
```
function main(path)

path = strcat(path, '\digits.csv');
digits = load(path);

[coeff,score,latent] = pca(digits(:,1:end-1));
% Coeff is the principal component coefficients
% Latent is the eigen values of the covariance matrix

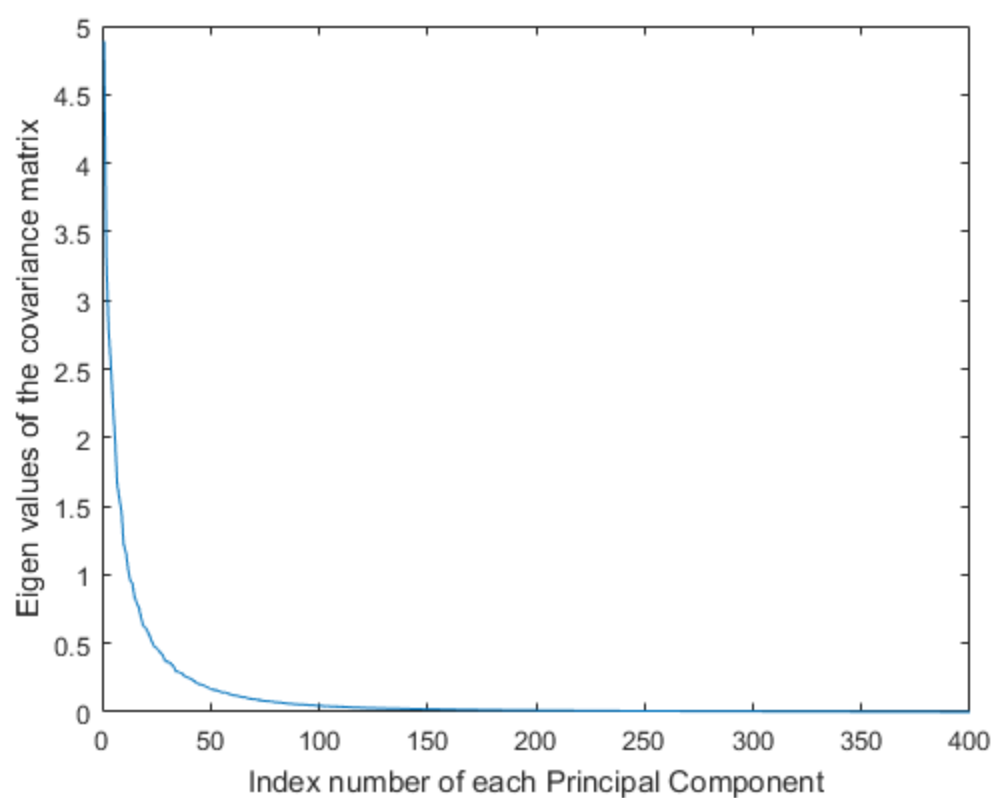
figure()
plot(latent);
ylabel('Eigen values of the covariance matrix');
xlabel('Index number of each Principal Component');

% Higher eigen values mean better Principal components
% The plot reveals that the PCA coefficients are already in order

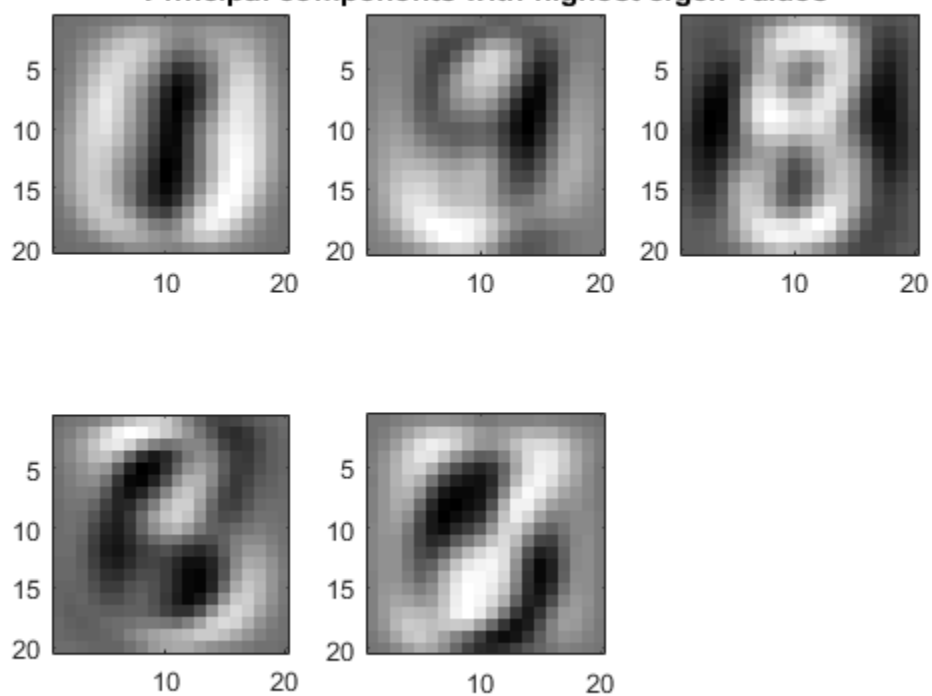
figure();
