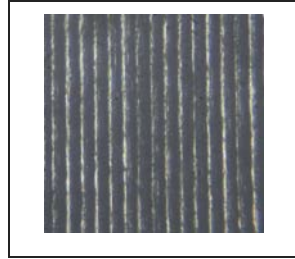
G = imread('pelatkalibrator29.jpg');
I=G(:,:,1);
[X, map] = gray2ind(I, 256);
C=imresize(X,[256 256]);
figure, imshow (C)
[A,B] = meshgrid(1:256,1:256);
figure,contour3(A,B,C,30)
surface(A,B,C,'EdgeColor',[.8 .8 .8],'FaceColor','none')
grid off
view(-15,25)
colormap jet

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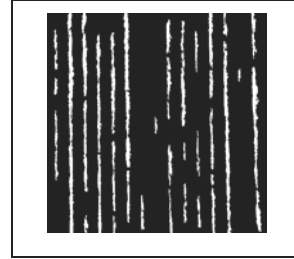
IMAGE PERMUKAAN SAMPEL

Sampel 1, $R_a = 0,97 \mu\text{m}$

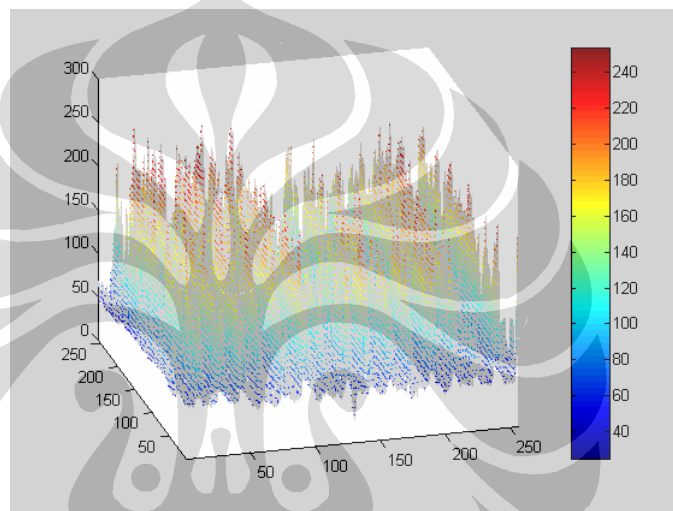
Spindle speed = 2000 RPM, Depth of cut = 0,5 mm/min, federate = 50 mm/menit



