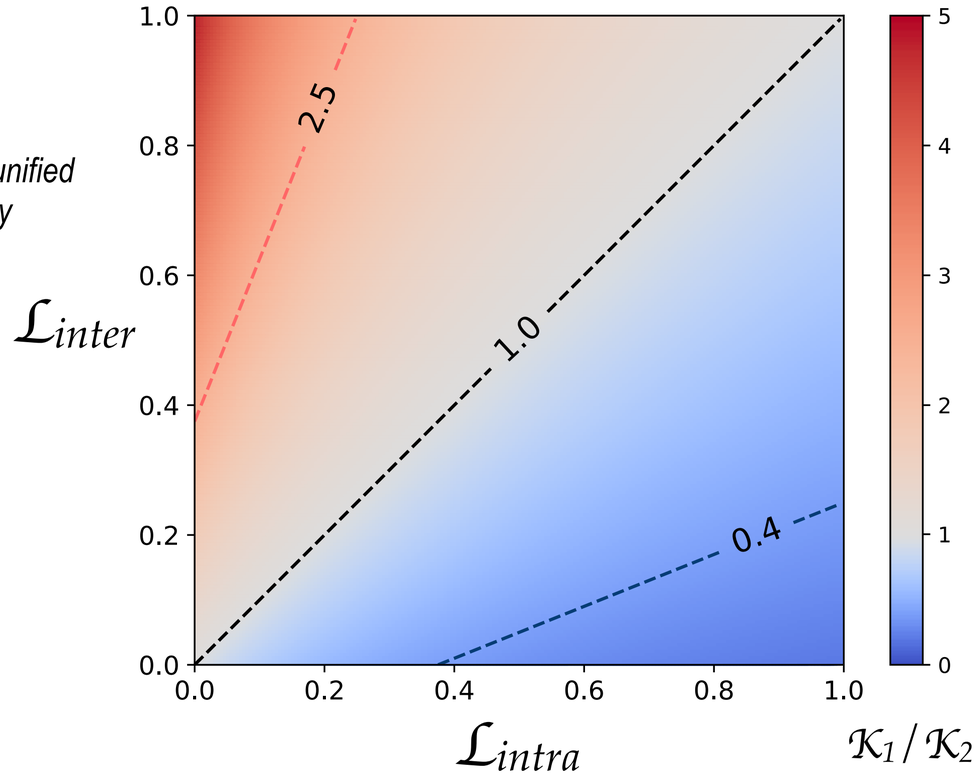
Adaptive Loss Weight v1

Problem: Stuck in well converged $\mathcal{L}_{intra}$

Proposal: $\mathcal{L}_{emb} = [\hat{\mathcal{L}}_{inter} + m] \cdot \mathcal{L}_{inter} + [\hat{\mathcal{L}}_{intra} + m] \cdot \mathcal{L}_{intra} \qquad (m := 0.25)$

Inspired by:

Y. Sun et al. *Circle loss: A unified perspective of pair similarity optimization.* CVPR 2020.



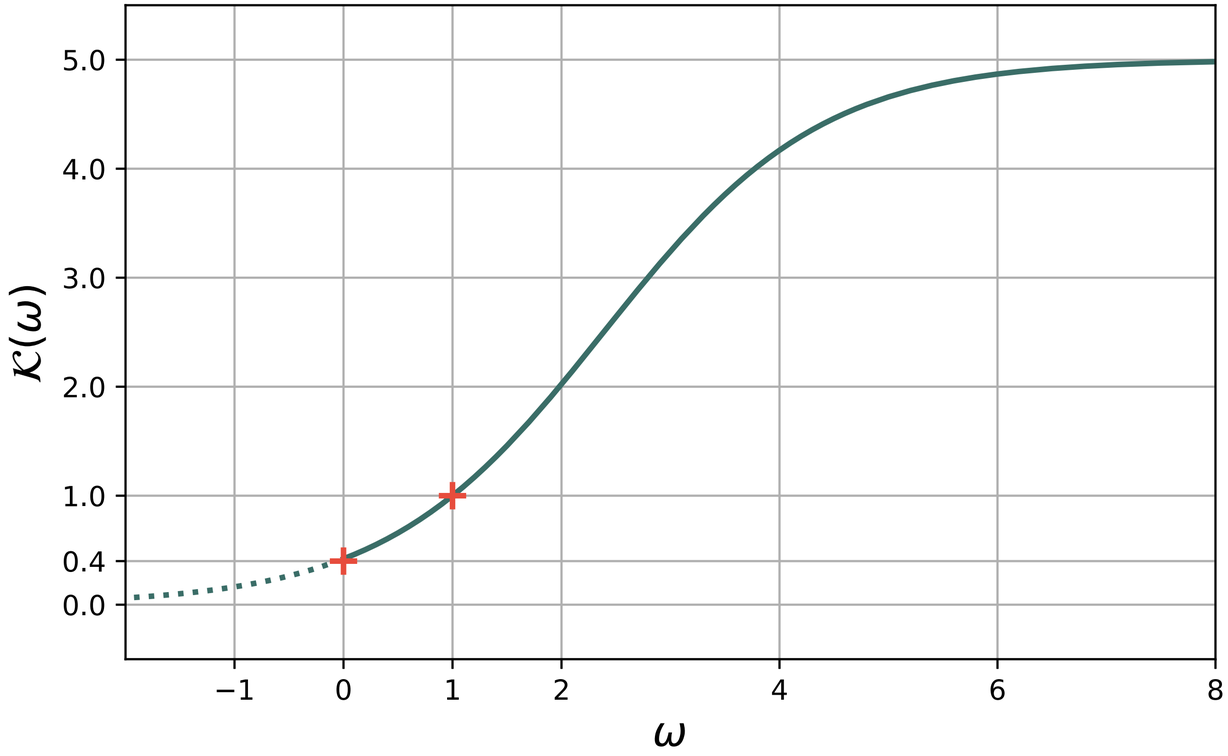
$\mathcal{K}_1 / \mathcal{K}_2$ *(ratio of weights)*

$= [\hat{\mathcal{L}}_{inter} + 0.25] / [\hat{\mathcal{L}}_{intra} + 0.25]$

Adaptive Loss Weight v2

Problem: Double effects of deceleration: exponential decay + weight

Proposal: $$\mathscr{L}_{emb} = \mathscr{K}\left(\frac{\hat{\mathscr{L}}_{inter}}{\hat{\mathscr{L}}_{intra}}\right) \cdot \mathscr{L}_{inter} + \mathscr{K}\left(\frac{\hat{\mathscr{L}}_{intra}}{\hat{\mathscr{L}}_{inter}}\right) \cdot \mathscr{L}_{intra}$$



$$\mathscr{K}(\omega) = \frac{5}{1 + 4 \cdot \exp(1 - \omega)}$$

$$\mathscr{K}(0) = 0.4$$

$$\mathscr{K}(1) = 1$$

$$\mathscr{K}(+\infty) = 5$$