Maximum Likelihood Estimator For Fractal Dimension Of Fractalsignal Plus Noise

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Summary

A maximum likelihood estimator (MLE) is developed for estimating the fractal dimension of single variable fraction Brownian motion (fBm) that was corrupted by additive noise. The procedure involve the construction of signal plus noise model and from the model we derive the likelihood function of the signal plus noise. We then estimate the fractal dimension by maximizing the likelihood function. The MLE was tested on fractal signal plus noise and the result was compared with other fractal dimension estimators such as the Box method which does not handle additive noise. The results shows that the MLE gives better results than the Box method