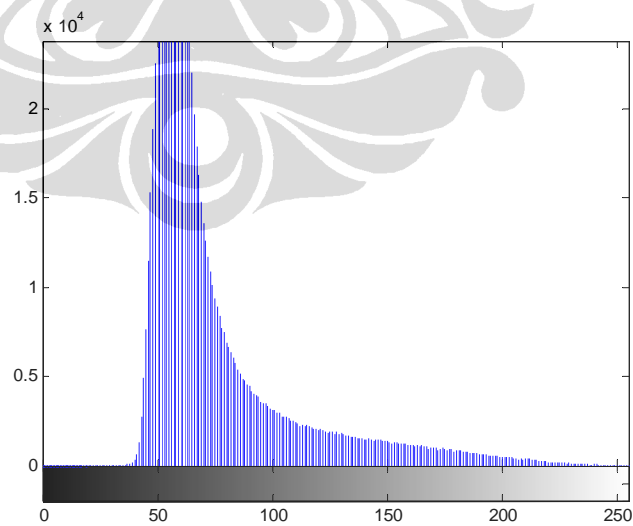
Sebelum proses



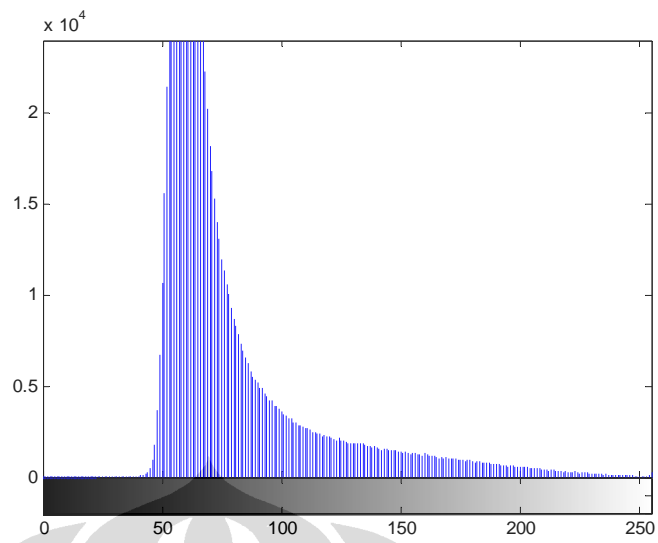
Sesudah proses



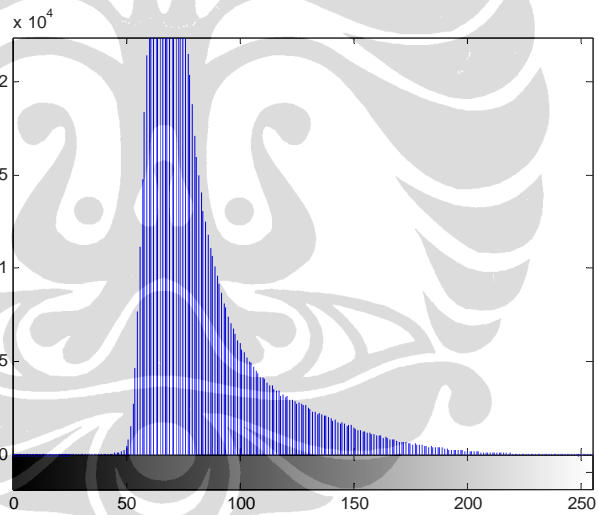
Pengeplotan 3D Image



Grafik Histogram Red (RGB)



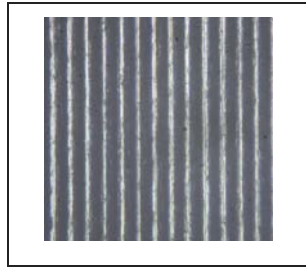
Grafik Histogram *Green* (RGB)



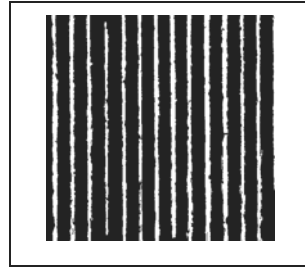
Grafik Histogram *Blue* (RGB)

Sampel 3, $R_a = 1,03 \mu\text{m}$

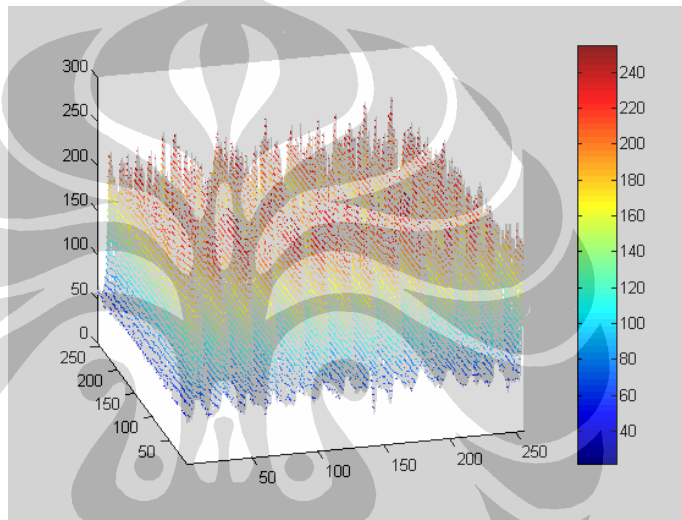
Spindle speed = 2000 RPM, Depth of cut = 0,5 mm/min, federate = 100 mm/menit



