A Novel End-to-End Classifier Using Domain Transferred Deep Convolutional Neural Networks for Biomedical Images

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Highlights

- An automatic end-to-end classifier for all types of biomedical images is proposed based on deep CNN with a highly stable and precise accuracy rate confirmed on public biomedical datasets.
- Transfer learning technology used in our algorithm can lead to a significant increase in performance, and in particular, it can largely reduce the feature learning time and boost the classification ability for biomedical image applications.
- Our work shows how to train a domain transferred deep convolutional neural network (DT-DCNN) for biomedical image classification with a high precision, which could lead to a promising research direction.
- By overcoming the shortage of training samples labeled by experts in some public biomedical image datasets, we provide a generic and dataset-independent solution in biomedical classification applications with a simple data augmentation method, which is based on the idea of classification observation.