



UNIVERSITY OF CENTRAL FLORIDA
CENTER FOR RESEARCH IN COMPUTER VISION

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“Kernel Methods for Unsupervised Visual Domain Adaptations”
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ABSTRACT

In many visual recognition problems (object recognition, human activity recognition, etc.), the curse of domain mismatch arises when the test data (of a target domain) and the training data (of some source domain(s)) have different underlying distributions due to many extraneous factors such as pose, illumination, occlusion, camera resolution, and background. Thus, developing techniques for domain adaptation, i.e., generalizing models from the sources to the target, has been a pressing need. In this talk, I will describe our efforts and results on addressing this challenge.

A key observation is that domain adaptation entails discovering and leveraging latent structures in the source and the target domains. To this end, we develop kernel methods. Concretely, our kernel-based adaptation methods exploit various latent structures in images and videos. In this talk, I will give 3 examples: subspaces for aligning domains, landmarks for bridging the gaps between domains, and clustering in distribution similarity for identifying unknown domains. We demonstrate their effectiveness on well-benchmarked datasets and tasks. I will conclude by describing a diverse sequential subset selection model for video summarization and my future research plans on video analysis.

BIOGRAPHY

Boqing Gong is a Ph.D. candidate at the University of Southern California. His research lies in the intersection between machine learning and computer vision, and has been focusing on the topics of domain adaptation, object recognition, human activity recognition, and supervised video summarization. His work is partially supported by the Viterbi School of Engineering Doctoral Fellowship. Boqing holds a M.Phil. degree from the Chinese University of Hong Kong and a B.E. degree from the University of Science and Technology of China.