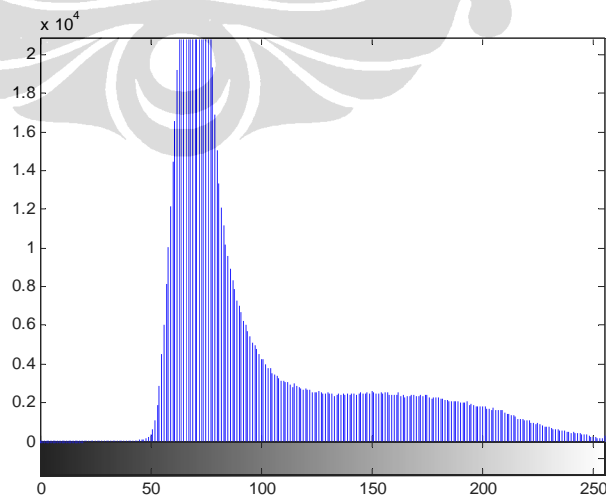
Sebelum proses



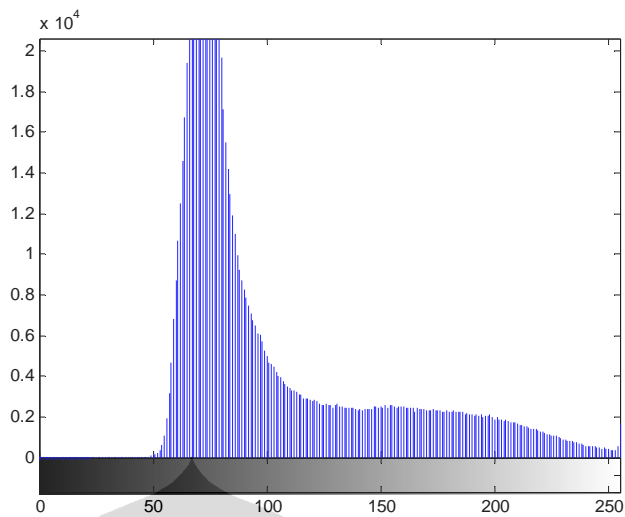
Sesudah proses



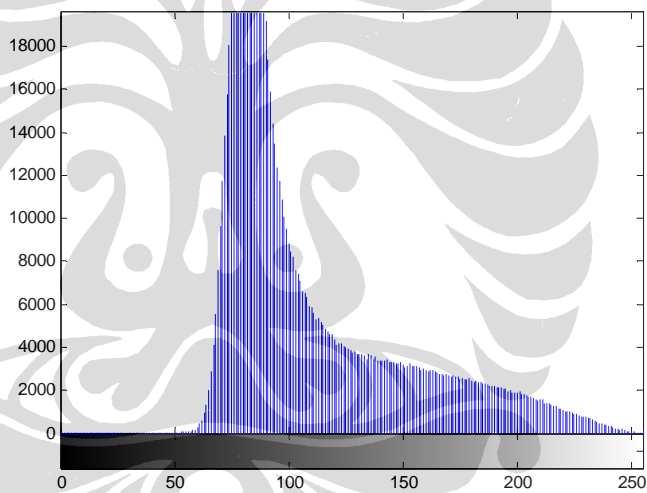
Pengeplotan 3D Image



Grafik Histogram Red (RGB)



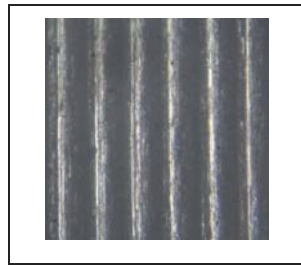
Grafik Histogram *Green* (RGB)



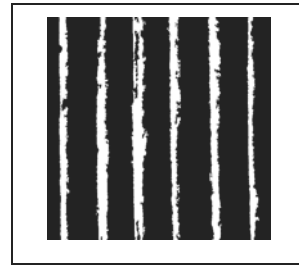
Grafik Histogram *Blue* (RGB)

