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Contribution - Pretrained Features are Effective for Unsupervised Out-of-Distribution Detection in Medical Images

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Abstract

Recent work by Rippel et al. (2020) shows the effectiveness of pretrained features for anomaly detection on natural images. Despite impressive results, they expect worse performance on medical images. We show that their method works very well on medical scans from two domains: chest x-rays and OCT images. Furthermore, we consider both semantic and non-semantic shift, in the form of unseen pathologies and image corruptions, respectively. It achieves state-of-the-art results on all three cases evaluated, using the smallest EfficientNet, despite relying on features obtained from natural images. Additionally, we investigate the effect of model size, and find that in contrast to the results on natural images, bigger networks do not necessarily increase performance.