

Dr. Lei Zhang's talk:

Title: Large-Scale Multimedia Analysis and Similarity Search

Abstract: In recent years, the explosive growth of multimedia data and the phenomenal success in web search have had a great impact on research in multimedia. The huge number of web images not only brings in many business opportunities, such as online image advertisement, but also serve as a large repository of training data to improve various computer vision problems. In this talk, I will first use web image advertisement as a business opportunity to motivate the need of large scale multimedia analysis, and then introduce our work on search-based image annotation, which leverages millions of web images as a knowledge base to automatically generate annotation keywords for query images. As a data-driven approach, this work highly desires a very efficient index structure to use as more as possible web images. This problem has been an active research topic in computer vision in recent two years. To tackle this problem, we have studied the technical challenges of large scale image search in comparison with text search, and developed a highly efficient index structure in a theoretically principled way. The basic idea is to decompose a document-like representation (bag of words) of an image into two components, one for dimension reduction and the other for residual information preservation. I will introduce this work with more technical details and experimental evaluations on a 2.3 million image database.

Biography: Lei Zhang is a lead researcher in the Web Search & Mining Group at Microsoft Research Asia in Beijing. He currently directs a team pursuing new research directions on social media search. Lei joined Microsoft Research Asia in 2001 and worked with the Media Computing Group on key projects such as image classification, red-eye detection, face detection and annotation. Since 2004, he moved to his current post in the Web Search & Mining Group, and has worked on large-scale systems related to search and multimedia, which resulted in a scalable search-based image annotation system. Lei is an IEEE and ACM member, and has served on international conference program committees, including ACM Multimedia, WWW, SIGIR, CIVR, ICME, and MMM. He is the author or co-author of more than 70 published papers in fields such as content-based image retrieval, computer vision, Web search and information retrieval, and holds 10 U.S. patents for his innovation in these fields. Lei earned a B.S. and M.S. in Computer Science from Tsinghua University, in 1993 and 1995. After two years working in industry, he later returned to Tsinghua University, and was awarded a doctorate in Computer Science in 2001.