

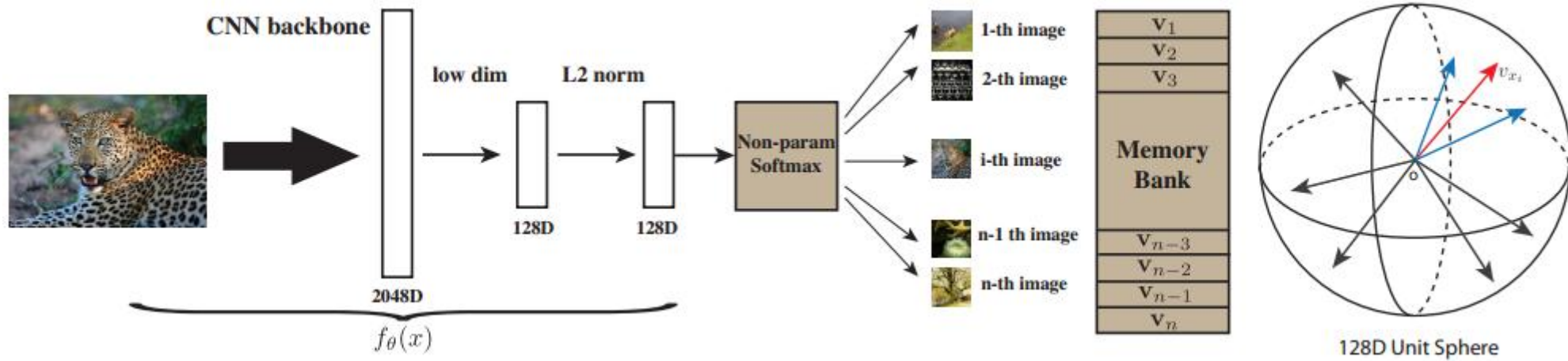
对比学习

Contrastive learning

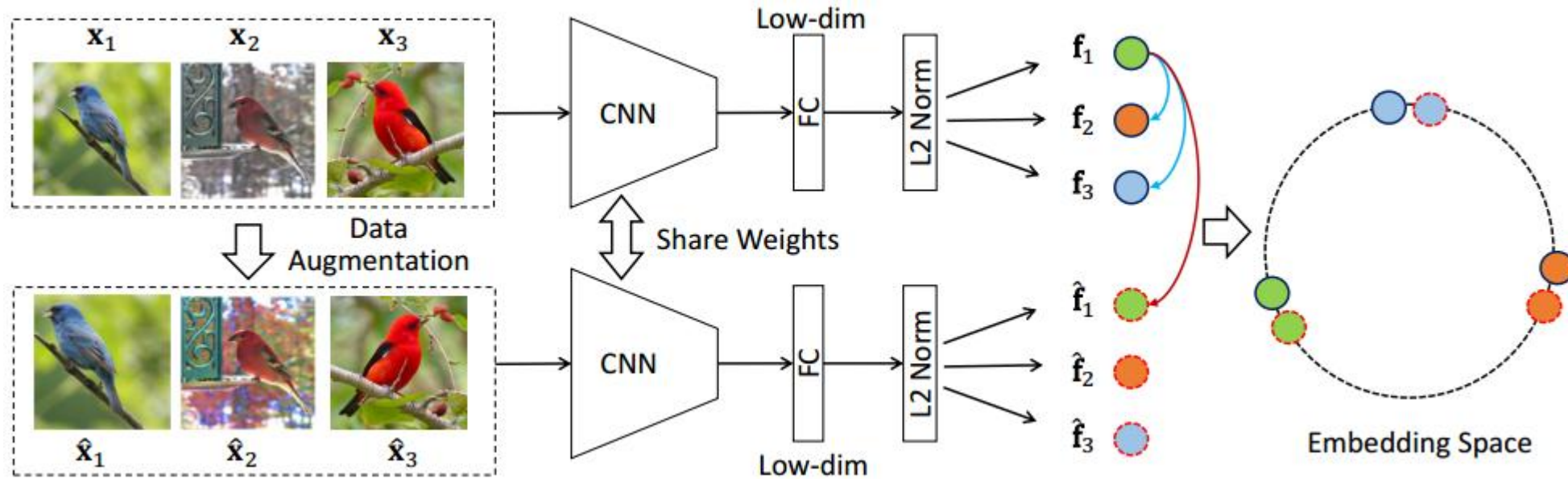
概念

- **目标**是将相似样本的表示拉近，不相似样本的表示拉远;
- 使用对比损失或其变种(**InfoNCE**)来优化样本间的相似性;
- 构建**正负样本对**，使模型能够学习到数据的**判别性**特征;
- **正样本对**：相同样本的增强版本;
- **负样本对**：不同样本之间的组合;
- 在一个嵌入空间中，学习到的特征满足**语义相似的样本靠近，语义不同的样本远离**的性质;