Sampel 5, $R_a = 1,36 \mu\text{m}$

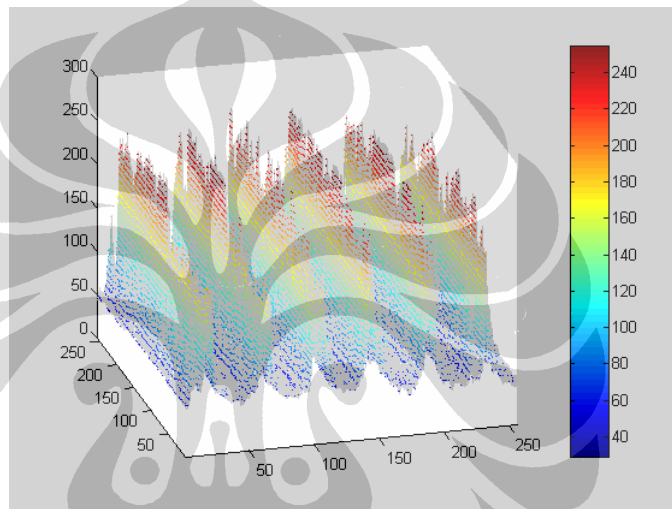
Spindle speed = 2000 RPM, Depth of cut = 0,5 mm/min, federate = 150 mm/menit



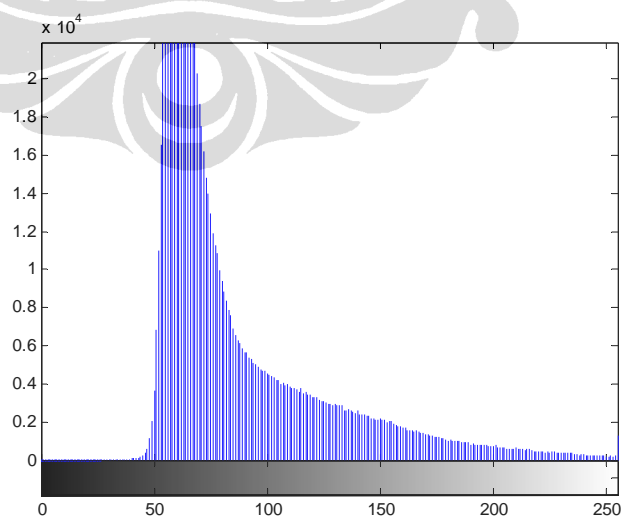
Sebelum proses



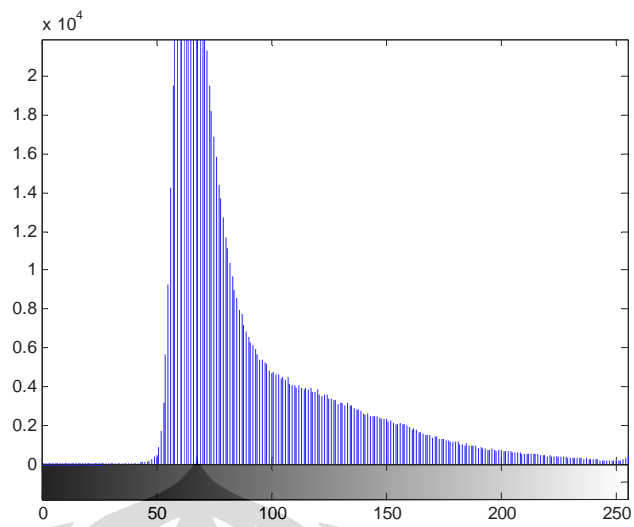
Sesudah proses



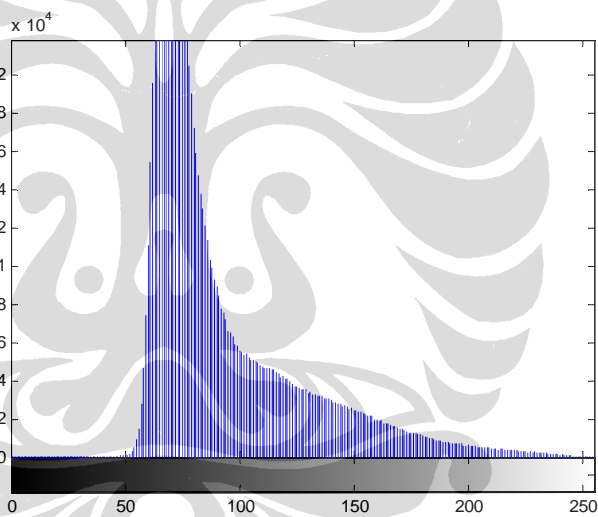
Pengeplotan 3D Image



Grafik Histogram Red (RGB)



