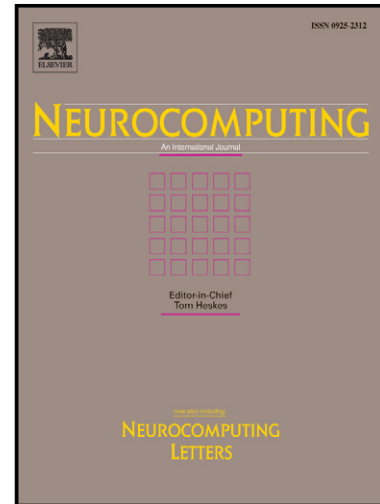


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A proximal classifier with positive and negative local regions

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Abstract

Local learning has been successfully applied in pattern recognition due to its powerful discriminating ability. The conventional local learning usually divides the feature space into a number of homogeneous local regions. By contrast, we introduce a new local strategy, which divides the feature space into two kinds of regions: positive local regions and negative local regions. Based on this strategy, a local proximal classifier (LPC) is constructed. Furthermore, to avoid overfitting, we propose a local proximal classifier with global regularizer (GLPC) by improving the LPC so that the local classifiers are smoothly glued together. In GLPC, the local correlation is modeled to capture the sample distribution among the local region, resulting in increasing the discriminating ability. Experimental results show the effectiveness of our classifiers in both classification accuracy and computation time.

Keywords: Pattern recognition, Local Learning, Positive and negative local regions, Proximal classifier, Global regularization.

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