

This folder contains all MatLab (MathWorks, Inc.) code from

Durstewitz, D. (2017) Advanced data analysis in neuroscience: Integrating statistical and computational models. Heidelberg: Springer.

All files are sorted into .zip folders according to the chapters within which they are first referred to (implying that some data or code files may be required in later chapters as well). The prefix 'MATL' refers to MatLab wrappers (numbered according to the chapters they appear in) that may call one or several more specific functions, and which produce the figures from the book – please see the book cited above for more details.

If you decide to use some of the code in your own work, I would appreciate citation of the book reference where appropriate.

For all comments, suggestions, notes on bugs or omissions, please email me at daniel.durstewitz@zi-mannheim.de.

The original sources of the models and algorithms implemented are given and discussed in the book above, but I also made an attempt to credit them directly within the MatLab files where appropriate (except for standard textbook methods); please send me an email in cases where you feel I might have missed or overlooked something. I will try to continuously update the files and comments within them.

I am thankful to Drs. Emili Balaguer-Ballester, Georgia Koppe and Hazem Toutounji for contributing MatLab code for kernel-PCA and linear state space models, respectively, and to Drs. Matt Jones, Florian Böhner, Christopher Lapish, Thomas Hahn and Helene Richter, among others, for lending some of their experimental data as examples.

Some of the routines require additional toolboxes or software to run from other authors:

- In MATL6_3.m, the LLE code by Roweis & Saul, 2000, www.cs.nyu.edu/~roweis/lle/code.html, and the MatLab code for Isomap from Tenenbaum et al., 2000, <http://isomap.stanford.edu>, is required.

- In MATL8_2.m, the MVNHMM toolbox by S. Kirshner, www.stat.purdue.edu/~skirshne/MVNHMM, is needed

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