

COMPUTER SCIENCE SEMINAR SERIES

Department of Computer Science
City University of Hong Kong

Image Categorization Based on a Hierarchical Spatial Markov Model

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Date :

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Time :

11:00am - 12:00noon

Venue

AIMtech Centre Conference Room, MMW4415, 4th Floor, Mong Man Wai Building, City University of Hong Kong, Tat Chee Avenue, Kowloon Tong

Abstract

In this paper, we propose a Hierarchical Spatial Markov Model (HSMM) for image categorization. We adopt the Bag-of-Words (BoW) model to represent image features with visual words, thus avoiding the heavy work of manual annotation in most Markov model based approaches. Our HSMM is designed to describe the spatial relations of these visual words by modelling the distribution of transitions between adjacent words over each image category. A novel idea of semantic hierarchy is exerted in the model to represent the composition relationship of visual words at semantic level. Experiments demonstrate that our approach outperforms Bayesian hierarchical model based categorization approach with 12.5% and it also performs better than the previous Markov model based approach with 11.8% on average.

This paper was presented in the 13th International Conference on Computer Analysis of Images and Patterns, Germany, Sept 2-4, 2009.

Supervisor: Prof Horace Ip

Research interests: Computer Vision and Image Analysis

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All are welcome!

In case of questions, please contact Prof Horace Ip at Tel: 2788 8641, E-mail: cship@cityu.edu.hk, or visit the CS Departmental Seminar Web at <http://www.cs.cityu.edu.hk/>.