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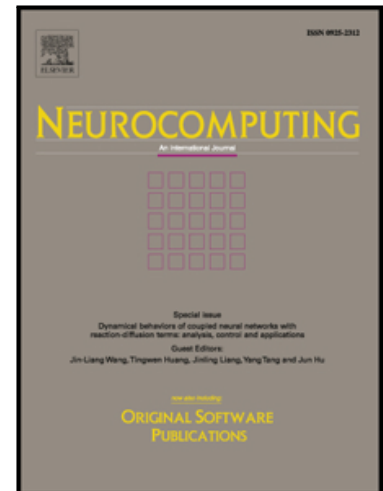
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Ensemble based reactivated regularization extreme learning machine for classification

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Abstract

Ensemble trick has been widely used in extreme learning machine (ELM), and most paradigms concern about the training phase with expectation of improving their generalization ability. Unlike traditional strategies, this paper pays more attention to the prediction phase and proposes a discriminatory approach called ensemble based reactivated regularization ELM (ER²-ELM). In short, the novel literature consists of two interrelated steps where the probability density estimation is first conducted to show the degree of difficulty of identifying an instance, and then a random factor is adopted to determine whether the ELM base learner is sequentially reactivated. As such, instances easily to identify cost less computing burden, while the vague ones are taken carefully consideration. Compared with other ensemble methods, the prediction computation overhead decreases. In the end, a number of examples, including UCI benchmark datasets, handwritten digits, object detection, etc, are employed so as to illustrate its state-of-the-art performance.

Keywords: Ensemble; Extreme learning machine; Reactivated; Majority voting

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