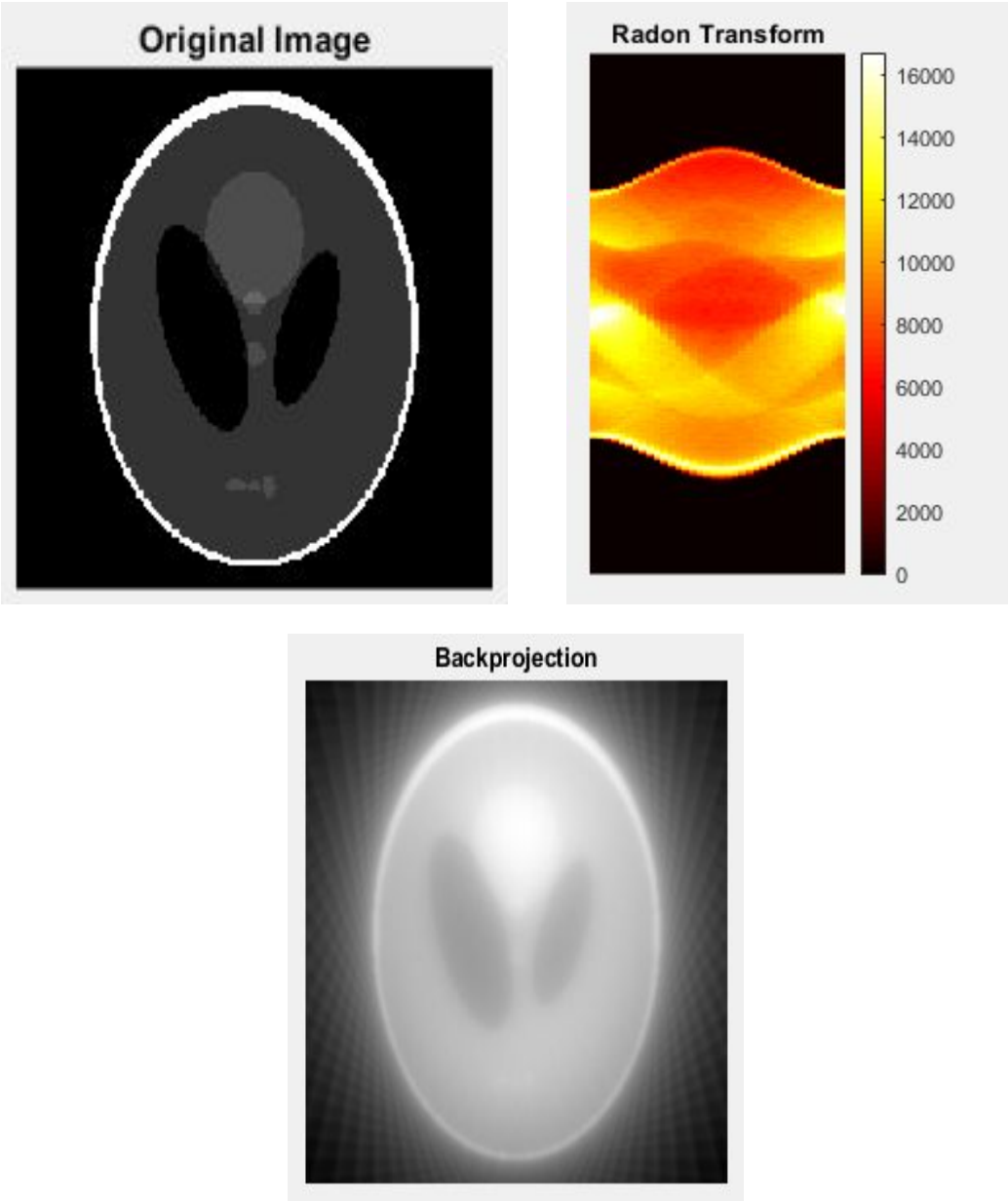
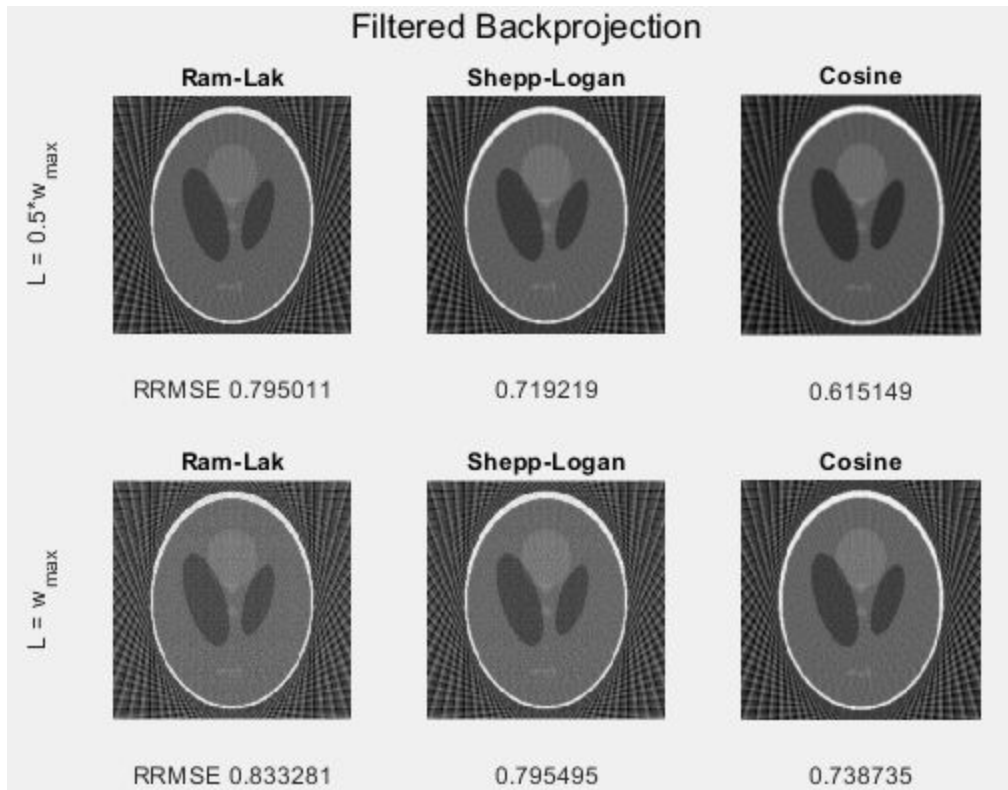