Inst+Disc (2018)



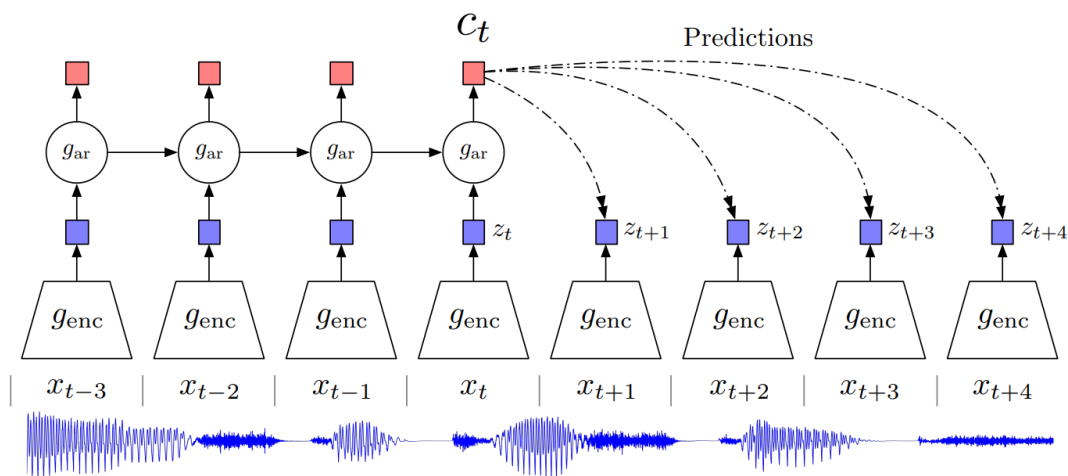
InvaSpread (2019)



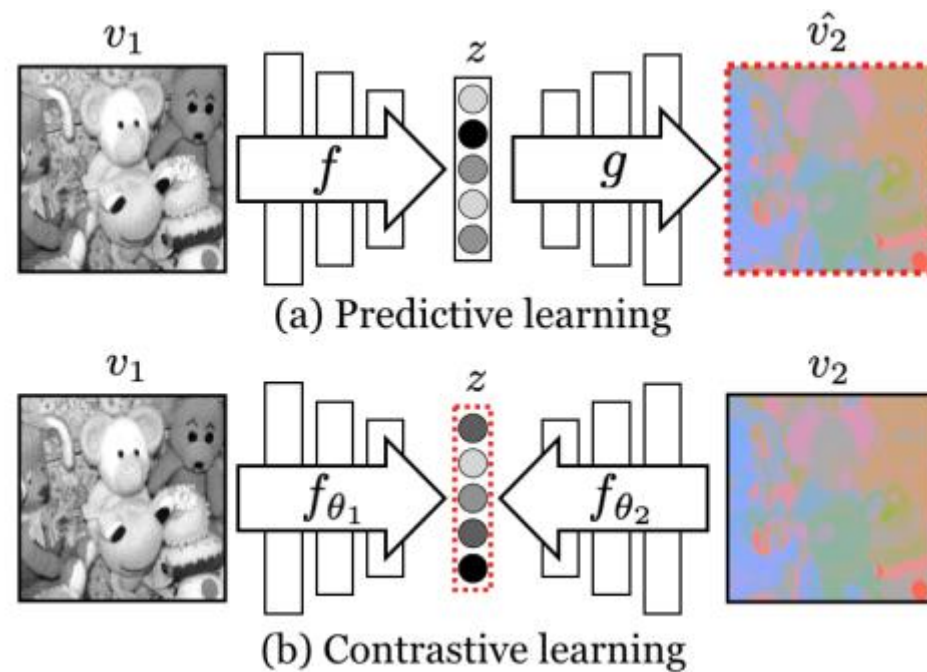
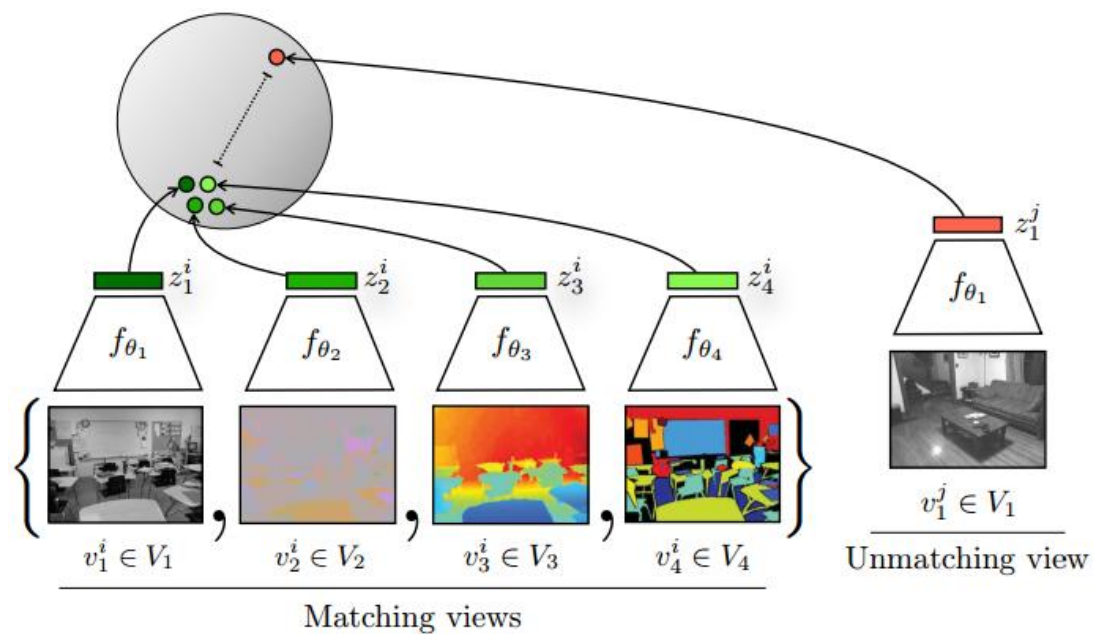
Unsupervised Embedding Learning via Invariant and Spreading Instance Feature

