Scene Classification with Deep Convolutional Neural Networks

Yangzihao Wang
University of California, Davis
yzhwang@ucdavis.edu

Yuduo Wu
University of California, Davis
yudwu@ucdavis.edu

Abstract

summarize the problem, main idea, and results;

1. Introduction

1.1. Related Work

provide a detailed description of related papers (not necessarily limited to those in the schedule). If you're proposing a new idea or extending an existing approach, compare and contrast it with existing work. If you're analyzing one or two related techniques, describe how they relate to other relevant work; [1, 3, 6, 2, 4, 5]

1.2. Technical Approach

Describe in detail the feature representation(s) and algorithm(s) you employed. The description should be self-contained (i.e., the reader should not have to rely on outside sources for your points to be clear), and should provide enough detail so that the reader could re-implement the approach. Clearly state the method's input and output, and any assumptions or design choices;

1.3. Experiments

Describe the experiments you conducted to evaluate the approach. For each experiment, describe what you did, what was the main purpose of the experiment, and what you learned from the results. Provide figures, tables, and qualitative examples, as appropriate.

1.4. Conclusions

briefly summarize the main idea and results, and possible future work.

References

[1] L. jia Li, H. Su, L. Fei-fei, and E. P. Xing. Object bank: A high-level image representation for scene classification & semantic feature sparsification. In J. Lafferty, C. Williams, J. Shawe-Taylor, R. Zemel, and A. Culotta, editors, *Advances in Neural Information Processing Systems 23*, pages 1378–1386. Curran Associates, Inc., 2010. 1

[2] A. Krizhevsky, I. Sutskever, and G. E. Hinton. Imagenet classification with deep convolutional neural networks. In F. Pereira, C. Burges, L. Bottou, and K. Weinberger, editors, *Advances in Neural Information Processing Systems 25*, pages 1097–1105. Curran Associates, Inc., 2012. 1

[3] S. Lazebnik, C. Schmid, and J. Ponce. Beyond bags of features: Spatial pyramid matching for recognizing natural scene categories. In *Computer Vision and Pattern Recognition, 2006 IEEE Computer Society Conference on*, volume 2, pages 2169–2178, 2006. 1

[4] A. Quattoni and A. Torralba. Recognizing indoor scenes. In *Computer Vision and Pattern Recognition, 2009. CVPR 2009. IEEE Conference on*, pages 413–420, June 2009. 1

[5] J. Uijlings, K. van de Sande, T. Gevers, and A. Smeulders. Selective search for object recognition. *International Journal of Computer Vision*, 104(2):154–171, 2013. 1

[6] B. Zhou, A. Lapedriza, J. Xiao, A. Torralba, and A. Oliva. Learning deep features for scene recognition using places database. In Z. Ghahramani, M. Welling, C. Cortes, N. Lawrence, and K. Weinberger, editors, *Advances in Neural Information Processing Systems 27*, pages 487–495. Curran Associates, Inc., 2014. 1