

Supplementary Material for Deep Metric Learning via Lifted Structured Feature Embedding

Hyun Oh Song
Stanford University

hsong@cs.stanford.edu

Yu Xiang
Stanford University

yuxiang@cs.stanford.edu

Stefanie Jegelka
MIT

stefje@csail.mit.edu

Silvio Savarese
Stanford University

ssilvio@stanford.edu

1. Introduction

Due to the space constraints, we move additional visualizations to this supplementary material. Figure 1 shows some example query and nearest neighbors on the test split of CUB200-2011 [3] dataset. Figure 2 shows some example query and nearest neighbors on the test split of Cars196 [1] dataset. Figure 3 shows the t-SNE visualization of the learned embedding on our *Online Products* dataset in this supplementary material. The test split from our *Online Products* dataset has 60,502 images of 11,316 classes.



Figure 1: Examples of successful queries on the CUB200-2011 [3] dataset using our embedding. Images in the first column are query images and the rest are five nearest neighbors. Best viewed on a monitor zoomed in.

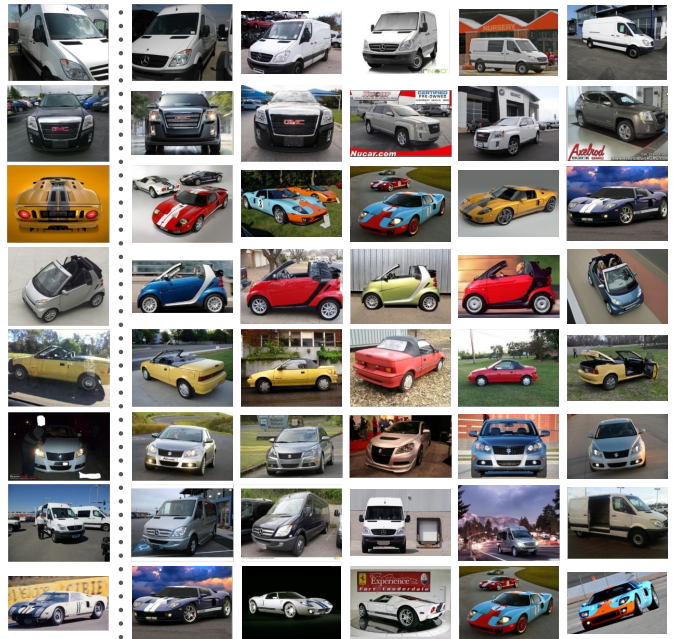


Figure 2: Examples of successful queries on the Cars196 [1] dataset using our embedding. Images in the first column are query images and the rest are five nearest neighbors. Best viewed on a monitor zoomed in.

References

- [1] J. Krause, M. Stark, J. Deng, and F.-F. Li. 3d object representations for fine-grained categorization. *ICCV 3dRR-13*, 2013. 1
- [2] L. van der maaten. Accelerating t-sne using tree-based algorithms. In *JMLR*, 2014. 2
- [3] C. Wah, S. Branson, P. Welinder, P. Perona, and S. Belongie. The caltech-ucsd birds-200-2011 dataset. Technical Report CNS-TR-2011-001, California Institute of Technology, 2011. 1

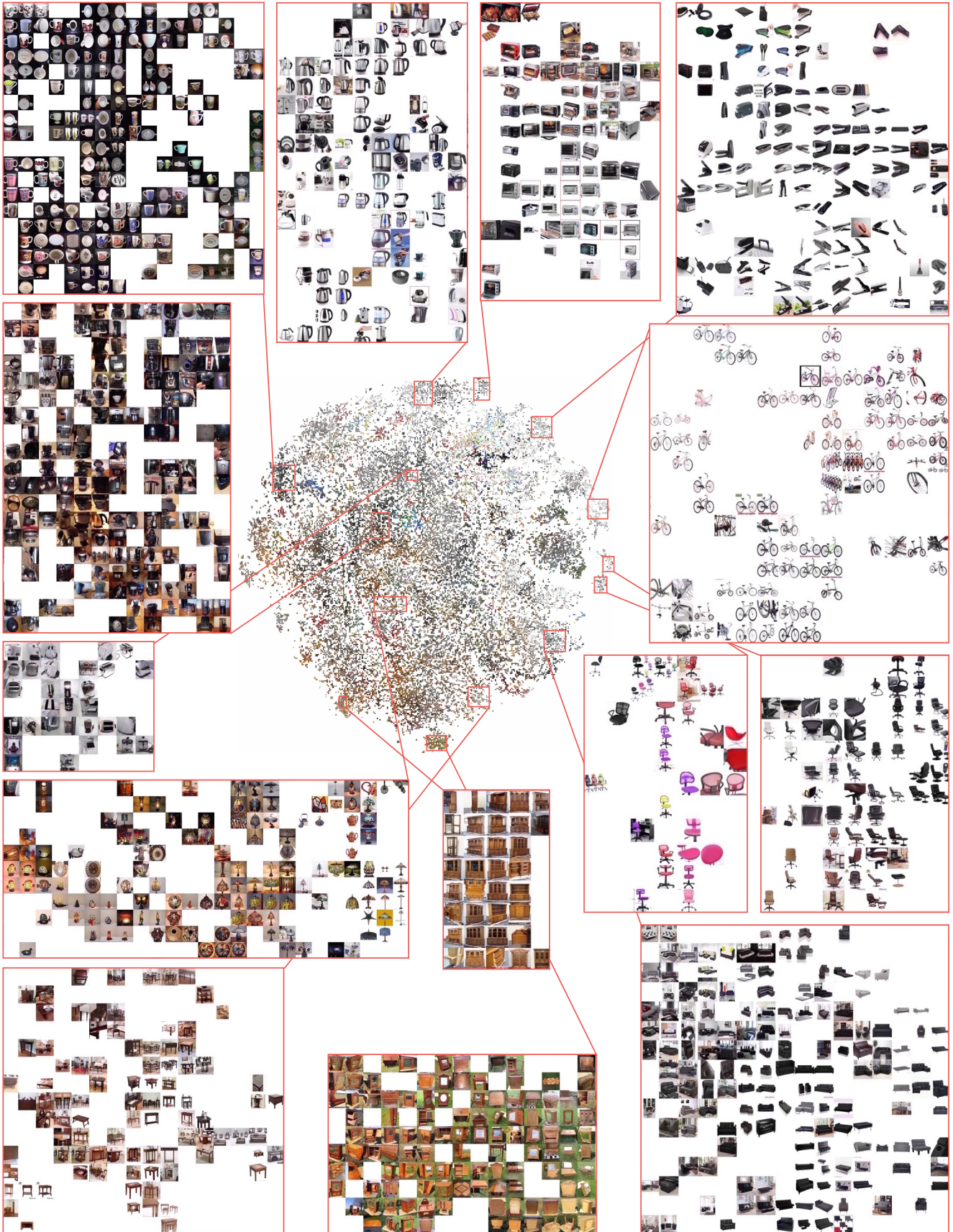


Figure 3: Barnes-Hut t-SNE visualization [2] of our embedding on the test split (class 11,319 to 22,634; 60,502 images) of *Online Products*.