
Different Pretrained Method Effect on Image Classification

—— Multilabel Chest X-ray Image Classification ——

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Motivation

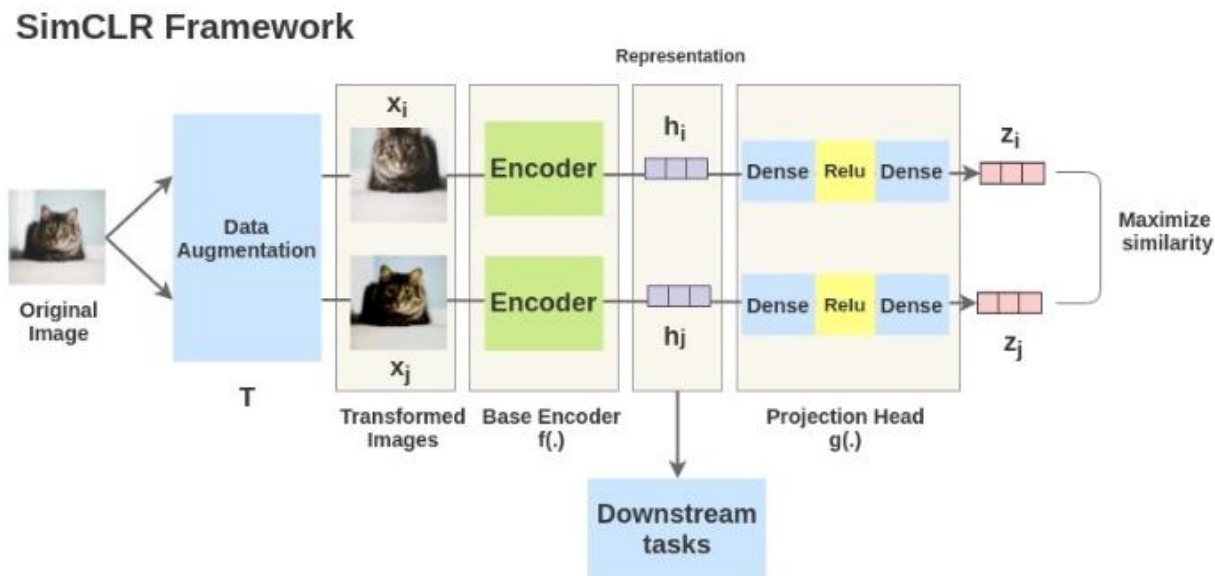
- Big Self-Supervised Models Advance Medical Image Classification

- pretrain methods

- SimCLR
- Autoencoder
- K-means

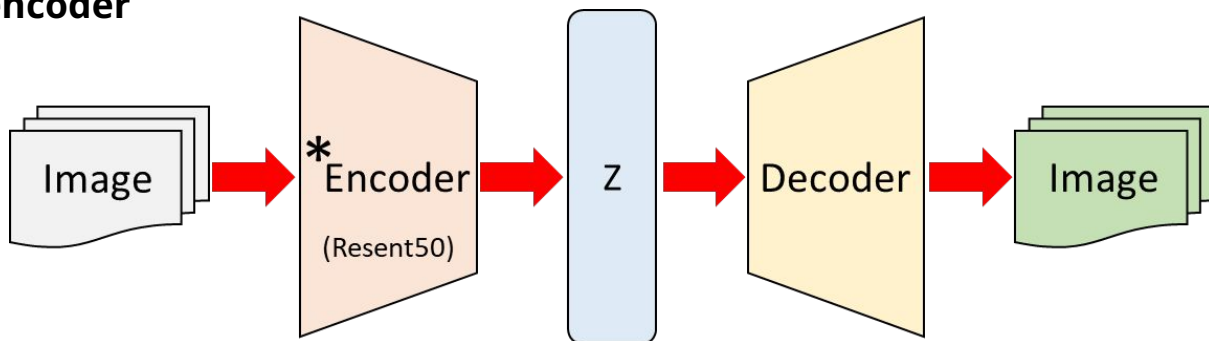
- pretrain datasets

- STL10
- Covid-19 chest X-ray (target dataset)