CPC (2019)

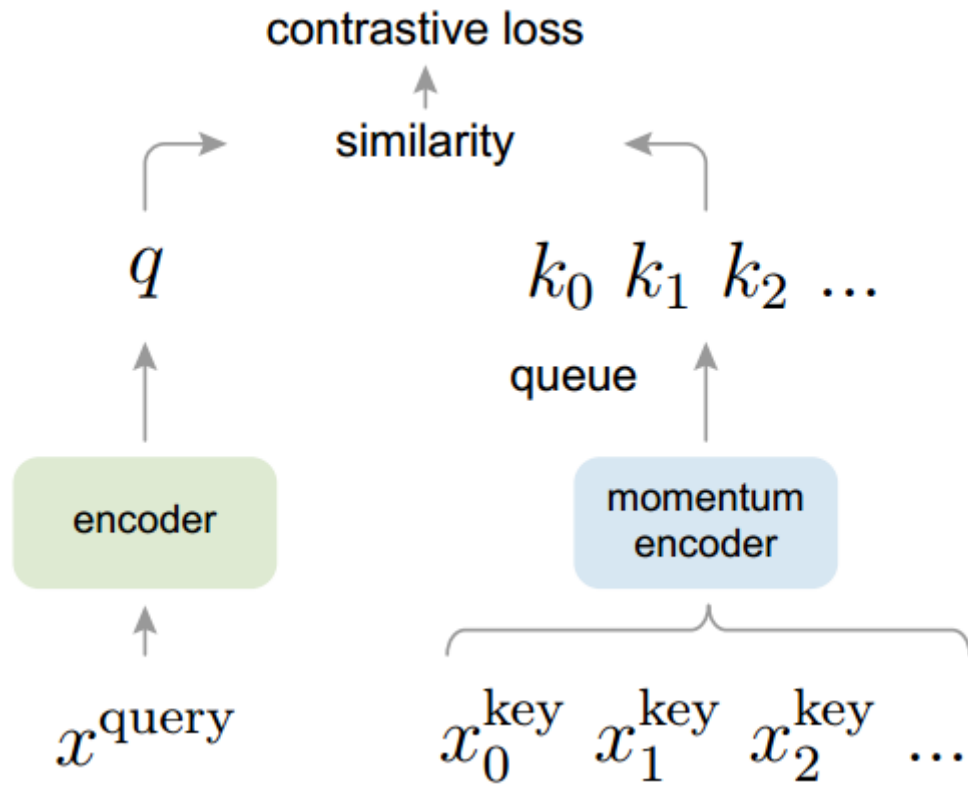
对比预测编码



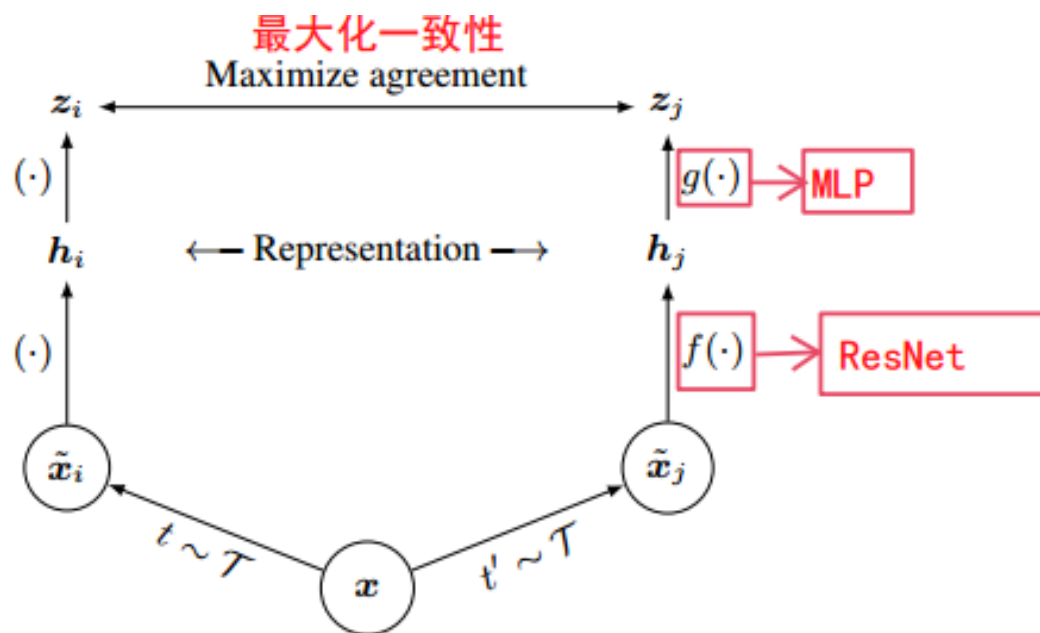
CMC (2020)



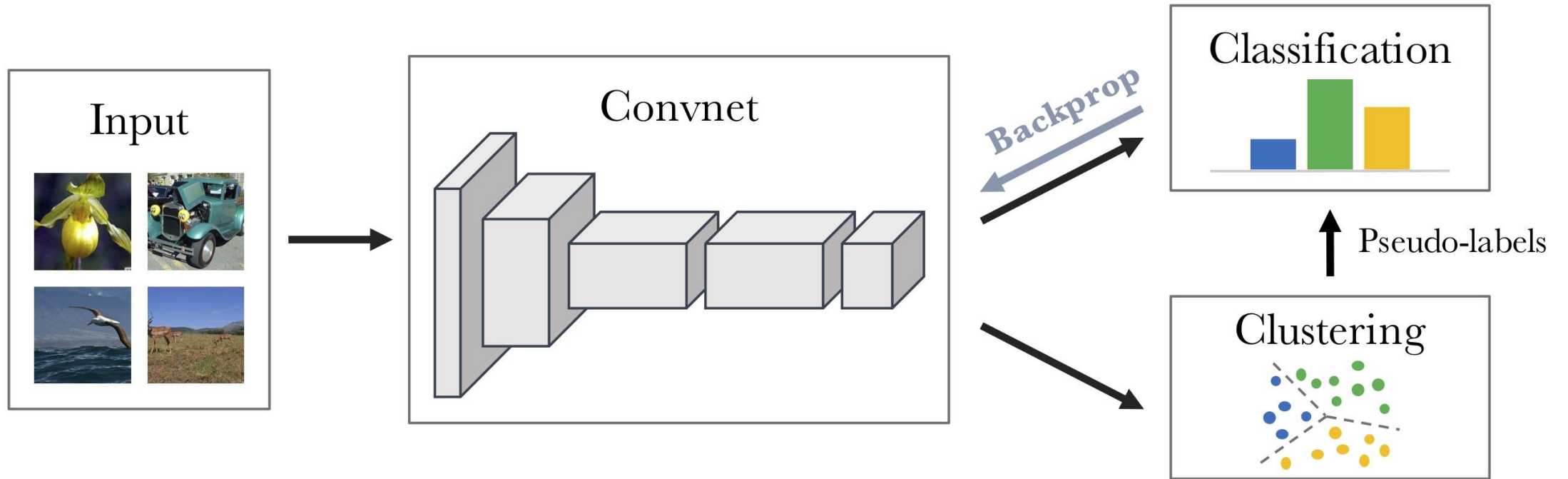
MOCO (2020)