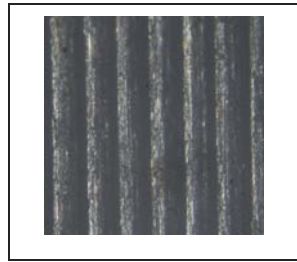
Grafik Histogram *Green* (RGB)



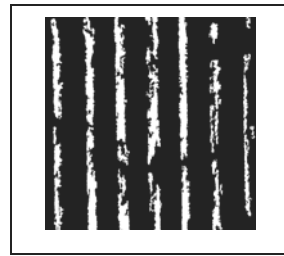
Grafik Histogram *Blue* (RGB)

Sampel 6, Ra = 1,35 μm

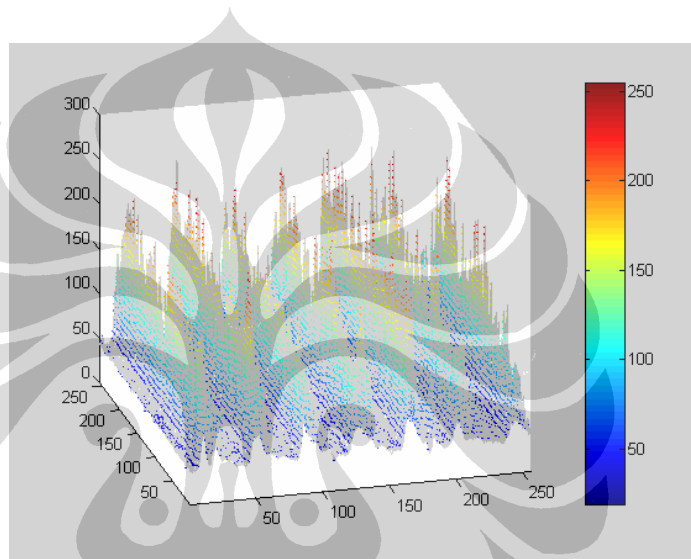
Spindle speed = 2000 RPM, Depth of cut = 0,5 mm/min, federate = 175 mm/menit



