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Haozhi Qi, Owen Richfield, Xiaohui Zeng and Michael Zhao* (m.zhao@utah.edu), 3058
Marriott Honors, 250 S Mario Capecchi Drive, Salt Lake City, UT 84092. *Optimization of a Logo
Recognition System.*

We evaluate the performance of a classical image retrieval pipeline (visual bag of words model), using SURF descriptors and hierarchical k -means vector quantization with an inverted file index, and compare this to the performance of two convolutional neural network (AlexNet and GoogLeNet) pipelines when it comes to the task of recognizing logos. We analyze how various parameters of the clustering algorithm affect the accuracy of the visual bag of words model, as well as why the visual bag of words model fails to perform well in this domain. We also provide timing data for a practical use case, where these pipelines are incorporated into a logo recognition app for Android phones. Further directions include, for instance, investigations on how the choice of quantization method affects accuracy, and more scalable ways to incorporate deep learning into the pipeline. (Received September 21, 2015)