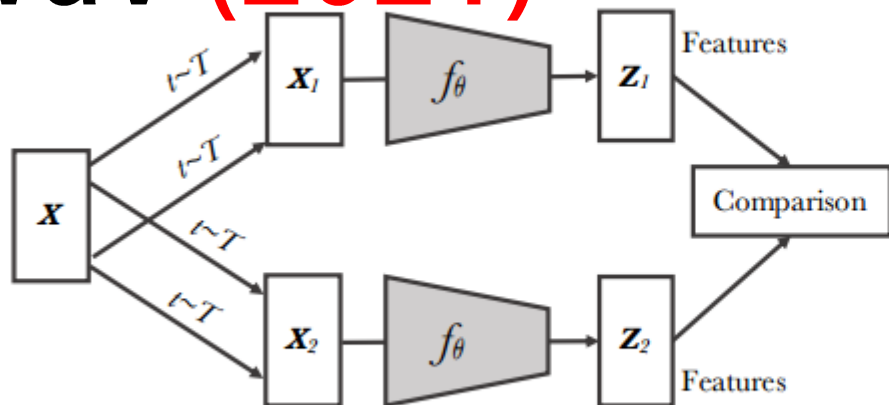
SimCLR (2020)



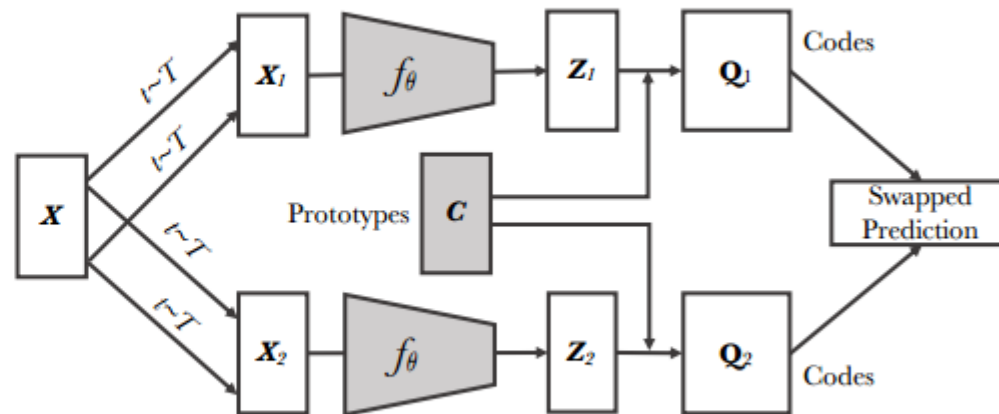
Deep cluster (2018)



SWaV (2021)



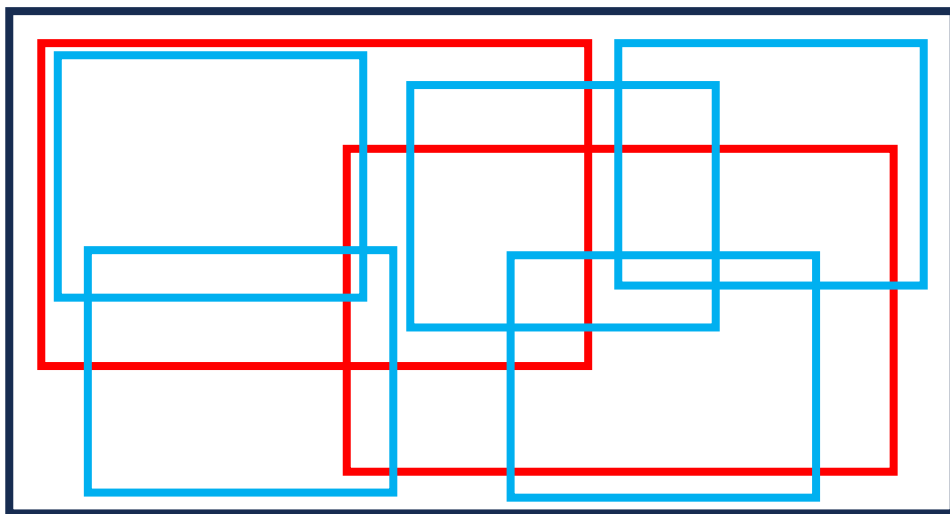
Contrastive instance learning



Swapping Assignments between Views (Ours)

