

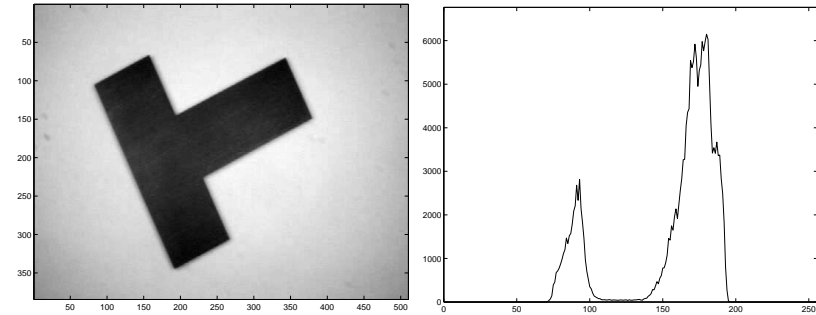
Image processing in Matlab: Distribution of pixel values

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Image and Result



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Matlab for image read and display

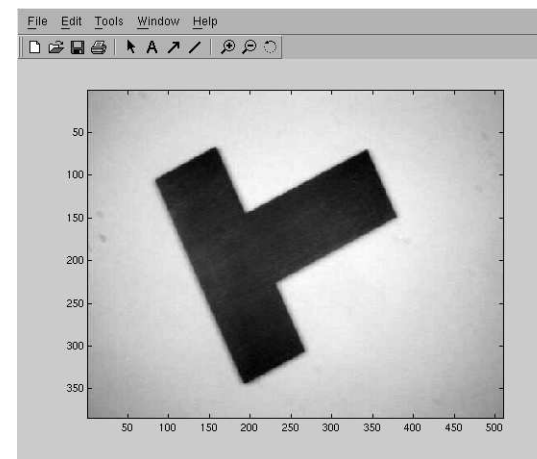
```
1 % loads a given image
2 function newimage = myjpgload(name, show)
3 newimage = double(imread(name, 'jpg'));
4 if show > 0
5     figure(show)
6     colormap(gray)
7     imagesc(newimage)
8 end
```

Can also use emacs on *.m files in another window.

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Results figure output



Use File -> Export to save *.eps files for printing and documents

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Matlab in command window

```
bigF = myjpgload('partbigF',3);
[H,W] = size(bigF)

H =
    384

W =
    510

figure(3)           % what the '3' above does
colormap(gray)     % "
imagesc(bigF)      % "
```

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bigF histogram

```
thehist = zeros(256,1);
[H,W] = size(bigF);
for r = 1 : H
    for c = 1 : W
        value = round(bigF(r,c));
        if value < 0           % array goes 1:256
            value = 0;         % but image goes 0:255
        elseif value > 255
            value = 255;
        end
        thehist(value+1) = thehist(value+1) + 1;
    end
end
```

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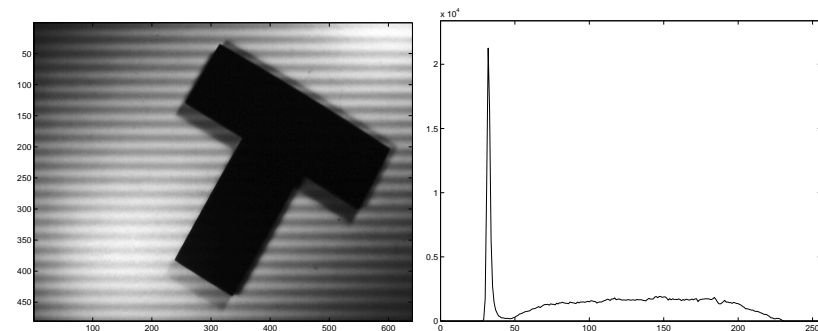
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```
figure(4)
plot(thehist)
axis([0, 255, 0, 1.1*max(thehist)])
```

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Histogram Output



Why not 2 big peaks?

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histc histogram builtin

```
% set up bin edges for histogram
edges = zeros(256,1);
for i = 1 : 256
    edges(i) = i-1;
end
[R,C] = size(bigF);
imagevec = reshape(bigF,1,R*C); % make long array
thehist = histc(imagevec,edges)'; % do histog.

figure(1)
plot(thehist)
axis([0, 255, 0, 1.1*max(thehist)])
```

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Lecture Overview

- Some simple Matlab for image loading and figures
- Histograms of image values
- Why histograms can be messy

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