

**Dr. Qi Tian's talk:**

**Title:** Descriptive Visual Words and Visual Phrases for Image Applications

**Abstract:** The Bag-of-visual Words (BoW) image representation has been widely applied for various problems in the fields of multimedia and computer vision. The basic idea is to represent images as visual documents composed of repeatable and distinctive visual elements, which are comparable to the words in texts. However, massive experiments show that the commonly used visual words are not as expressive as the text words, which is not desirable because it hinders their effectiveness in various applications. In this talk, descriptive visual words (DVWs) and descriptive visual phrases (DVPs) are proposed as the visual correspondences to text words and phrases, where visual phrases refer to frequently co-occurring visual word pairs. Since images are the carriers of visual objects and scenes, novel descriptive visual element set can be composed by the visual words and their combinations which are effective in representing certain visual objects or scenes.

Based on this idea, a general framework is proposed for generating DVWs and DVPs for various applications. In a large-scale image database containing 1506 object and scene categories, the visual words and visual word pairs descriptive to certain scenes or objects are identified as the DVWs and DVPs. Experiments show that the DVWs and DVPs are compact and descriptive, thus are more comparable with the text words than classic visual words. We apply the identified DVWs and DVPs in several applications including image retrieval, image re-ranking, and object recognition.

**Biography:** Dr. Qi Tian is currently an Associate Professor in the Department of Computer Science, the University of Texas at San Antonio (UTSA). He has been taking Faculty Leave at Microsoft Research Asia (MSRA) since Fall 2008. He received his Ph.D. in 2002 from UIUC, and his B.E. in 1992 from Tsinghua University. Dr. Tian's research interests include multimedia information retrieval and computer vision. He has published over 80 refereed journal and conference papers in these fields. His research projects were funded by ARO, DHS, HP Lab, SALS, CIAS, and CAS. He was the co-author of a Best Student Paper in ICASSP 2006, and co-author of a Best Paper Candidate in PCM 2007. He was a nominee for 2008 UTSA President Distinguished Research Award. He has been serving as Program Chairs, Organization Committee Members, Session Chairs and TPC for over 100 IEEE and ACM Conferences including ACM Multimedia, SIGIR, ICCV, ICME, ICASSP, ICPR, MIR, VCIP, PCM, etc. He is the Guest co-Editors of IEEE Transactions on Multimedia, Journal of Computer Vision and Image Understanding, and EURASIP Journal on Advances in Signal Processing and is in the Editorial Board of Journal of Multimedia.