



Multivariate refined composite multiscale entropy analysis

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Résumé en anglais Multiscale entropy (MSE) has become a prevailing method to quantify signals complexity. MSE relies on sample entropy. However, MSE may yield imprecise complexity estimation at large scales, because sample entropy does not give precise estimation of entropy when short signals are processed. A refined composite multiscale entropy (RCMSE) has therefore recently been proposed. Nevertheless, RCMSE is for univariate signals only. The simultaneous analysis of multi-channel (multivariate) data often over-performs studies based on univariate signals. We therefore introduce an extension of RCMSE to multivariate data. Applications of multivariate RCMSE to simulated processes reveal its better performances over the standard multivariate MSE.

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