OpenBanana: An open-source Matlab software for Structural Health Monitoring using Bayesian dynamic linear models

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Install OpenBanana

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Data processing

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Version control

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Examples

11.1 Example 1

Simulated data with: one time series, one model class, {[12 31 41]}.

11.2 Example 2

Simulated data with: two time series with dependencies, one model class, {[11 41], [11 31 41]}.

11.3 Example 3

Simulated data with one time series, two model classes, {[21 31 41]} and {[12 31 41]}.

11.4 Example 4

Real data with one time series, one model class, {[12 52 41]}.

Chapter 12

List of functions

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Older versions

Chapter 14

Last changes

This new version now includes the data loader and the data simulation tools. It also includes additionnal tools to export the figures in several format (.tex, .png, .pdf). This version also supports batch processing (loop over input files, see the script demo_1.m).

The model parameters and hidden state estimation functions are (almost) identical compared to the previous GitHub version.

WARNING: the 'data' structure completely changed (cell array instead of simple array) then previous configuration file are NOT readable with this version. You have to initialize a new project using the interactive tool, and then copy/paste manually your previously learned initial hidden states and/or model parameters values.

Note that the sofware will only work properly if you run it from the same folder that contains the file BDLM.m. As usual, always put all the folders in your Matlab path before running the program.

14.1 Data loading

Data loader is accessible via interactive tool (option '0'). See the DataLoader.m function to change data loading option (handle quantity of allowed missing data, handle tolerance between timestamp, etc...).

14.2 Data simulation

Once a project has been created, data simulation is now possible through option '16'. A new project is created.

14.3 Create a configuration file

Option '0' builds a configuration file by default. At any time, option '17' export current model in configuration file format.

14.4 Export figures

The program can now save figures in tex, png and pdf format. See the plotEstimation.m function to change export options. When pdf export is done, the program builds a single pdf file containing all the figures.

14.5 Batch processing

Batch processing allows you to plan a succession of tasks in advance, and let them run during the night (or whenever you want). All the planned command have to be written in ASCII input files.

See demo_1.m for an example of batch processing. demo_1.m sequentially creates 3 simulated dataset.

WARNING: the beta version of this tool uses global variables (named 'isAnswersFromFile' 'AnswersFromFile' 'AnswersIndex'), so always clean your workspace by typing 'clear -global isAnswersFromFile AnswersFromFile AnswersIndex' before and after using batch processing.