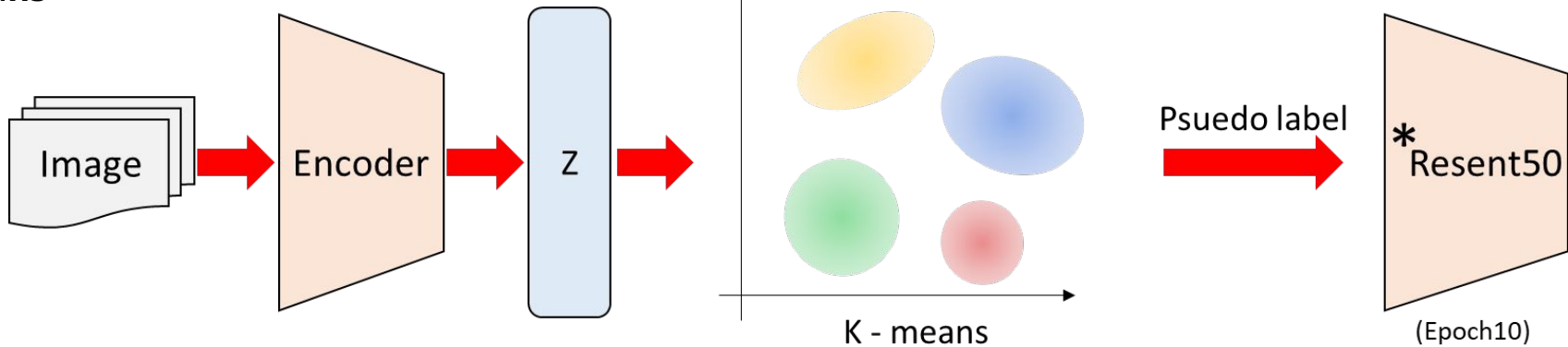


Method

Autoencoder



K-means

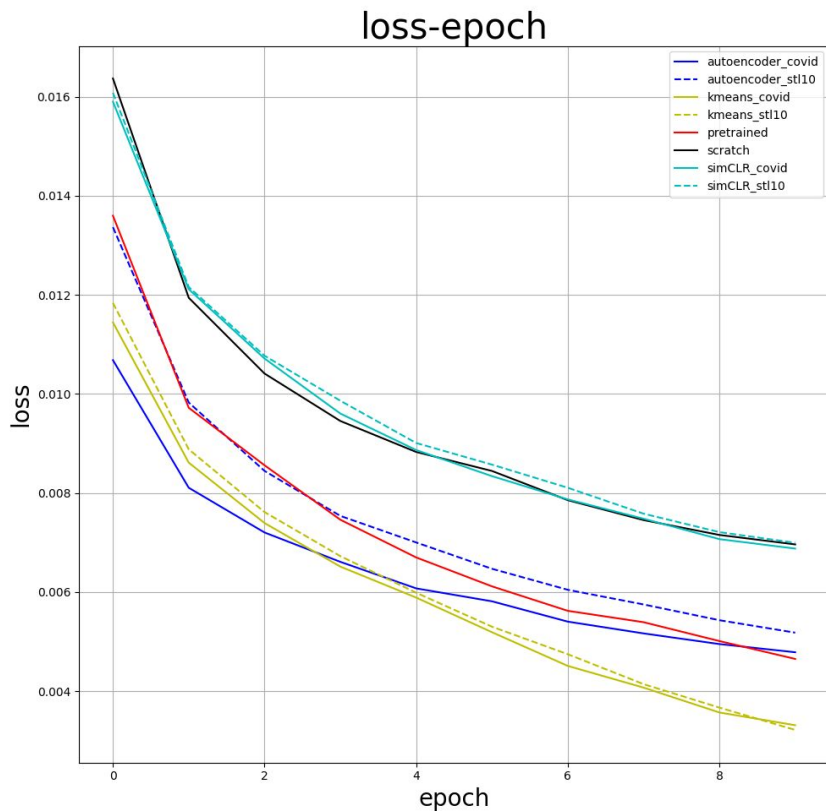


Experimental Results

- Test dataset accuracy:

