

Subspace Based Visualization for Embedding Network

Xiaotong Liu, Zeyu Zhang, Robert Pless

The George Washington University

Abstract

We introduce visualization tools to illustrate how embedding network find the corresponding area for the similarity in a pair (batch) of images.

This approach is based on the analysis of the last convolutional layer, which provides spatially varying feature representations and uses PCA to model the feature subspace be important in this pair of images. We use PCA-decomposition directly as a visualization tool, but we vary the set of features/images that are used to define the space in ways that help visualize different relationships between different pairs or sets of images.

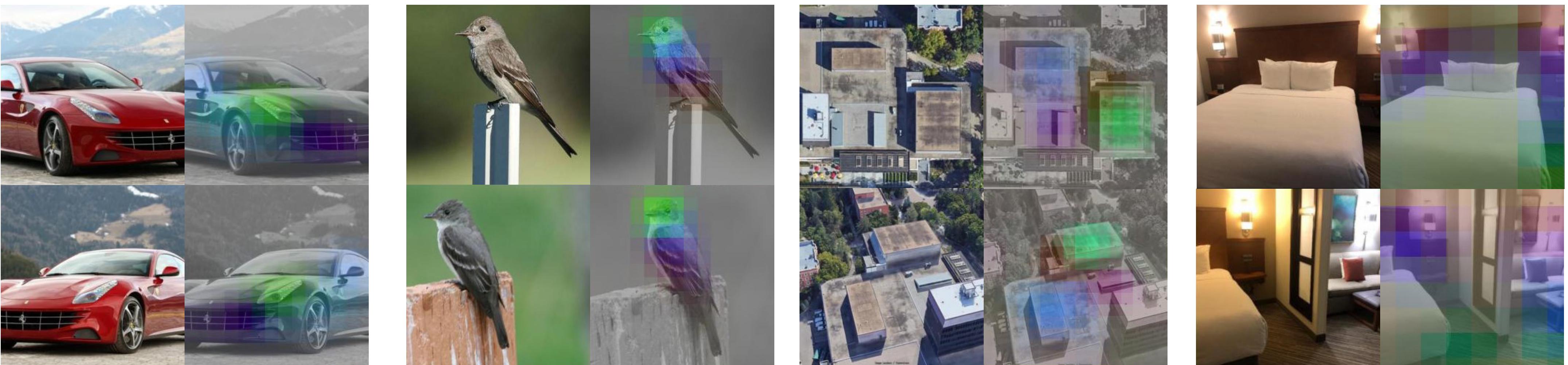
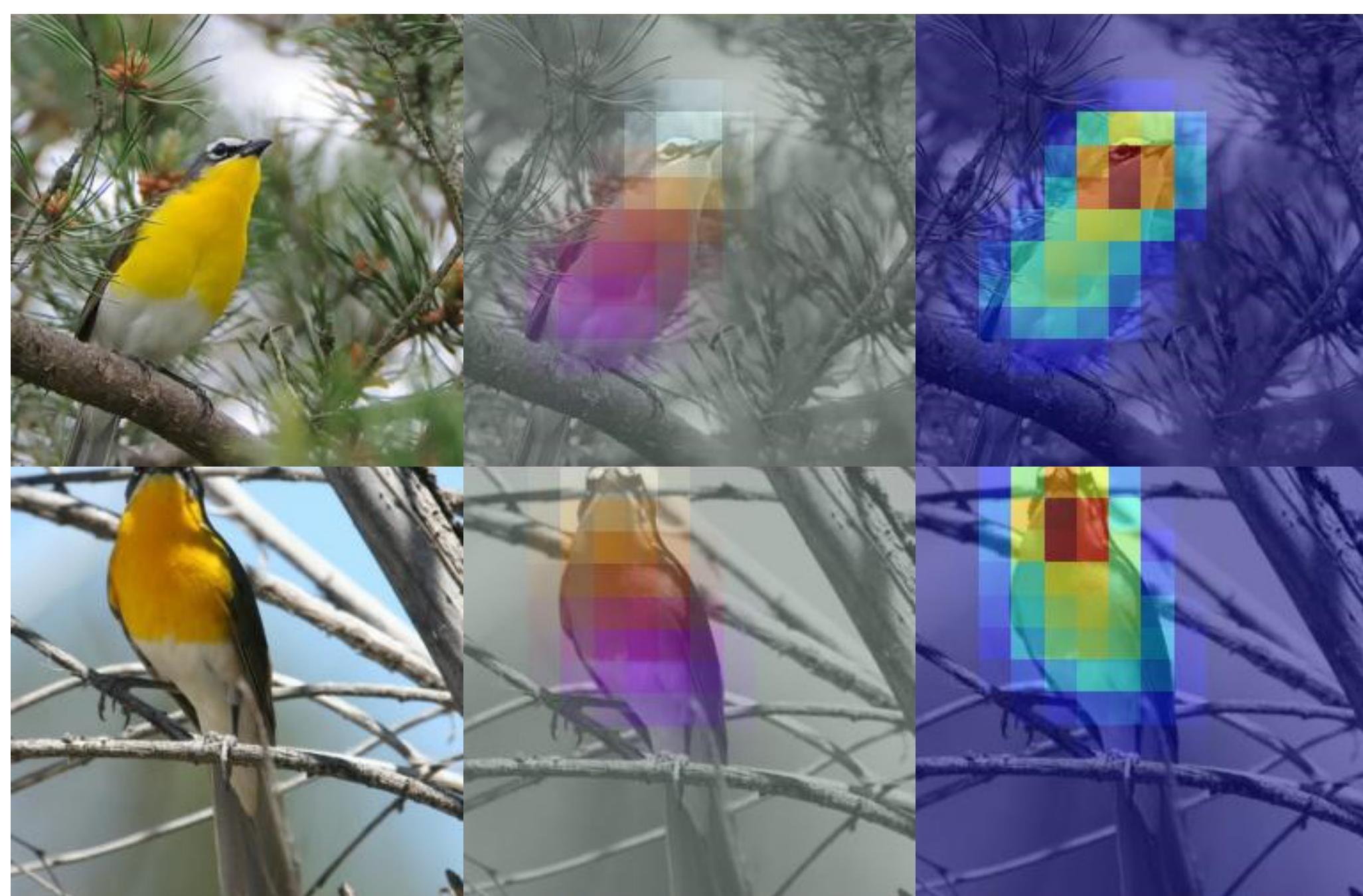
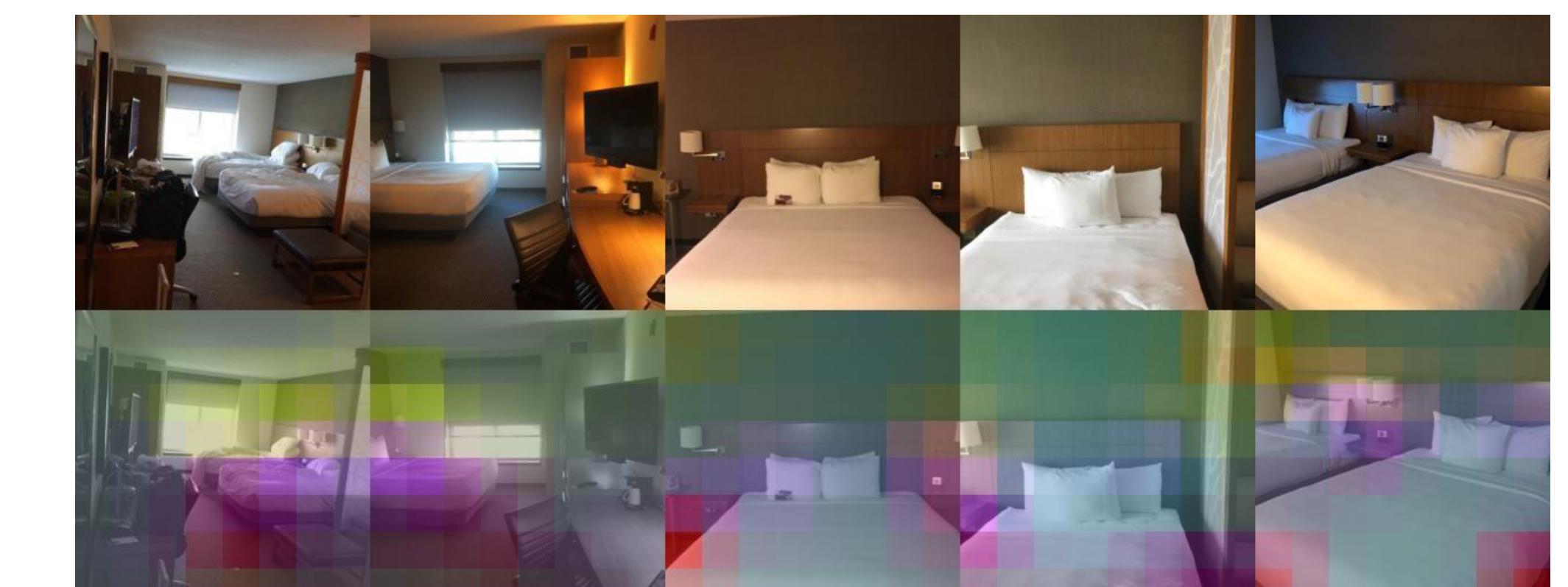


Image-pair showcase



Image-class showcase



We shows the class-wise correspondence visualization for unseen test classes in the CAR, CUB and Hotel datasets. These visualizations highlight not just the important corresponding features between a pair of images but also the most important features within a class.