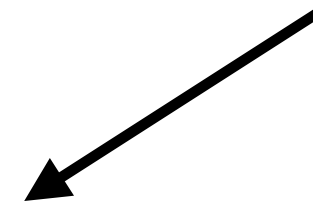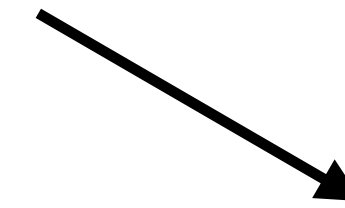$$\mathscr{L}_{emb} = \mathscr{L}_{inter} + \mathscr{L}_{intra}$$

To repulse *between-instance* embeddings away   To attract *within-instance* embeddings together

Yuli Wu
Instance Segmentation of Dense Objects via Deep Pixel Embedding

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$$\mathcal{L}_{inter} = \frac{1}{C(C-1)} \sum_{\substack{c_A=1 \\ c_A \neq c_B}}^{C} \sum_{c_B=1}^{C} \left[\|\mu_{c_A} - \mu_{c_B}\| - 2\delta_1 \right]_+^2$$
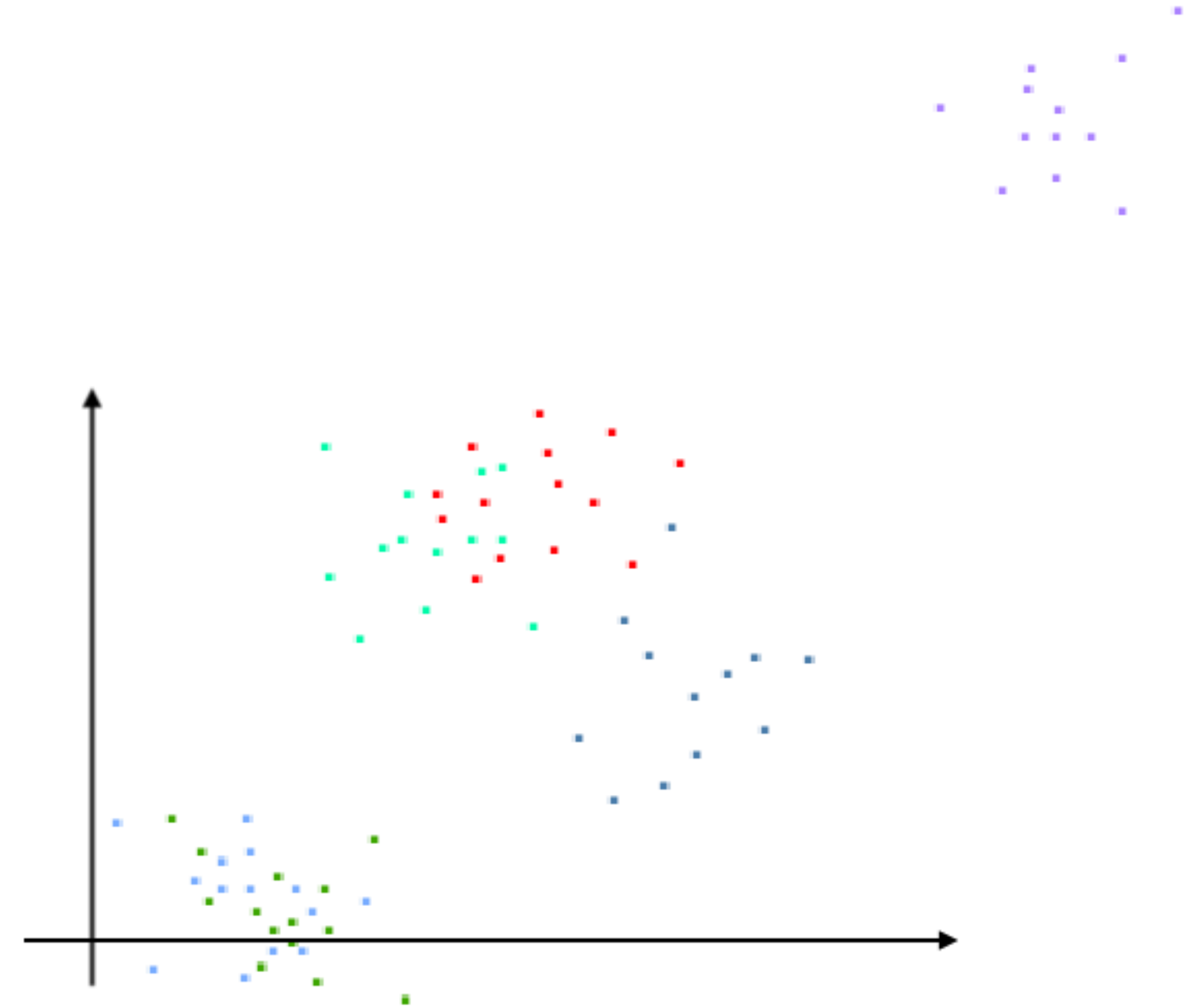
$$\mathcal{L}_{intra} = \frac{1}{C} \sum_{c=1}^{C} \frac{1}{E_c} \sum_{i=1}^{E_c} \left[\|e_i - \mu_c\| - \delta_2 \right]_+^2$$

Embedding

De Brabandere, B., Neven, D., Van Gool, L. *Semantic Instance Segmentation with a Discriminative Loss Function.* CVPR Workshop 2017

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