%%

%reconstruction of S, except for the scaling, in the pc-space

% we look at the first 3 images reconstructed with 118 components

%n\_pca = 118

n\_pca = 6

%n\_pca = n

plot\_n = 1;

num\_images =7;

for c = 1: length(n\_pca)

c;

S\_pca = W(:,1:n\_pca)\*X(:,1:n\_pca)';

end

for k = 4:num\_images%length(jpegFiles)

I\_pca = reshape(uint8(S\_pca(k,:)),[I\_dim,I\_dim]);

%original image

baseFileName = jpegFiles(k).name;

fullFileName = fullfile(myFolder, baseFileName);

I = imresize(rgb2gray(imread(fullFileName)),[I\_dim, I\_dim]);

% PLOTS

% plot original picture and PC reconstructed without scaling

plot\_n = plot\_n +1;

figure(plot\_n)

fig\_idx = 1;

subplot(1,2,fig\_idx), imshow(I)

title('original')

fig\_idx = fig\_idx + 1;

subplot(1,2,fig\_idx), imshow(I\_pca,[])

title(['scaled ',num2str(n\_pca(c)),' pca (95% variance)'])

imwrite(I\_pca,sprintf('%d.jpg',plot\_n))% save a dedicated .jpg file

end

%%

plot\_n = plot\_n+1

figure(plot\_n),

subplot(1,2,1),bar(latent)

title( 'pca variance' )

grid on

subplot(1,2,2),bar(latent(1:6))

title( 'zoom pca variance' )

%sgtitle(string(fig\_title(figure\_t)))

grid on

plot\_n = plot\_n+1;