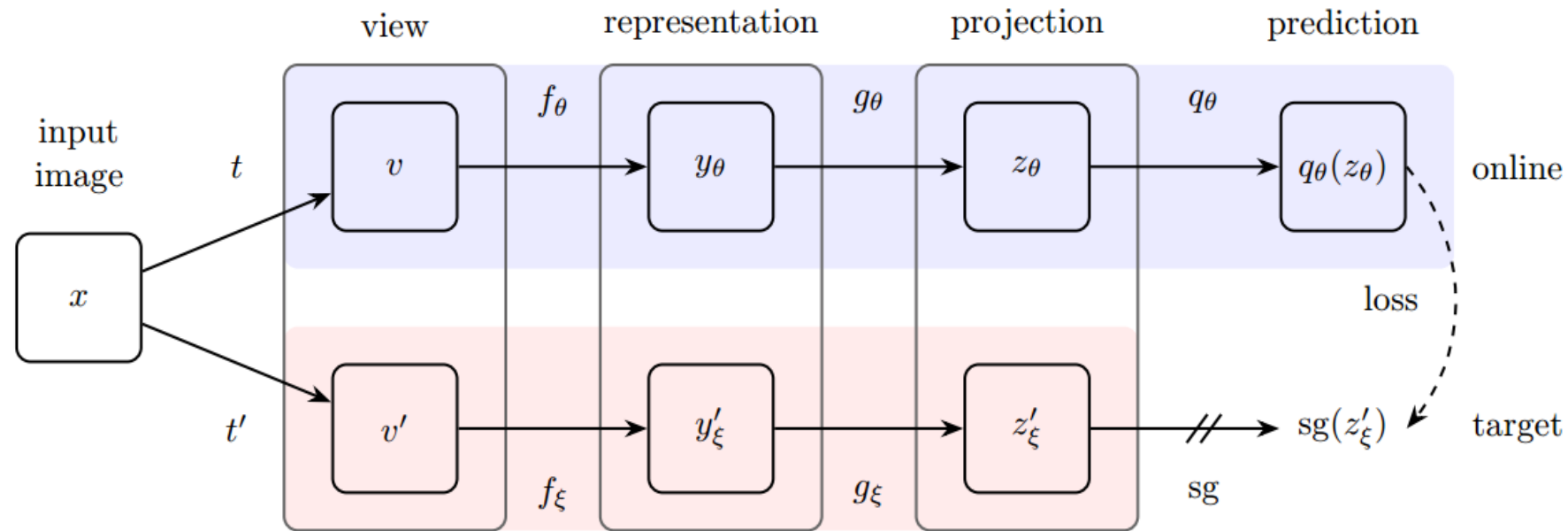
multi-crop

大-视图
小-视图

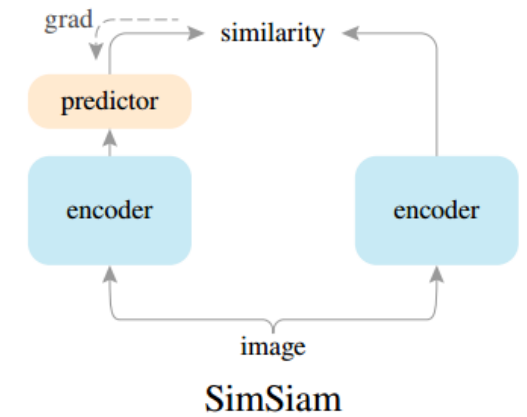
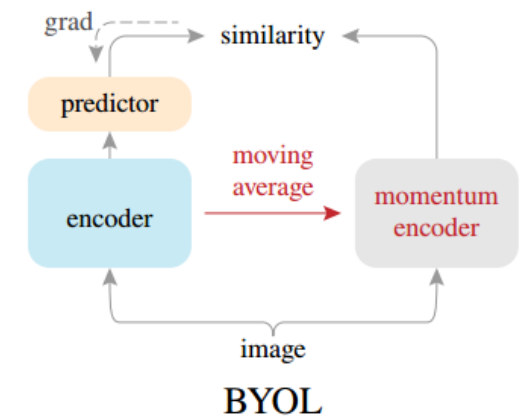
