

Evaluation on Momentum Contrastive Learning with 3D Local Parts

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Self-supervised learning speeds up the representation learning process in lots of computer vision tasks. It also saves time and labor of labelling the dataset. Momentum Contrast (MoCo) is one of efficient contrastive learning methods, which has achieved positive results on different downstream vision tasks with self-supervised learning. However, its performance on extracting 3D local parts representations remains unknown. In our study, we make modifications on the MoCo model to learn the local features of ShapeNet, and design data augmentation methods and local clustering method to randomly generate local clusters. To evaluate proposed method, the evaluation experiments on different scales of local clusters and data augmentation methods with our method are performed, then we perform the 3D object classification downstream task on the local parts with pretrained model. From the results, the modified MoCo model shows great performance on extracting local representations and make the classification downstream task faster with pretrained model.

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