CS 736 - Assignment 3 Report

Filtered Backprojection

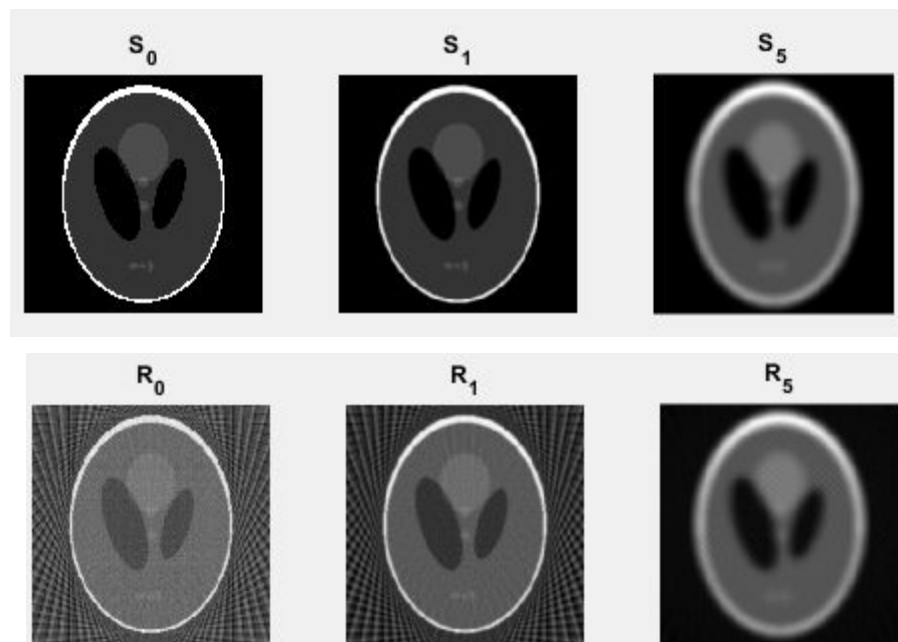
a)





