

Unsupervised Embedding Learning via Invariant and Spreading Instance Feature

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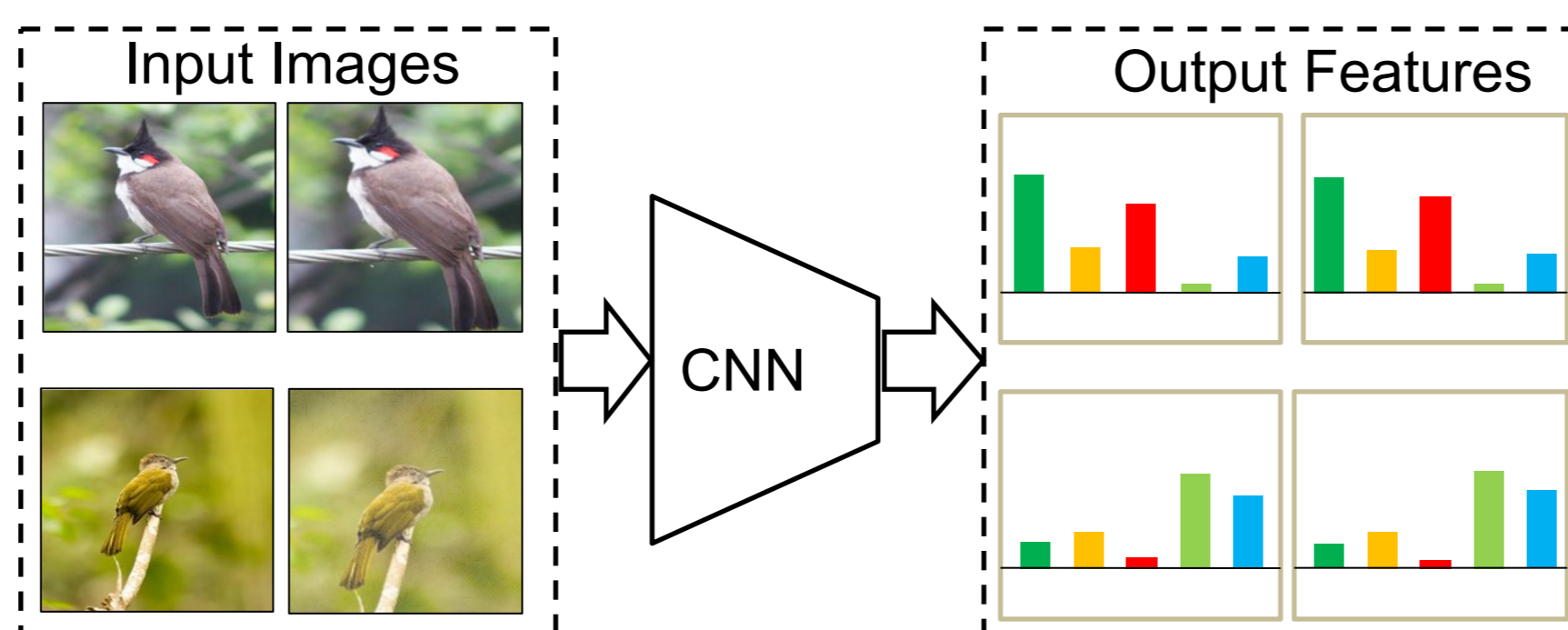
OBJECTIVES

Learning a discriminative feature extraction Deep Neural Network (DNN) with large-scale unlabeled images, such that the visually similar samples are close to each other in the learned embedding space

