

عنوان مقاله:

Estimation of the regression function by Legendre wavelets

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خلاصه مقاله:

We estimate a function f with N independent observations by using Legendre wavelets operational matrices. The function f is approximated with the solution of a special minimization problem. We introduce an explicit expression for the penalty term by Legendre wavelets operational matrices. Also, we obtain a new upper bound on the approximation error of a differentiable function f using the partial sums of the Legendre wavelets. The validity and ability of these operational matrices are shown by several examples of real-world problems with some constraints. An accurate approximation of the regression function is obtained by the Legendre wavelets estimator. Furthermore, the proposed estimation is compared with a non-parametric regression algorithm and the capability of this estimation is illustrated.

کلمات کلیدی:

Legendre wavelet, Operational matrix, Wavelet approximation, Regression function, error analysis

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