Jaya Prakash PhD Thesis

Matlab Programs for Jaya Prakash's PhD Thesis

The following MATLAB programs were used as a part of Ph.D. thesis submitted.

**Thesis Title:** *Development of next generation image reconstruction algorithms for Diffuse Optical and Photoacoustic Tomography*

**Jayaprakash PhD Thesis**

Matlab Based Programs (Requires [NIRFAST](http://www.google.com/url?q=http%3A%2F%2Fwww.dartmouth.edu%2F%257Enir%2Fnirfast%2F&sa=D&sntz=1&usg=AFQjCNGy0Qj1Ase3wF2EPCnMRDNOteJ80A) and [*k*-wave](http://www.google.com/url?q=http%3A%2F%2Fwww.k-wave.org%2F&sa=D&sntz=1&usg=AFQjCNHCIdo1vRqAHgK-zAPxzYkp25o1mA)):

1) reconstruct\_cw\_bpd.m

2) reconstruct\_cw\_bpd\_fast\_svd.m

3) reconstruct\_cw\_GCV.m\*

4) reconstruct\_cw\_Lp.m\*\*

5) reconstruct\_cw\_sl0.m\*\*\*

6) reconstruct\_region\_opt\_hard\_prior.m

7) bpd\_salsa\_sparsemtx\_fast\_svd.m\*\*\*\*

8) opt\_lambda\_cw.m\*

9) PAT\_CODE.m

10) sysBuildPAT\_mod\_Band.m

11) inverse.m

\* Adapted from Regularization Tools ([version 4.1](http://www.google.com/url?q=http%3A%2F%2Fwww2.imm.dtu.dk%2F%257Epch%2FRegutools%2F&sa=D&sntz=1&usg=AFQjCNHIl4GNUv_7xBKYfGdYoZOWRDFPHQ))

\*\* Adapted from Non-convex Synthesis and Analysis Prior Toolbox ([Link](http://www.google.com/url?q=http%3A%2F%2Fwww.mathworks.in%2Fmatlabcentral%2Ffileexchange%2F27087-non-convex-analysis-and-synthesis-priors&sa=D&sntz=1&usg=AFQjCNEBuMrVGC_hYdhffR-k9tWcCl6Dzg))

\*\*\* Adapted from Smooth-L0 Toolbox ([Link](http://www.google.com/url?q=http%3A%2F%2Fee.sharif.edu%2F%257ESLzero%2F&sa=D&sntz=1&usg=AFQjCNGq9WqIa8NELVVSY06hmMVMlGY09A))

\*\*\*\* Adapted from Sparsity in Signal Processing Toolbox ([Link](http://www.google.com/url?q=http%3A%2F%2Feeweb.poly.edu%2Fiselesni%2Flecture_notes%2Fsparsity_intro%2Findex.html&sa=D&sntz=1&usg=AFQjCNGmUWyt87pEPmgD6wVySI9-UflqVQ))