HIGHLIGHTS

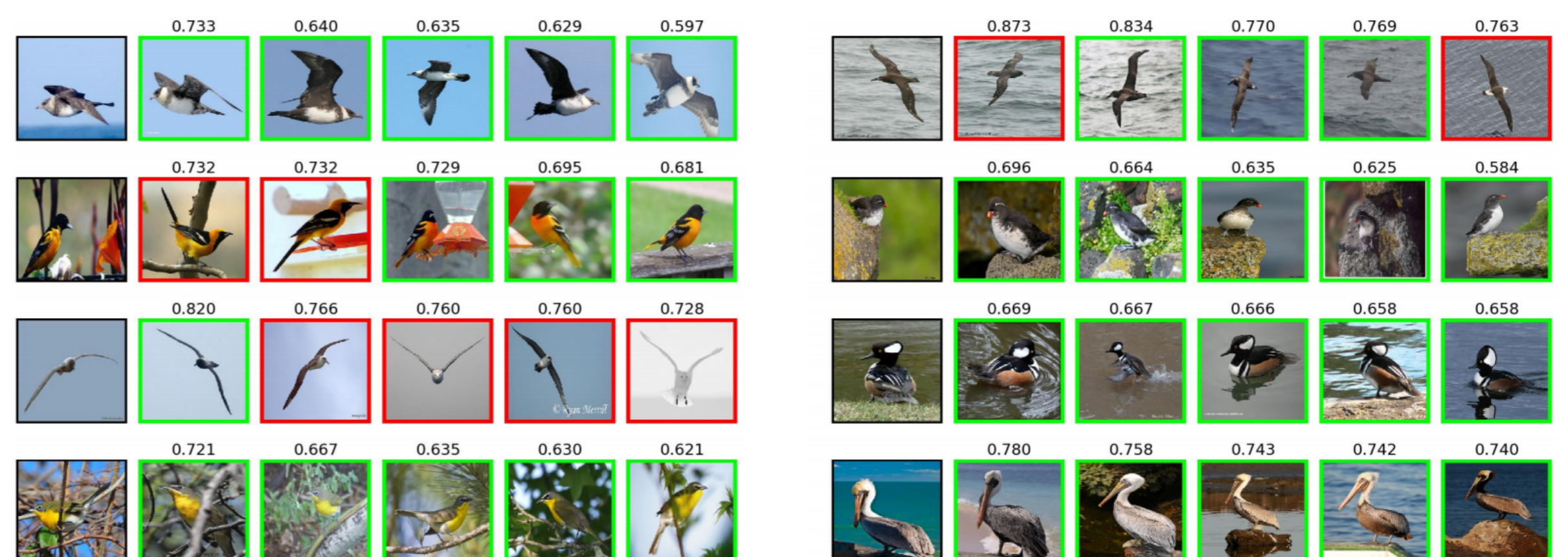
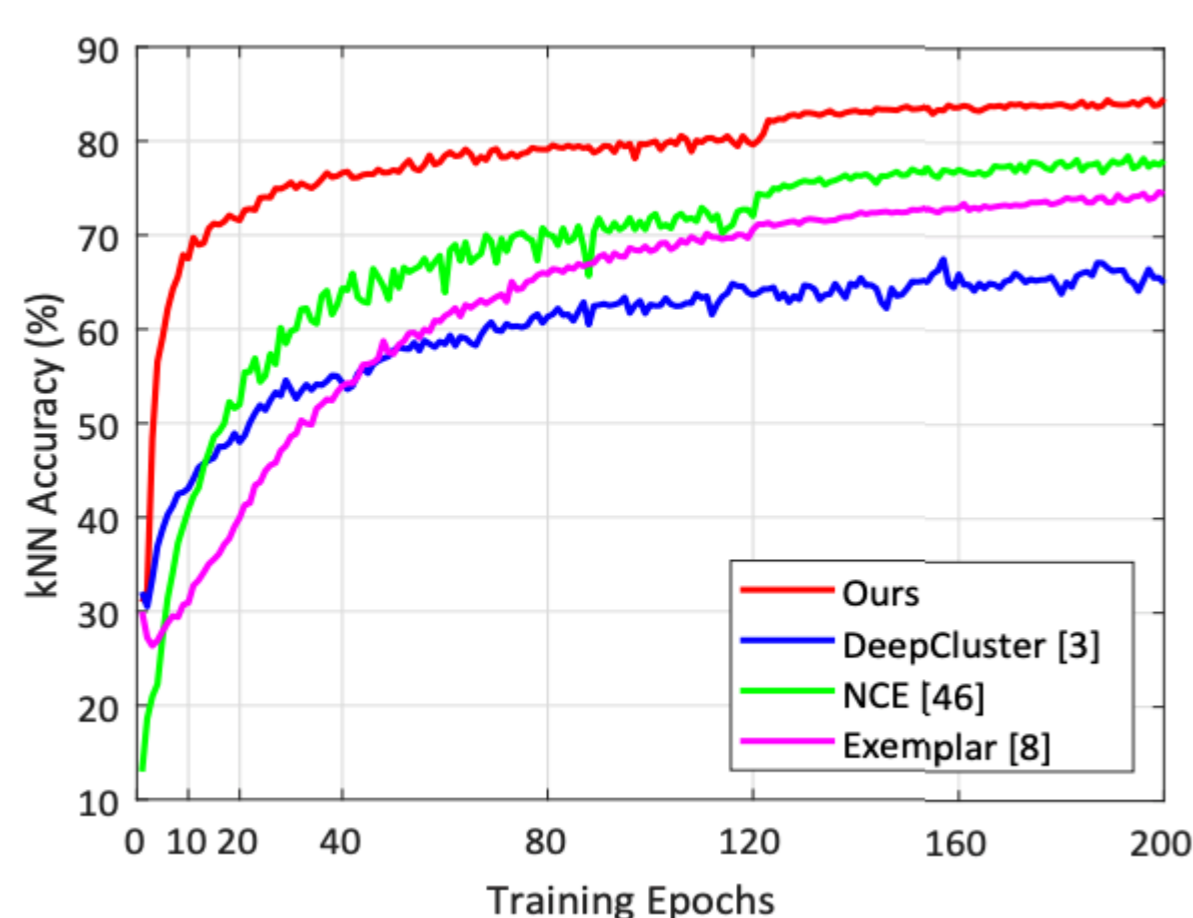
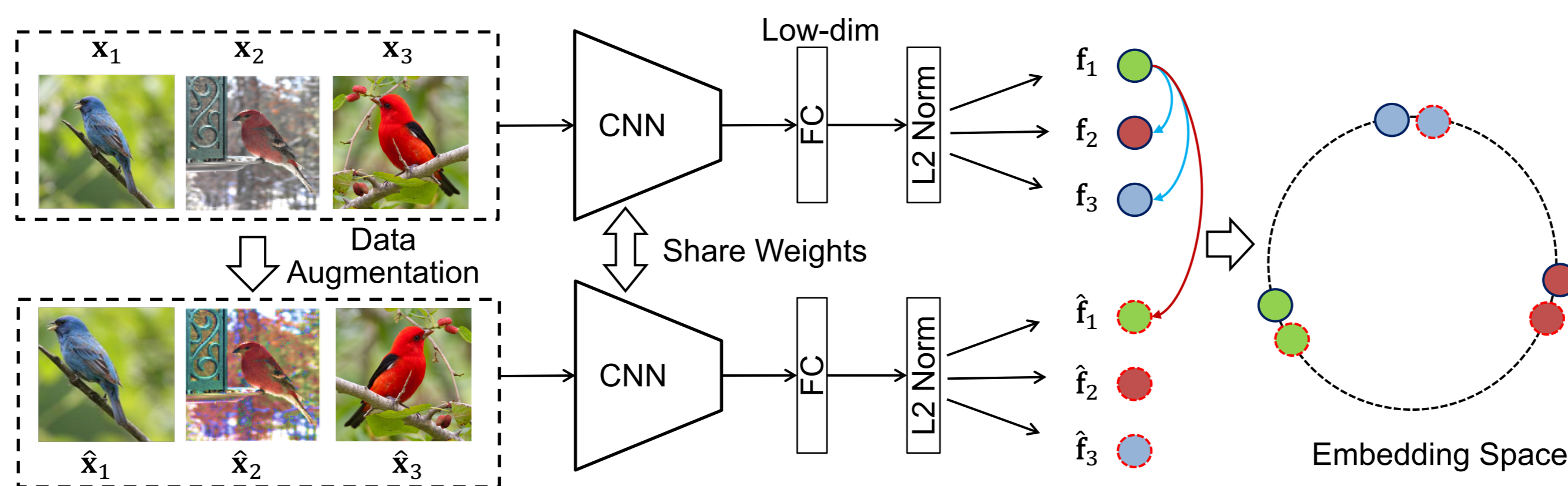
Main Idea: Data augmentation invariant and instance spread-out