Images with  $L=0.5 \cdot w$  are better since all the higher frequencies (than  $0.5 \cdot w$ ), which contribute to a lot of noise are filtered out. Results using cosine filter seems better since they avoid noise amplification from higher frequencies.

b)



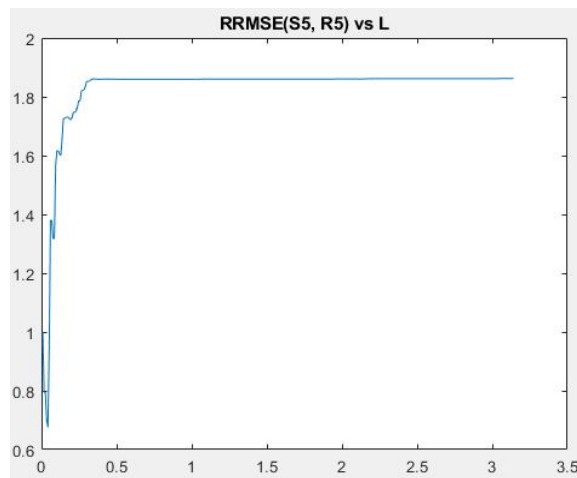
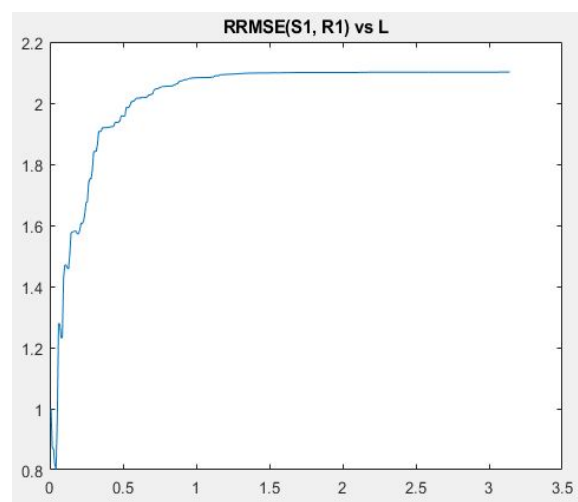
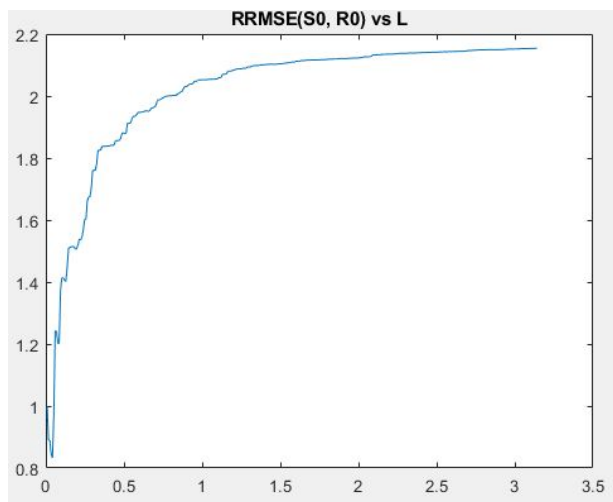
$RRMSE(S_0, R_0) = 0.833281$

$RRMSE(S_1, R_1) = 0.660699$

$RRMSE(S_5, R_5) = 0.443866$

Image with  $\sigma=5$  has the least RRMSE and is most visually similar to the corresponding original image. The higher blurring causes the discontinuities more even and also lessens the fluctuation. As a result, the error rate is low.

c)



As  $L$  increases, it includes more frequencies, which might be noise. So RRMSE increases with  $L$ .