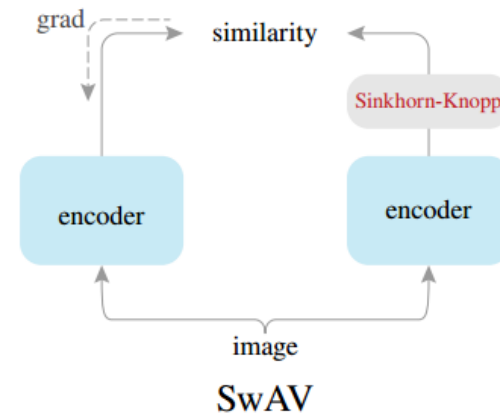
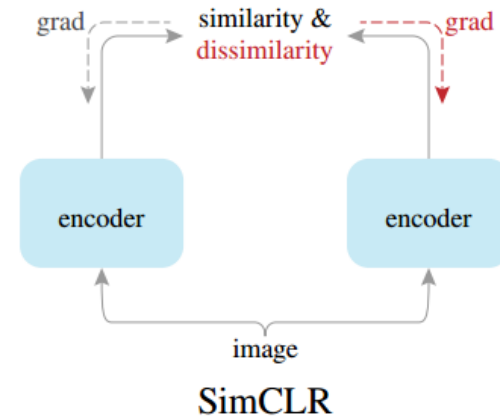
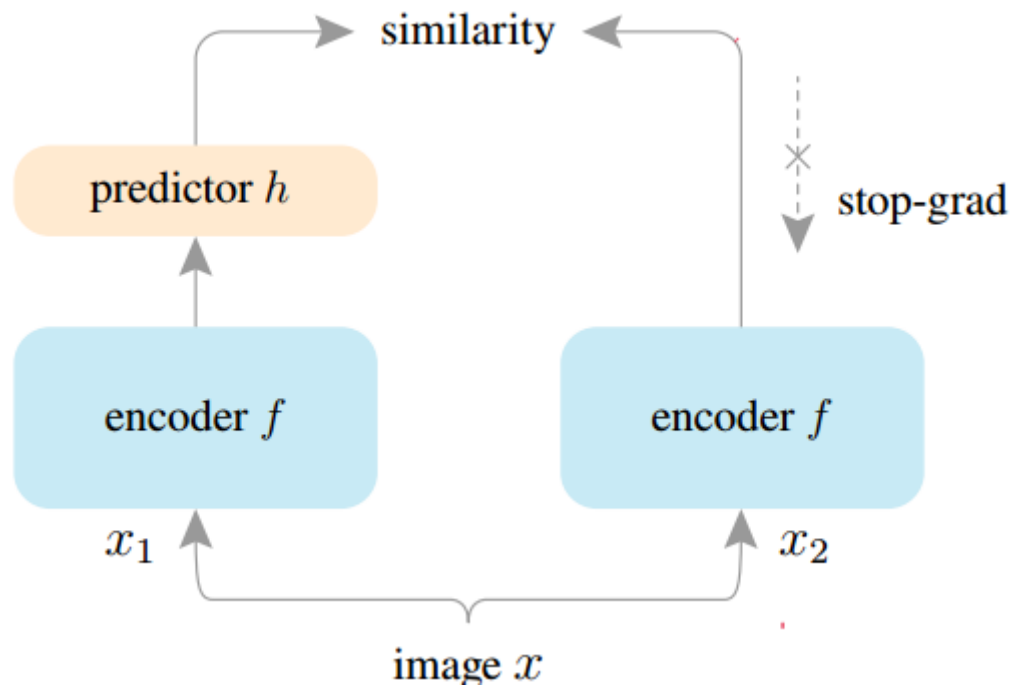