- The features of the same image instance under different data augmentations should be invariant
- The features of different image instances should be separated



Softmax Embedding on 'Real' Instance Feature

- We propose to optimize the embedding directly on the real-time instance features with softmax function



- Achieves much faster learning speed and better accuracy
- Performs well on both seen and unseen testing categories

SELECTED PUBLICATIONS

- Mang Ye, Xu Zhang, Pong C. Yuen, Shih-Fu Chang. "Unsupervised Embedding Learning via Invariant and Spreading Instance Feature". International Conference on Computer Vision and Pattern Recognition (CVPR), 2019
- Mang Ye, Jiawei Li, Andy J. Ma, Liang Zheng, Pong C. Yuen. "Dynamic Graph Co-Matching for Unsupervised Video-based Person Re-Identification". IEEE Transactions on Image Processing (TIP), 2019.
- Mang Ye, Xiangyuan Lan, Pong C. Yuen. "Robust Anchor Embedding for Unsupervised Video Person Re-Identification in the Wild". European Conference on Computer Vision (ECCV), 2018
- Mang Ye, Andy J Ma, Liang Zheng, Jiawei Li, Pong C. Yuen. "Dynamic Label Graph Matching for Unsupervised Video Re-Identification". International Conference on Computer Vision (ICCV), 2017.