A Nonparametric Estimator of Covariance Function for Parameterized Family of Locally Self-Similar Processes

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Abstract

The optimal covariance function estimate, in the sense of mean- square of errors (MSE), for the class of discrete-time locally self-similar processes is accomplished from one observed realization by weighting observations with a kernel function. This paper investigates the MSE optimal kernel function for any parameterized family of locally self- similar processes by solving a system of linear equations. Furthermore, it is shown that the optimal kernel is close to optimal for all members of the family.