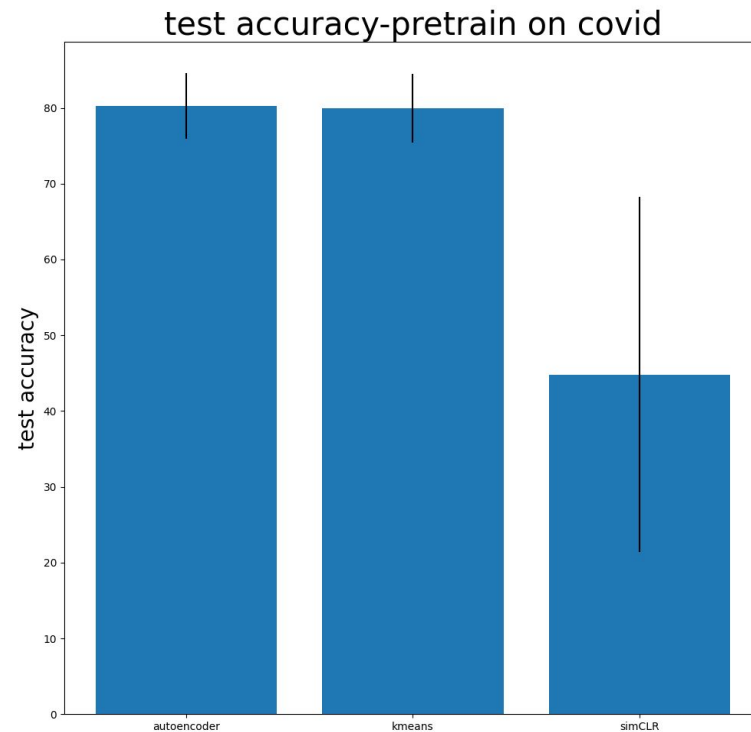
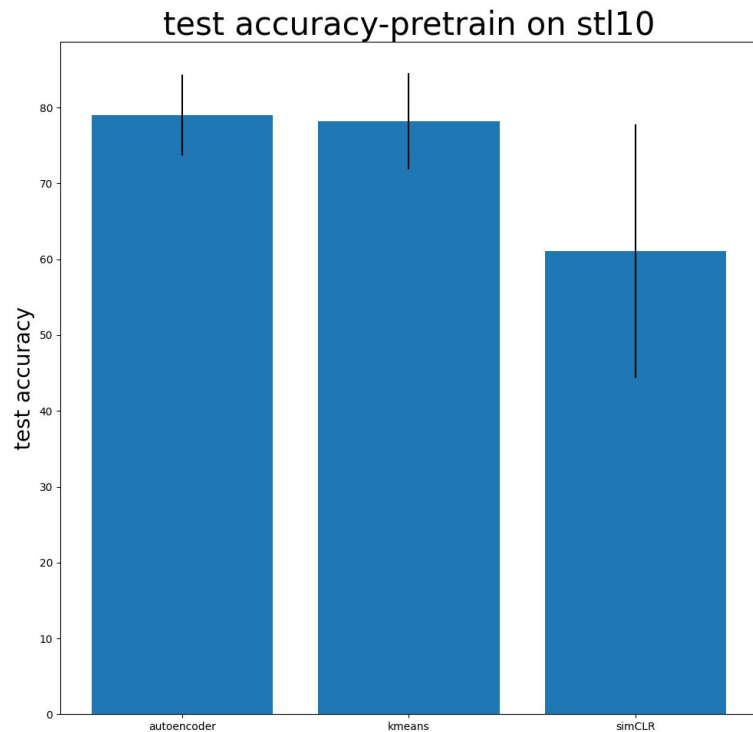
	pre-trained dataset	
	STL10	Covid-19 X-ray
Pre-trained (pytorch)	0.888	
Scratch	0.807	
SimCLR	0.798	0.839
Autoencoder	0.840	0.838
K-means	0.856	0.846

Experimental Results



- **SimCLR** has similar performance to training from **scratch**
- **Autoencoder** has similar performance to training from pytorch **pretrained**
- **K-means** has best performance

Experimental Results



Conclusions

- K-means and Autoencoder benefit to this classification task, SimCLR has no explicit improvement in this case
- Wider dataset diversity can enhance the performance
- Observing from SimCLR case, wider data diversity can also increase the network stability