

Matlab Package “EnvelopeMLM”

LAST UPDATED: MARCH 1ST, 2016

1 Introduction

“EnvelopeMLM” (envelope multivariate linear models) is a collection of MATLAB functions for fitting the following envelope models (as well as ordinary least squares and multivariate reduced-rank regression).

- Cook, R. D., Forzani, L. and Zhang, X. (2015), “Envelopes and reduced-rank regression”, *Biometrika*, **102**, 439–456.
- Cook, R. D. and Zhang, X. (2015), “Simultaneous envelopes for multivariate linear regression” *Technometrics*, **57**, 11–25.
- Cook, R. D., Helland, I. S., and Su, Z. (2013). “Envelopes and Partial Least Squares Regression”, *Journal of the Royal Statistical Society: Series B*, **75**, 851–877.
- Cook, R. D., Li, B., and Chiaromonte, F. (2010). “Envelope Models for Parsimonious and Efficient Multivariate Linear Regression (with discussion)”, *Statistica Sinica*, **20**, 927–960.

2 Prerequisites and dependence

- LDR package (<https://sites.google.com/site/lilianaforzani/ldr-package>)
- EnvelopeAlgorithms package (<https://stat.fsu.edu/~henry/Software/>)

3 Download and installation

1. Install MATLAB if it has not been installed on the computer.
2. Download “EnvelopeMLM.zip”
3. Unzip the zipped file and put the folder into the directory you’d like
4. Download and unzip the *LDR* package and the *EnvelopeAlgorithms* package
5. Put the *LDR* package and the *EnvelopeAlgorithms* package as two subfolders inside your “EnvelopeMLM” folder
6. To see an example, go to either “SimultaneousEnvelope_ html.m” or “ReducedRankEnvelope_ html.m” inside the “3_ Tutorial” subfolder

4 Copyright and Warranty

This program is free software; you can re-distribute and/or modify it under the terms of the GNU GPL-v2 (GNU General Public License version 2; <http://www.gnu.org/licenses/old-licenses/gpl-2.0.en.html>). This program is distributed for research purposes, but without any warranty, see the GNU General Public License for more details. There is no warranty (explicit or implicit) attached to the "EnvelopeAlgorithms" software. If you find that it does not work correctly, please compile a description of the error and e-mail to: henry@stat.fsu.edu.