『清华信息大讲堂』第89讲

题目 ： Large-Scale Mobile Visual Search

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时间 ： 7月4日 上午10:00—11:30

地点 ： 清华大学FIT楼多功能厅

摘要：

Smartphone cameras provide new ways of sensing the real-world environment. The augmented capability can be used to find information aboutthe surrounding scenes or objects through visual matching over large data sources at the remote servers. Recent examples, such as the Google Glass project, offer interesting promise for such functionalities. However, visual searching on the mobile devices presents new technical challenges, such as limited power, bandwidth, and image quality. In this talk, I will describe solutions in addressing such challenges, anddemonstrate a large mobileproduct search system capable of searching one million product images in near real time. The system leveragesrecent advances in visual feature matching andcompact hash based indexing, which are perfect for the large mobile visual search scenario. I will review principles and optimization techniques for designing compact hash code, a popular choice for solving general large-scale nearest neighbor search problems. Additionally, to explorethe human-in-the-loop power, I will present another system, called Active Query Sensing, which aims at more intuitive mobile visual search experience. It uses visual analysis to discover the best view angle and guide user to capture best queries for location recognition.

简介：

Shih-Fu Chang is the Richard Dicker Professor in the Departments of Electrical Engineering and Computer Science, and Director of Digital Video andMultimedia Lab at Columbia University. His research is focused on multimedia retrieval, signal processing, computer vision, and machine learning. His group has developed several well-known content-based visual search systems and demonstrated leading performance in international video retrieval competitions. Recently, he has extended efforts to mobile computing and brain machine interfaces for multimedia applications. With morethan 400 papers and 20 patents, he has been recognized with ACM SIGMM Technical Achievement Award, IEEE Kiyo Tomiyasu Award, IBM Faculty Award, and several best paper awards. He is an IEEE Fellow and a Fellow of the American Association for the Advancement of Science. He served as Editor-in-Chief for IEEE Signal Processing Magazine (2006-8), and Chairman of Columbia's Electrical Engineering Department (2007-2010).

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