

Contents

DCS-AMP Software Package v1.2

Filename	File Type	Description
dc_amp_manuscript.pdf	PDF document	Most recent DCS-AMP publication, for reference
README	Text file	Contains useful information about the package
release_notes.pdf	PDF document	Release notes for the v1.2 software package
ClassDefs folder		
DCSModelParams.m	Class Definition	Defines a class that contains the parameters needed to define the DCS-AMP statistical signal model. Objects of this class are constructed and passed to <code>sp_multi_frame_fxn.m</code> and <code>sp_parallel_frame_fxn.m</code>
Options.m	Class Definition	Defines a class that contains properties that define certain runtime configuration options for the various inference algorithms, including the maximum and minimum number of iterations, options related to EM parameter learning, etc. Objects of this class are constructed and passed to <code>sp_multi_frame_fxn.m</code> and <code>sp_parallel_frame_fxn.m</code>
SigGenParams.m	Class Definition	Defines a class that contains parameters used to generate data according to a specific signal model. Objects of this class are passed to <code>dc_signal_gen_fxn.m</code> in order to generate a realization from DCS-AMP's signal model
Functions folder		
dc_signal_gen_fxn.m	Primary function	This function can be called in order to generate a realization of DCS-AMP's signal model, producing a signal, a measurement matrix, and measurements for a given model specification
genie_dcs_fxn.m	Primary function	This function implements the support-aware Kalman smoother (SKS). If executed with no arguments, a demo recovery is performed
nser.m	Accessory function	Computes the normalized support error rate (NSER)
parameter_update_fxn.m	Accessory function	This function is called by the primary DCS-AMP functions in order to perform the expectation-maximization (EM) parameter learning
signal_gen_fxn.m	Primary function	This (deprecated) function can be called in order to generate a realization of DCS-AMP's signal model, producing a signal, a measurement matrix, and measurements for a given model specification
sp_frame_fxn.m	Secondary function	This function forms the heart of the AMP portion of DCS-AMP, performing the message passes that occur within a single frame
sp_msg_mult_fxn.m	Accessory function	This function is called by the main DCS-AMP functions in order to perform certain message passing calculations
sp_multi_frame_fxn.m	Primary function	This is one of the two main DCS-AMP functions. This function will implement the serial message passing schedule version of DCS-AMP
sp_parallel_frame_fxn.m	Primary function	This is one of the two main DCS-AMP functions. This function will implement the parallel message passing schedule version of DCS-AMP
sp_timestep_fxn.m	Accessory function	This function is called by the main DCS-AMP functions in order to perform certain message passing calculations

Tests folder		
Dynamics sub-folder		
dynamics_test.m	Test script	Executes the performance-vs-(p01,alpha) test
produce_plots.m	Accessory script	Produces plots from the .mat files generated by dynamics_test.m
Ell1PhasePlane sub-folder		
ell1_phase_test.m	Test script	Executes the performance-vs-(K/M,M/N) test for basis pursuit solver
produce_plots.m	Accessory script	Produces plots from the .mat files generated by ell1_phase_test.m
Larynx sub-folder		
larynx_recovery.m	Test script	Executes the dynamic MRI image recovery test (using code provided courtesy of Wei Lu and Namrata Vaswani of Iowa State University)
PhasePlane sub-folder		
phase_test.m	Test script	Executes the performance-vs-(K/M,M/N) test
produce_plots.m	Accessory script	Produces plots from the .mat files generated by phase_test.m