

SEMINAR NOTICE:

Two Recent Regularization Frameworks for Computer Vision Applications

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CSL 301**

Abstract:

In this talk we will introduce two recently developed regularization frameworks for 1) image spatial context modeling and 2) multi-dimensional time sequence classification. In the first part of the talk, we will present a novel omni-range image spatial context modeling method for encoding both near and far contexts. A sparse selection and grouping regularizer is employed along with an empirical risk, to discover discriminative and stable distance bin groups for context modeling. In the second part of the talk, we introduce a temporal order-preserving regularizer for multi-dimensional time sequence modeling and classification. The derived regularizer explicitly encourages that the non-zero reconstruction coefficients for frame-based features also follow the temporal ordering structure as in the input sequence. Efficient Nesterov-type smooth approximation based methods are developed for optimizing the above two formulations, with theoretically guaranteed error bounds. Extensive experiments on fast food image classification and human activity recognition have demonstrated the effectiveness of the proposed regularization frameworks.



Biosketch:

Bingbing Ni is a researcher in the Advanced Digital Sciences Center (ADSC), Singapore. He received his Bachelor's degree (B.Eng.) in Electrical Engineering from Shanghai Jiaotong University (SJTU), China, in 2005. He began his Ph.D. study at the National University of Singapore in 2006, and submitted his Ph.D. thesis in September 2010. His research interests include computer vision, multimedia computing and machine learning.

