

论文与报告

## 基于最近邻规则的神经网络训练样本选择方法

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摘要

训练集中通常含有大量相似的样本, 会增加网络的训练时间并影响学习效果. 针对这一问题, 本文将最近邻法 (Nearest neighbor, NN) 简单快捷和神经网络高精度的特点相结合, 提出了一种基于最近邻规则的神经网络训练样本选择方法. 该方法考虑到训练样本对于神经网络性能的重要影响, 利用改进的最近邻规则选择最具有代表性的样本作为神经网络的训练集. 实验结果表明, 所提出的方法能够有效去除训练集中的冗余信息, 以少量的样本获得更高的识别率, 减少网络的训练时间, 增强网络的泛化能力.

关键词 [神经网络](#) [样本选择](#) [最近邻规则](#) [手写字符识别](#)

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## Training Sample Selection Method for Neural Networks Based on Nearest Neighbor Rule

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Abstract

Training sets usually contain large amount of similar samples, resulting in a longer training time and poor performance. To deal with this problem, a training sample selection method for neural networks based on nearest neighbor (NN) rule was proposed. Considering the significance of train sets for the performance of neural networks, the proposed method combined simplicity of nearest neighbor (NN) with high accuracy of neural networks and utilized the modified NN rule to select the most representative samples as a new training set. Experimental results show that the presented method can eliminate the redundancy, achieve higher recognition accuracy and better generalization ability with fewer samples and less training time.

Key words [Neural network](#) [sample selection](#) [NN rule](#) [handwritten character recognition](#)

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