Unsupervised Learning of Visual Features by Contrasting Cluster Assignments

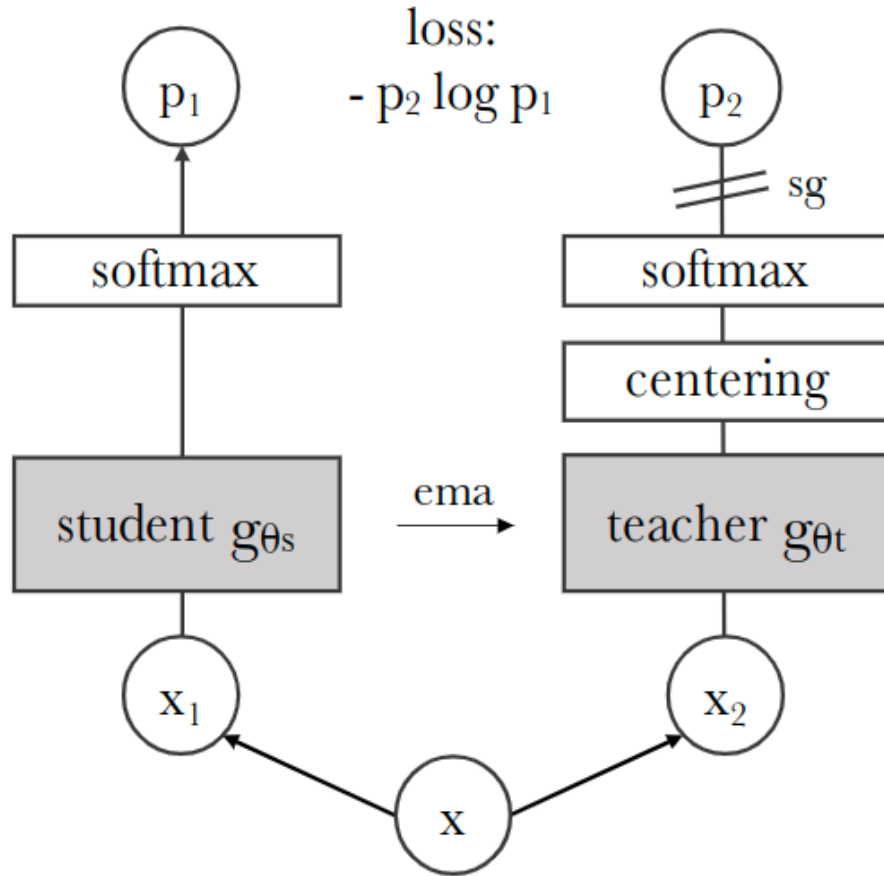
BYOL (2020)



