

Self-Supervised Learning via Autoencoder

WHEN

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WHERE

Jones Laboratory, Room 304

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It is always a hard task to obtain high-quality labels for real-life machine learning tasks. Self-supervised learning methods are emerging rapidly in recent years to solve this problem by training representations from unlabeled data. An effective approach is to force the views of the same instance to have similar representations and the different instances to have distinct representations. Following this notion, I proposed a new method utilizing a symmetric structure and an autoencoder. This method simultaneously optimizes the reconstruction loss from the autoencoder and the similarity loss between the representations of the two augmented views of the same image, to get non-trivial embeddings of the images. It does not require negative pairs as the contrastive methods and does not use advanced mechanisms. Empirical evaluation shows that this method can achieve 67.3% accuracy in the linear classification downstream task on CIFAR-10. The sensitivity analyses of the proportion of the two losses and the complexity of the decoder are also performed.

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