

画像認識における大規模分散深層畳み込みニューラルネットワーク
Large-scale Parallel Deep Convolutional Neural Network on Image
Classification

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Deep neural network shows great potential on visual recognition tasks recently, though it is also considered difficult to tune its parameters and have high training cost. This research focused on analysis of different architectures and their influence to the learning process of deep convolutional network. In this research we also propose a novel pooling method to take advantages of the contrastive information in images. This assumption is inspired by a characteristic of the receptive field of neurons in animal's retina. Combined with optimized local network structure, we proposed an out-performing scalable deep convolutional neural network for image classification and object recognition tasks. According to our conclusion, extracting contrastive information could improve the accuracy, and reduce the computing cost. Our experiment is designed on large image data set, and implemented with high-performance deep learning library. We achieved the-state-of-art results without increasing training cost by multi-cropping the training and testing images.

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