Image Guided Filtering for Improving Photoacoustic Tomographic Image Reconstruction

This MATLAB code was used as part of the work presented in

**Navchetan Awasthi, Sandeep Kumar Kalva, Manojit Pramanik, Phaneendra K. Yalavarthy, “Image-guided filtering for improving photoacoustic tomographic image reconstruction,” J. Biomed. Opt. 23(9), 091413 (2018), doi: 10.1117/1.JBO.23.9.091413.**

#The codes for generating the data and TV can be found at [patextrapolation](https://sites.google.com/site/sercmig/home/patextrapolation?authuser=0) site.

#Matlab Implementation of Lanczos Tikhonov Heuristic and BPD\_LSQR methods:[demo\_bpd\_lsqr\_40.m](https://www.google.com/url?q=https%3A%2F%2Fsites.google.com%2Fsite%2Fsercmig%2Fsystem%2Fapp%2Fpages%2Fadmin%2Frevisions%3Fwuid%3Dwuid%3Agx%3A342a012c636c1e25&sa=D&sntz=1&usg=AFQjCNFrVUB4qrnn7dhQ7kDoGYIlFTQybQ)

#Matlab Implementation of Lanczos Tikhonov Heuristic combined with guided filtering:[demo\_bpd\_lsqr\_back\_40.m](https://www.google.com/url?q=https%3A%2F%2Fsites.google.com%2Fsite%2Fsercmig%2Fsystem%2Fapp%2Fpages%2Fadmin%2Frevisions%3Fwuid%3Dwuid%3Agx%3A43335567852e9a4e&sa=D&sntz=1&usg=AFQjCNGq1rJEtPY6WvxAoVZordzTqIvd1g)

#Matlab Implementation of Lanczos Tikhonov Optimal methods:[demo\_lanc\_tik\_40.m](https://www.google.com/url?q=https%3A%2F%2Fsites.google.com%2Fsite%2Fsercmig%2Fsystem%2Fapp%2Fpages%2Fadmin%2Frevisions%3Fwuid%3Dwuid%3Agx%3A4c59e4224b919008&sa=D&sntz=1&usg=AFQjCNFyCILZZvA6uyUc2bbEp23FbpXfjg)

#Matlab Implementation of Lanczos Tikhonov Optimal method combined with guided filtering:[demo\_lanc\_tik\_back\_40.m](https://www.google.com/url?q=https%3A%2F%2Fsites.google.com%2Fsite%2Fsercmig%2Fsystem%2Fapp%2Fpages%2Fadmin%2Frevisions%3Fwuid%3Dwuid%3Agx%3A7c2e68a93603cf80&sa=D&sntz=1&usg=AFQjCNEZkQ1X_DMbI5kEQIngTXc9vhuX4w)

#Matlab Implementation of Total Variation based method combined with guided filtering:[demo\_tv\_back\_40.m](https://www.google.com/url?q=https%3A%2F%2Fsites.google.com%2Fsite%2Fsercmig%2Fsystem%2Fapp%2Fpages%2Fadmin%2Frevisions%3Fwuid%3Dwuid%3Agx%3A671cbcf492a4c2a&sa=D&sntz=1&usg=AFQjCNG-C0Vk1TP_PikqpicRJL84H_R6BQ)

#Matlab Implementation for combining two images:[demo\_lanc\_tik\_back.m](https://www.google.com/url?q=https%3A%2F%2Fsites.google.com%2Fsite%2Fsercmig%2Fsystem%2Fapp%2Fpages%2Fadmin%2Frevisions%3Fwuid%3Dwuid%3Agx%3A7c2e68a93603cf80&sa=D&sntz=1&usg=AFQjCNEZkQ1X_DMbI5kEQIngTXc9vhuX4w)

#Matlab Implementation of Modified Guided Filtering Approach:[my\_filter\_guidedfilter.m](https://www.google.com/url?q=https%3A%2F%2Fsites.google.com%2Fsite%2Fsercmig%2Fsystem%2Fapp%2Fpages%2Fadmin%2Frevisions%3Fwuid%3Dwuid%3Agx%3A1a78d84829423690&sa=D&sntz=1&usg=AFQjCNGPv4ov7AxWI412YD2Zqb7WFwlmoA)

# Supplementary file for Guided Filtering:[boxfilter.m](https://www.google.com/url?q=https%3A%2F%2Fsites.google.com%2Fsite%2Fsercmig%2Fsystem%2Fapp%2Fpages%2Fadmin%2Frevisions%3Fwuid%3Dwuid%3Agx%3A4952d0d019522355&sa=D&sntz=1&usg=AFQjCNGt7aNp09a3qz23ffdvRvp7SEJIAw)