

Contents

AMP-MMV Software Package v1.1

Filename	File Type	Description
add2path.m	Accessory script	Simple script for adding all of the folders needed to obtain full-functionality ¹ from the AMP-MMV package to MATLAB®'s path
manuscript.pdf	PDF document	Most recent AMP-MMV publication, for reference
README	Text file	Contains useful information about the package
release_notes.pdf	PDF document	Release notes for the v1.1 software package
tutorial.pdf	PDF document	A tutorial that explains how to properly run AMP-MMV through a series of examples. Acts as a companion document to the script demo.m.
ClassDefs folder		
AMPState.m	Class definition	Defines a data storage class used internally by AMP-MMV for warm-starting the algorithm
ModelParams.m	Class definition	Defines a class that contains the parameters that collectively define a probabilistic signal/system model. Objects of this class are passed to AMP-MMV functions in order to provide information about the signal being recovered
Options.m	Class definition	Defines a class that contains parameters used to specify different runtime options of the AMP-MMV functions. An object of this class can optionally be passed to AMP-MMV to modify default runtime behavior
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 signal_gen_fxn.m in order to generate a realization from AMP-MMV's signal model
Functions folder		
genie_multi_frame_fxn.m	Primary function	This function implements the support-aware Kalman smoother (SKS). If executed with no arguments, a demo recovery is performed
mmv_parameter_update_fxn.m	Accessory function	This function is called by the primary AMP-MMV functions in order to perform the expectation-maximization (EM) parameter learning
nser.m	Accessory function	Computes the normalized support error rate (NSER)
perfSupp.m	Accessory function	Used to compute the failure rate (a performance metric used by T-MSBL and MSBL)
signal_gen_fxn.m	Primary function	This function can be called in order to generate a realization of AMP-MMV'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 AMP-MMV, performing the message passes that occur within a single frame
sp_mmv_fxn.m	Primary function	This is one of the two main AMP-MMV functions. This function will implement the parallel message passing schedule version of AMP-MMV

¹ Note that to obtain full-functionality, one must obtain the MATLAB® code that implements T-MSBL, MSBL, and SA-MUSIC, and add the necessary functions for these algorithms to MATLAB®'s path.

Filename	File Type	Description
Functions folder (cont'd)		
sp_mmv_serial_fxn.m	Primary function	This is one of the two main AMP-MMV functions. This function will implement the serial message passing schedule version of AMP-MMV
sp_mmv_wrapper_fxn.m	Primary function	This function acts as a wrapper around the two primary AMP-MMV functions, allowing one to try multiple different configurations (e.g., type of schedule, number of iterations, etc.) on the same problem, until a configuration is found that yields good performance. This was the function that was called when testing AMP-MMV on the numerical experiments described in the AMP-MMV publications
sp_msg_mult_fxn.m	Accessory function	Performs some internal message computations for AMP-MMV
sp_timestep_fxn.m	Accessory function	Performs some internal message computations for AMP-MMV
Tests folder		
ChangingMtx sub-folder		
changing_mtx_test.m	Test script	Executes the time-varying measurement matrix test
produce_plots.m	Accessory script	Produces plots from the .mat files generated by changing_mtx_test.m
signal_gen_fxn_mod.m	Accessory script	Modified signal generation function used to perform the time-varying measurement matrix test
SweepDelta sub-folder		
sweep_delta_test.m	Test script	Executes the performance-vs-N/M test
produce_plots.m	Accessory script	Produces plots from the .mat files generated by sweep_delta_test.m
SweepK sub-folder		
sweep_K_test.m	Test script	Executes the performance-vs-M/K test
produce_plots.m	Accessory script	Produces plots from the .mat files generated by sweep_K_test.m
SweepN sub-folder		
sweep_N_test.m	Test script	Executes the performance-vs-N test
produce_plots.m	Accessory script	Produces plots from the .mat files generated by sweep_N_test.m
SweepSNR sub-folder		
sweep_SNR_test.m	Test script	Executes the performance-vs-SNR test
produce_plots.m	Accessory script	Produces plots from the .mat files generated by sweep_SNR_test.m
SweepT sub-folder		
sweep_T_test.m	Test script	Executes the performance-vs-T test
produce_plots.m	Accessory script	Produces plots from the .mat files generated by sweep_T_test.m
Demo folder		
demo.m	Demo script	Demonstrates how to call the main AMP-MMV functions through a series of several examples