```
%  script histedges.m

%--[1] Load the edgethresh Matlab file.
load('edgethresh.mat');

max1 = max(reshape(edge1, 1, []));
max2 = max(reshape(edge2, 1, []));

figure(1);
hold on
hist1 = histogram(reshape(edge1, 1, []), [0:50:max1]);
line([150,150],[0,100000])
dim = [.4 .5 .3 .3];
annotation('textbox',dim,'String','Threshold at 150.0','FitBoxToText','on');
title('Histogram for edge1');

figure(2);
hist2 = histogram(reshape(edge2, 1, []), [0:0.125:max2]);
line([1.25,1.25],[0,100000])
dim = [.4 .5 .3 .3];
annotation('textbox',dim,'String','Threshold at 1.25','FitBoxToText','on');
title('Histogram for edge2');

%--[2] Apply a threshold to the edge scores to get binary images.
thresh1 = 150.0;
thresh2 = 1.25;

fprintf('Threshold for edge 1: %f\n', thresh1);
fprintf('Threshold for edge 2: %f\n', thresh2);

edge1new = edge1 > thresh1;
edge2new = edge2 > thresh2;
detect1 = edge1new ;
detect2 = edge2new ;

%--[3] Up to you to run or not.  Thin out thick edge zones to give slim line.
detect1 = bwmorph(detect1, 'thin');
detect2 = bwmorph(detect2, 'thin');

%--[4] Plot the image and also visualize the detected edge locations.
figure(3);
  imagesc(I);
  colormap('gray');
  axis image;
  title('Original image');

figure(4);
  imagesc(detect1);
  colormap('gray');
  title('Edge 1');

figure(5);
  imagesc(detect2);
  colormap('gray');
  title('Edge 2');

% The threshold for edge1 produced an image that was less satisfactory than
% that produced by edge2. Although objects such as signs and benches appear
% with more detail in the binary image, less visible edges on the ground
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% are completely missing.

