Coupled Kernel Ensemble Regression

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Abstract

In this paper, the concept of kernel ensemble regression scheme is enhanced considering the absorption of multiple kernel regressors into a unified ensemble regression framework simultaneously and coupled by minimizing total loss of ensembles in Reproducing kernel Hilbert Space. By this, one kernel regressor with more accurate fitting precession on data can automatically obtain bigger weight, which leads to a better overall ensemble performance. Comparing several single and ensemble regression methods such as Gradient Boosting, Support Vector Regression, Ridge Regression, Tree Regression and Random Forest with our proposed method, the experimental results of the proposed model indicates the highest performances in terms with regression and classification tasks using several UCI dataset.

References

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Keywords

Ensemble regression, Multi-kernel learning, Kernel regression