SimSiam (2020)

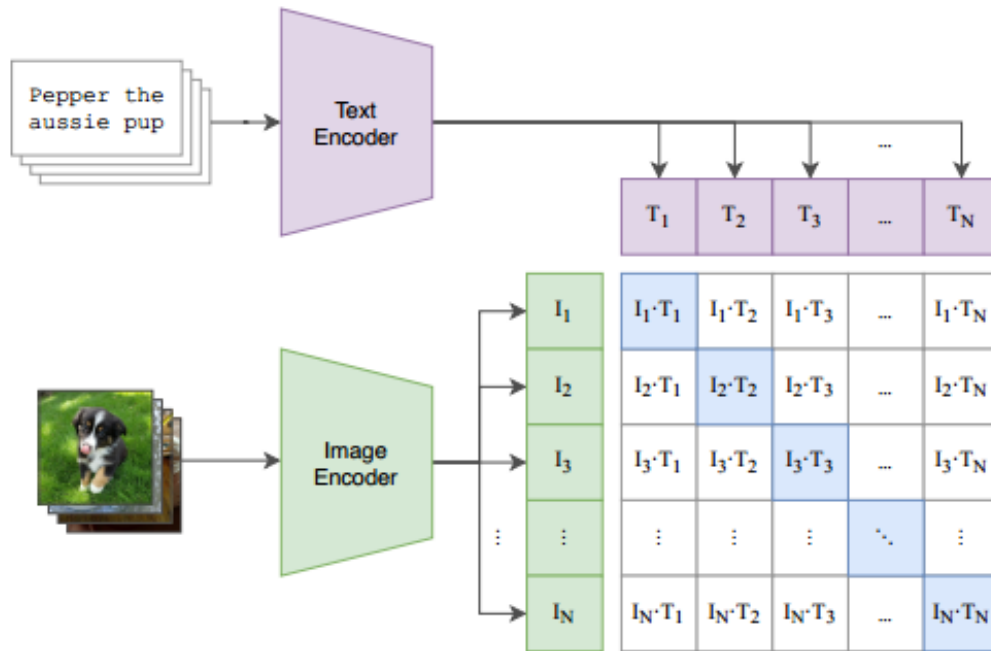


DINO (2021)

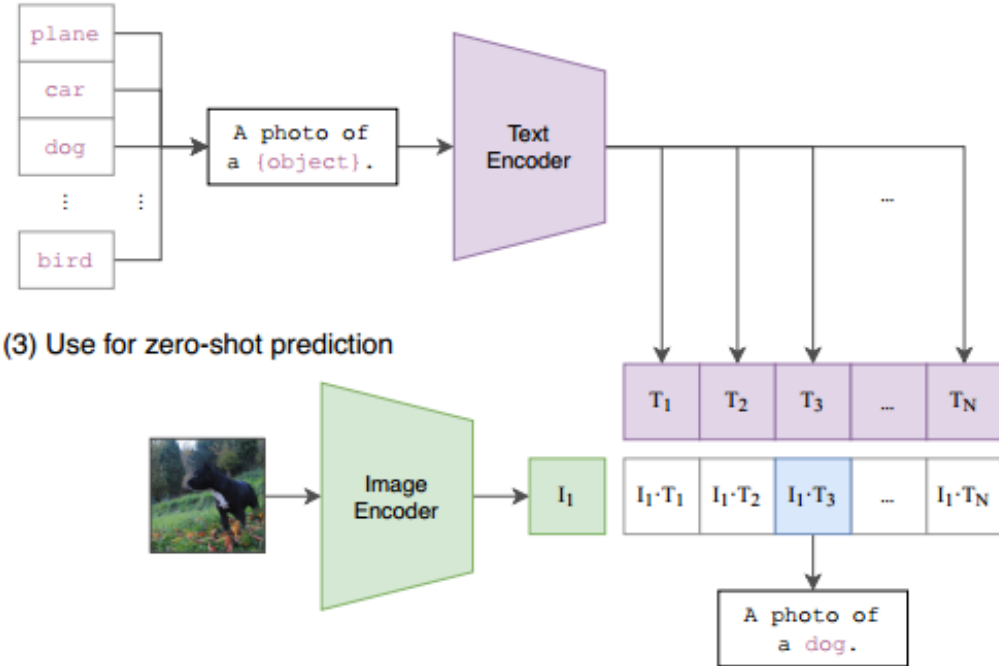


CLIP (2021)

(1) Contrastive pre-training



(2) Create dataset classifier from label text



(3) Use for zero-shot prediction

参考链接

- [对比学习论文综述【李沐:论文精读】](#)
- [对比学习经典模型 - 知乎](#)