% The threshold for edge2 aligned more with what I envisioned, with most of
% the windows outlined and objects such as people, signs, and benches
% recognizable in the binary image.
```
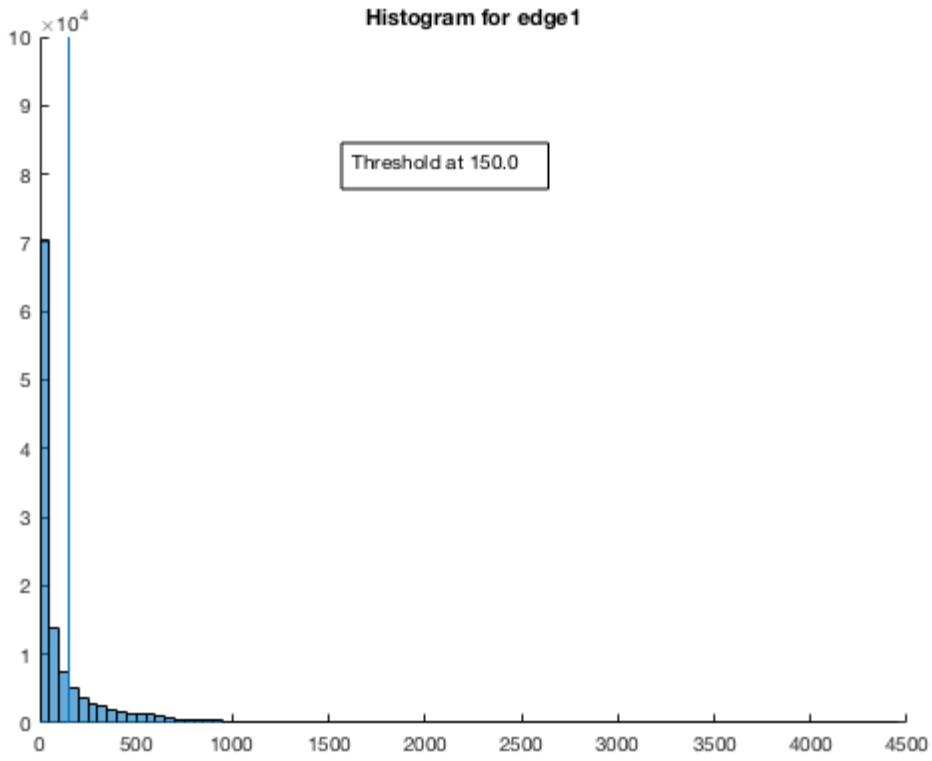
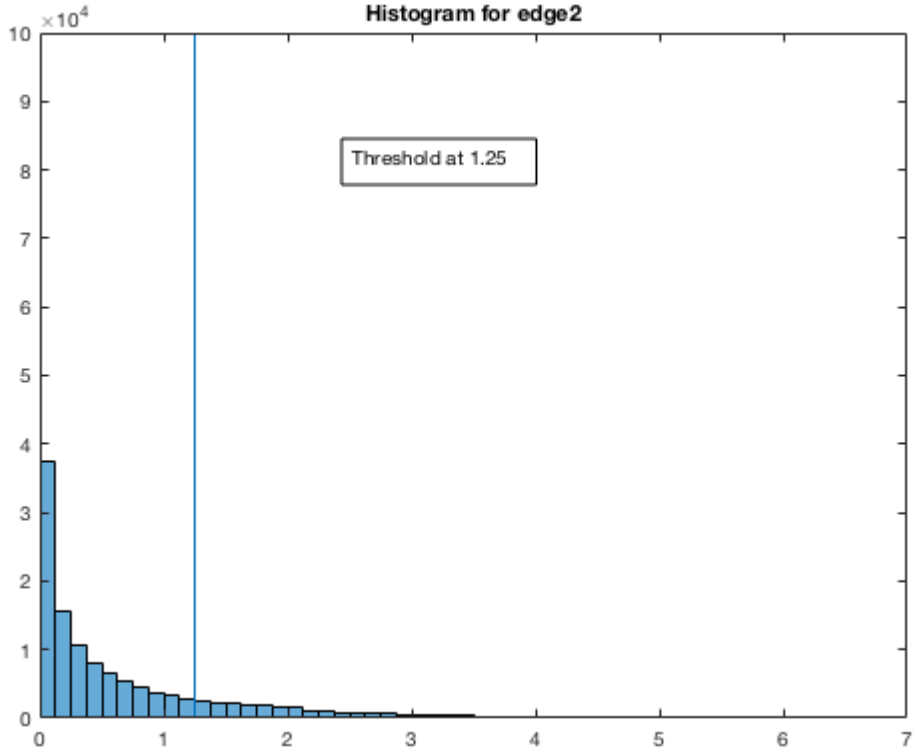
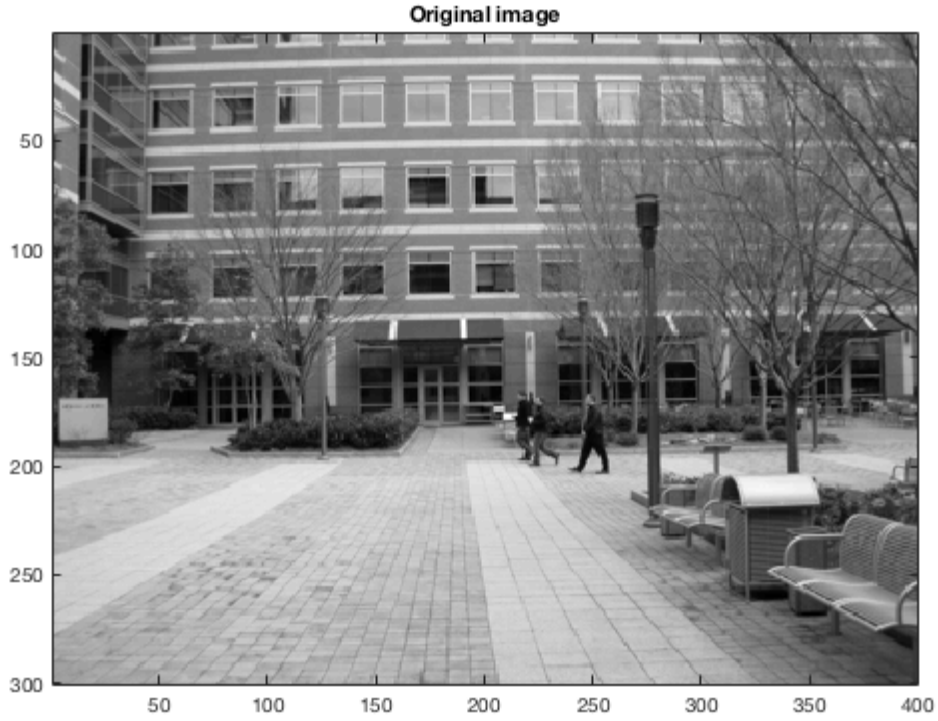
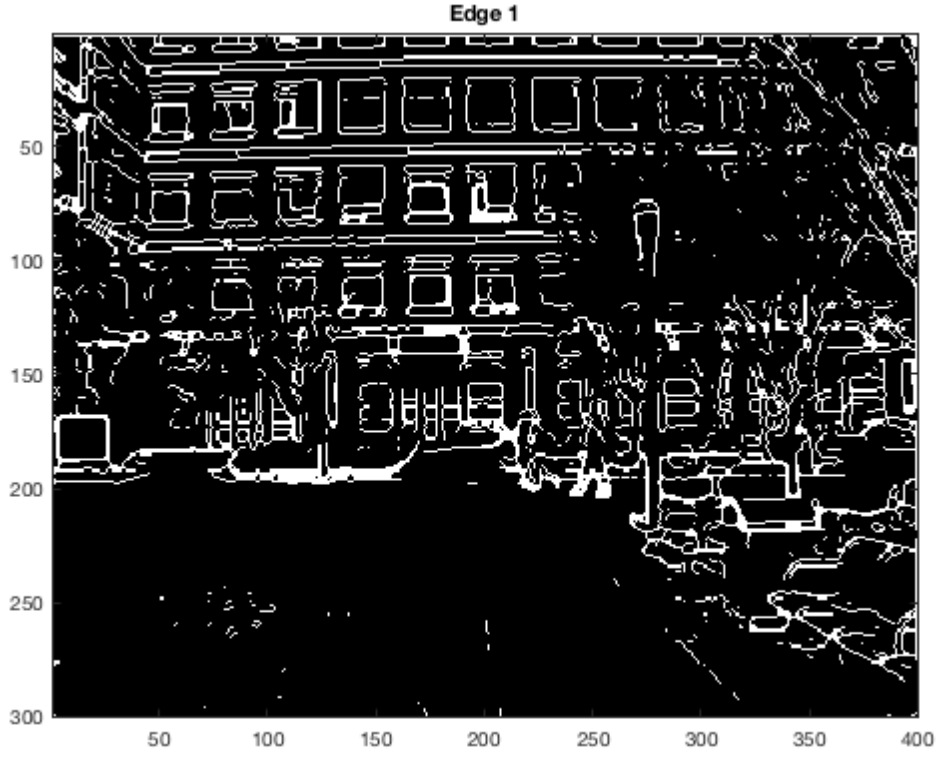
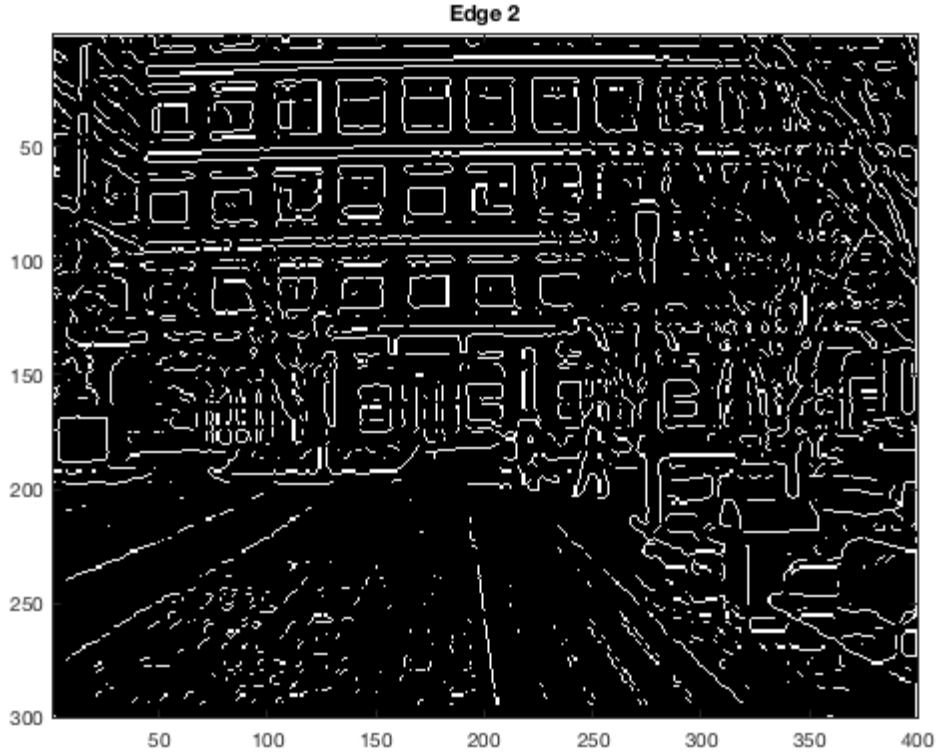

```
Threshold for edge 1: 150.000000
Threshold for edge 2: 1.250000
```


Histogram for edge1
×10^4
Threshold at 150.0
0
1
2
3
4
5
6
7
8
9
10
0
500
1000
1500
2000
2500
3000
3500
4000
4500


Histogram for edge2
×10^4
Threshold at 1.25
0
1
2
3
4
5
6
7
8
9
10
0
1
2
3
4
5
6
7


Original image
50
100
150
200
250
300
50
100
150
200
250
300
350
400


Edge 1
50
100
150
200
250
300
50
100
150
200
250
300
350
400



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