Image Contrastive Learning

Given a batch of B images, image contrastive learning (e.g., InfoNCE) aims to bring positive pairs (z_i^I, z_i^{I+}) close and push negative keys $z_j^I, j \neq i$ away.

Loss Formulation

$$\mathcal{L}_I^{\text{InfoNCE}} = -\frac{1}{B}\sum_{i=1}^{B} \log \frac{\exp(z_i^I \cdot z_{i+}^I/\tau)}{\sum_{j=1,j\neq i}^{B+1} \exp(z_i^I \cdot z_j^I/\tau)}$$