

The Modelling of Real Time Series Data

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Abstract : We proposed algorithms for: estimation of parameters fBm (volatility and Hurst exponent) and for the approximation of random time series by functional of fBm. We proved the consistency of the estimators, which constitute the above algorithms, and proved the optimal forecast of approximated time series. The adequacy of estimation algorithms, approximation, and forecasting is proved by numerical experiment. During the process of creating software, the system has been created, which is displayed by the hierarchical structure. The comparative analysis of proposed algorithms with the other methods gives evidence of the advantage of approximation method. The results can be used to develop methods for the analysis and modeling of time series describing the economic, physical, biological and other processes.

Keywords : mathematical model, random process, Wiener process, fractional Brownian motion

Conference Title : ICMCMSE 2016 : International Conference on Mathematical and Computational Methods in Science and Engineering

Conference Location : Paris, France

Conference Dates : June 20-21, 2016