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Influence of Parameters of Modeling and Data Distribution for Optimal Condition on Locally Weighted Projection Regression Method

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Abstract : Recent research in neural networks science and neuroscience for modeling complex time series data and statistical learning has focused mostly on learning from high input space and signals. Local linear models are a strong choice for modeling local nonlinearity in data series. Locally weighted projection regression is a flexible and powerful algorithm for nonlinear approximation in high dimensional signal spaces. In this paper, different learning scenario of one and two dimensional data series with different distributions are investigated for simulation and further noise is inputted to data distribution for making different disordered distribution in time series data and for evaluation of algorithm in locality prediction of nonlinearity. Then, the performance of this algorithm is simulated and also when the distribution of data is high or when the number of data is less the sensitivity of this approach to data distribution and influence of important parameter of local validity in this algorithm with different data distribution is explained.

Keywords : local nonlinear estimation, LWPR algorithm, online training method, locally weighted projection regression method
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