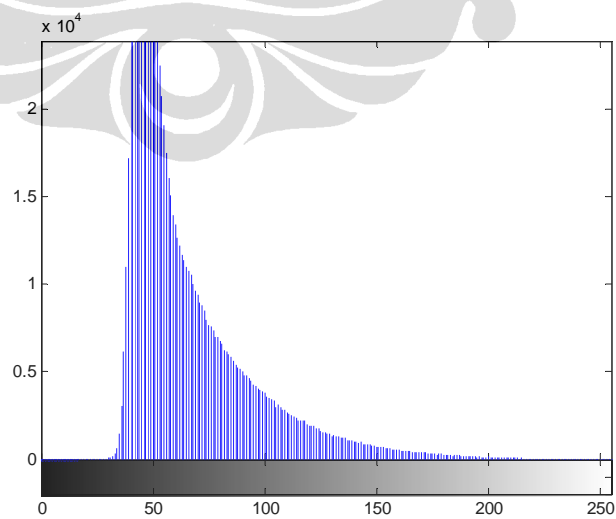
Sebelum proses



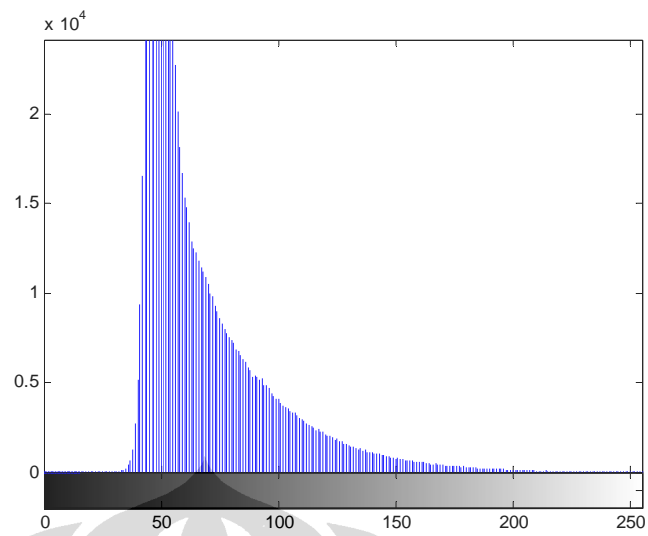
Sesudah proses



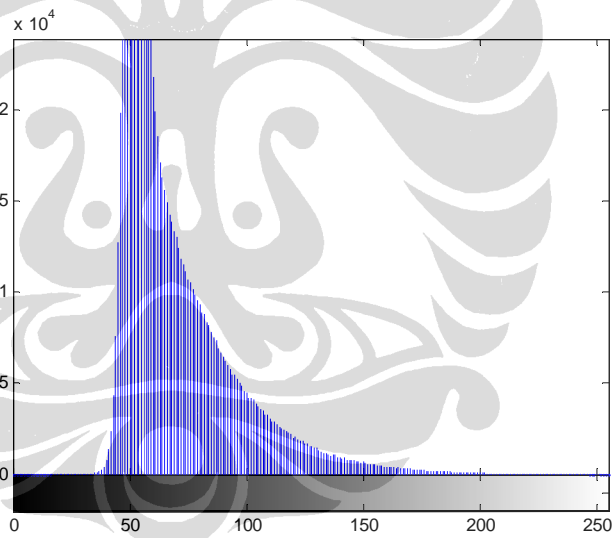
Pengeplotan 3D Image



Grafik Histogram Red (RGB)

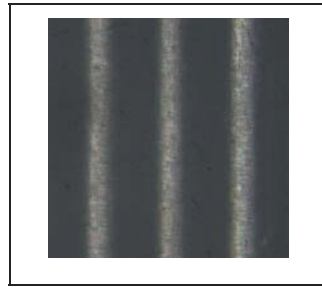


Grafik Histogram *Green* (RGB)

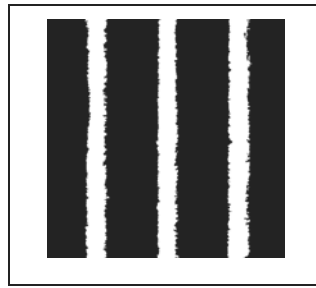


Grafik Histogram *Blue* (RGB)

