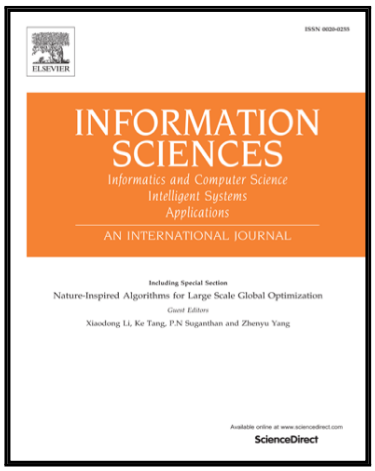

Nature-inspired metaheuristic optimization in least squares support vector regression for obtaining bridge scour information

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Highlights

- A novel model is proposed for enhancing prediction accuracy in engineering design.
- A nature-inspired metaheuristic information model is constructed for use in global optimization.
- The parameters of LS-SVR are optimized using a firefly algorithm and chaotic adaptive intelligence.
- The proposed model outperforms other predictive methods through cross-fold validation and hypothesis testing.
- The approach can be effectively applied to engineering substructures.