for i = 1:5
    subplot(2,3,i)
    I = coeff( : , i);
    imagesc( reshape( I, 20, 20 ) );
    colormap( gray );
    axis image;
end
subplot(2,3,2)
title('Principal components with highest eigen values')

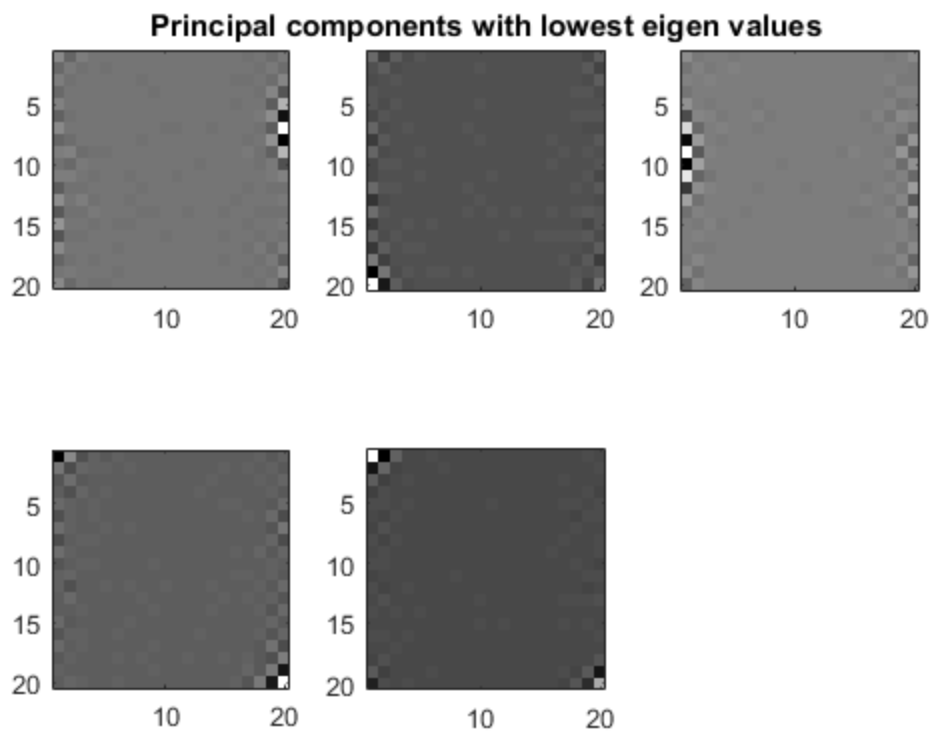
figure();
for i = 396:400
    subplot(2,3,i-395)
    I = coeff( :, i );
    imagesc( reshape( I, 20, 20 ) );
    colormap( gray );
    axis image;
end
subplot(2,3,2)
title('Principal components with lowest eigen values')

end
```



Principal components with highest eigen values





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