Release Notes

Brain Dynamics Toolbox

Version 2018a

Not yet released.

Major overhaul of the graphical user interface and the panel classes. The new control panel includes sliders and push buttons for manipulating parameters. The Initial Conditions can now be automatically evolved on each simulation run so that numerical solutions can be continued while parameters are slowly varied. A time slider has been included for dealing with transients. New panels are included for Bifurcation plots and Auxiliary plots. The way of implementing auxiliary functions has changed. The model-specific *self* function has been deprecated.

Version 2017c

Released 16 Nov 2017.

This release coincides with the first edition of the Handbook of the Brain Dynamics Toolbox. New features of the toolbox include: (i) Improved dialog boxes for editing vector and matrix parameters. (ii) The ability to load previously computed solutions into the GUI at startup. (iii) Improved error handling for systems with missing functions. (iv) The inclusion of the Liley neural-mass model (DFCL2009) from Dafilis, Frascoli Cadusch & Liley (2009). (v) Improved license checking in the Hilbert and Correlation panels. (vi) Improved scrolling in the System-Save dialog box. (vii) Replacement of the BTF2003ODE model (Breakspear, Terry & Friston, 2003) with BTF2003. (viii) Bug fixes to the existing BTF2003SDE and BTF2003DDE models. (iix) Renaming of the MultiplicativeNoise model to KloedenPlaten446.

Requires Matlab 2014b or newer.

Version 2017b

Released 21 June 2017.

Major new features include: (i) Equation parameters and variables can now be directly manipulated from the workspace via the new bdGUI class properties (par, var0, var, lag, t). (ii) The System-Save menu now includes solution variables and display panel outputs. (iii) Three new display panels were added (bdHilbert, bdSurrogate, bdTrapPanel). (iv) Six new models were added (BTF2003ODE, BTF2003DDE, BTF2003SDE,

FRRB2012, FRRB2012b, RFB2017). (v) Scrollbars were added to the Equations panel. (vi) All panels were refined to make their outputs more accessible to the workspace.

Requires Matlab 2014b or newer.

Version 2017a

Released 21 March 2017.

Major new features include: (i) Dynamic loading of GUI plot panels. (ii) Enhanced GUI class properties allow the solver output and panel objects to be accessed directly. (iii) New *sys* struct fromat with more flexible syntax for defining system parameters and variables. (iv) Improved validation of *sys* structs. (v) Time and Phase portraits now support graphic hold. (vi) All example models have been revised.

This version is not backwards compatible with version 2016a. In particular: (i) *sys.pardef, sys.vardef, sys.auxdef, sys.lagdef* were changed from cell arrays to struct arrays; (ii) *sys.gui* was renamed *sys.panels*; (iii) SDE function handles were renamed *sys.sdeF* and *sys.sdeG*; (iv) *bdCorrelationPanel* was renamed *bdCorrPanel*; (v) *bdSpaceTimePortrait* was renamed *bdSpaceTime*; (vi) *odeEuler* was renamed *odeEul*; (vii) *sdeIto* was renamed *sdeEM*; (viii) *sdeStratonovich* was renamed *sdeSH*; (ix) *bdVerify* was renamed *bdSysCheck*; (x) *bdUtils* was renamed *bd*; (xi) The *gui.control* property was replaced by *gui.sys, gui.sol* and *gui.sox*; (xii) The *sys* fields *tspan*, *odesolver*, *odeoption*, *ddesolver* and *ddeoption* are no longer mandatory.

Important message to users migrating from 2016a to 2017a. Scripts written for 2016a will need to be modified to accommodate the changes above. We recommend using *bdSysCheck* when migrating old code. It detects obsolete and invalid *sys* fields.

Requires Matlab 2014b or newer.

Version 2016a

Released 24 Dec 2016.

The first public release of the Brain Dynamics Toolbox.

Requires Matlab 2014b or newer.