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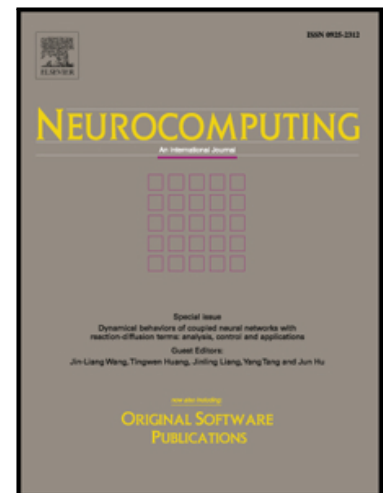
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# Constructing Prediction Intervals for Landslide Displacement using Bootstrapping Random Vector Functional Link Networks Selective Ensemble with Neural Networks Switched

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## Abstract

This paper proposes a new hybrid approach for constructing high-quality prediction intervals (PIs) for landslide displacements. In the first stage, we develop an improved method to optimize bootstrap-based PIs. The improved method uses part of the selected neural networks (NNs) rather than all of the NNs to construct PIs. To guarantee computational efficiency, random vector functional link networks (RVFLNs) are adopted as predictors. In the second stage, to handle the mutational points in landslide displacement prediction, the improved method is integrated with a NN switched method. The effectiveness of the proposed hybrid method has been validated through comprehensive cases using two benchmark data sets and three real-world landslide data sets.

*Keywords:* prediction intervals; random vector functional link network; landslide displacement prediction; selective ensemble; switched prediction

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