Instructions for the Rank Estimation Command

The command,

R = rank_2D_topo(*t1*, *t2*, *dt*, *SHIFT*)

takes two conjugated column vectors of *N* random times (or any other kind of non-negative observations) *t1* and *t2*, and the time increment, *dt*, and gives as an output the rank of the two-dimensional WT-PDF, which is a matrix, built from these random times:

$R = rank[\phi(t_1, t_2)]$.

For *SHIFT=1*, the first random time in the second vector is moved to the last spot in this vector, i.e. $t2 = [t2(2:N), t2(1)]$. The subroutine is based on singular value decomposition of the second order cumulative 2D WT-PDF, and on noise-analysis of the ratios of successive singular values.

See [1] for further information

At a first step, the command is designed to work in Matlab environment. In the final form, the command will be used through a web-interface that analyzes the signal for web-users. Subscription will be needed for using the web-interface.

Reference

[1] O. Flomenbom, and R. J. Silbey, *Toolbox for analyzing finite two-state trajectories*, Phys. Rev. E **78**, 066105 (2008).

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