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An Adjusted Network Information Criterion for Model Selection in Statistical Neural Network Models

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Abstract : In selecting a Statistical Neural Network model, the Network Information Criterion (NIC) has been observed to be sample biased, because it does not account for sample sizes. The selection of a model from a set of fitted candidate models requires objective data-driven criteria. In this paper, we derived and investigated the Adjusted Network Information Criterion (ANIC), based on Kullback's symmetric divergence, which has been designed to be an asymptotically unbiased estimator of the expected Kullback-Leibler information of a fitted model. The analyses show that on a general note, the ANIC improves model selection in more sample sizes than does the NIC.

Keywords : statistical neural network, network information criterion, adjusted network, information criterion, transfer function

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