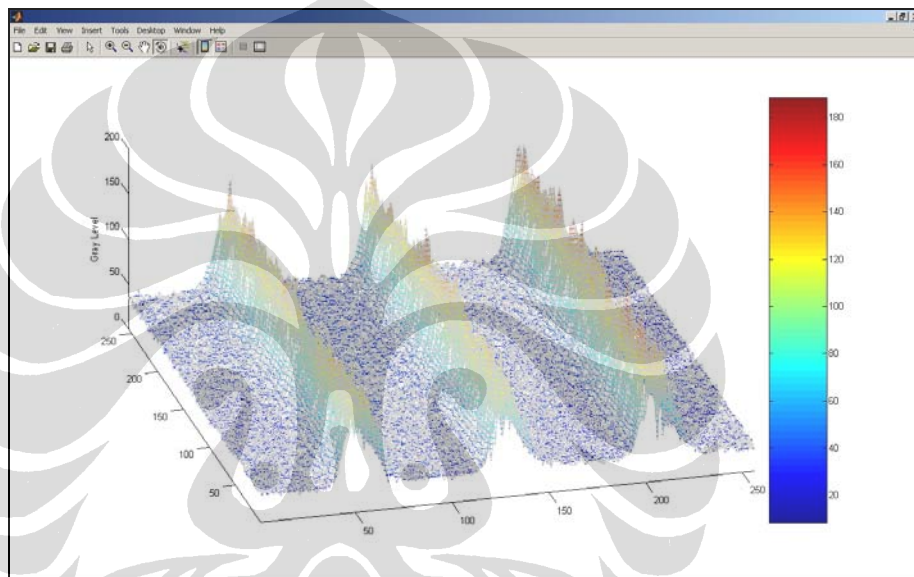
Pelat Kalibrator, Ra = 2,9 μm



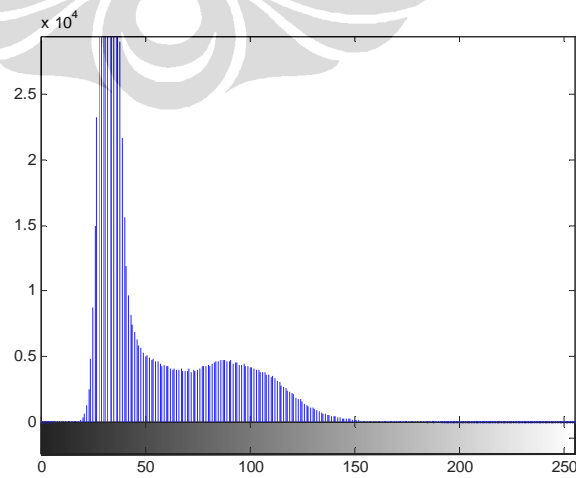
Sebelum proses



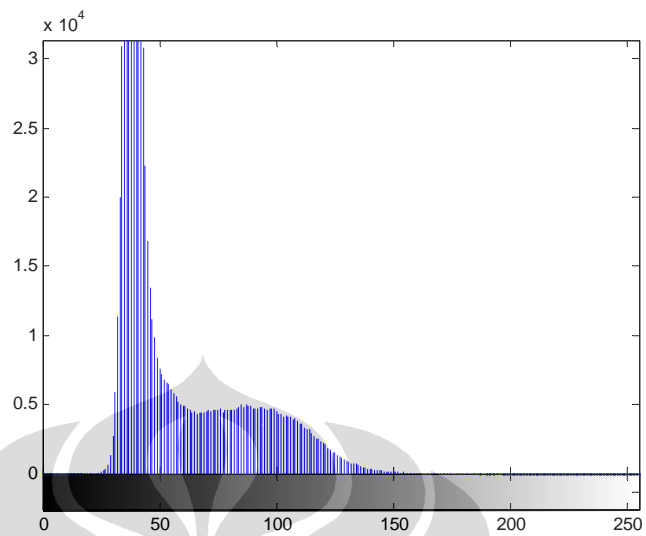
Sesudah proses



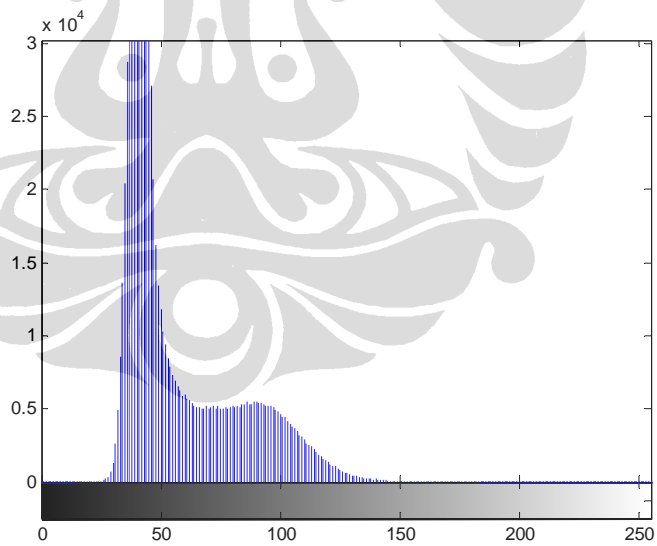
Pengeplotan 3D Image



Grafik Histogram Red (RGB)



Grafik Histogram *Green* (RGB)



Grafik Histogram *Blue* (RGB)