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Toward Image Understanding by Deep Learning and Influential Scores

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Abstract

Explainable AI (XAI) is considered highly important due to its ability to explain the high predictive accuracy that is inherent in AI models. Images commonly have background characteristics and contain noise, which may be mistaken for prediction criteria. Consequently, explaining and improving the prediction ability of a deep learning model is a challenging task requiring an innovative approach. This study proposes the simple and feasible approach by influential score (I-Score) for deep learning to eliminate the effect of background information and noise on image classification. Hence, a reliable prediction model can be obtained from foreground features via deep learning. The performance is evaluated by simulation and empirical studies reported in this study.

Keyword: Deep Learning, Influential Score (I-Score) , Image Understanding, Explainable AI (XAI)