中央研究院統計科學研究所
博士後演講

講　題：**Vector Partition Method on Spectral Matting and Image Segmentation**

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時　間：2019 年 2 月 27 日 (星期二) 下午 14:00-15:00

地　點: 中央研究院統計科學研究所 6005 會議室(環境變遷研究大樓 A 棟)

※茶會：下午 **15：00** 開始

Abstract

This study investigates the segmentation of an image foreground from the background image. In the approach of image spectral matting, the segmentation of an image can be obtained by optimizing an objective function which contains matting Laplacian. However, the optimized alpha matte of objective function is not always the entire foreground object. To obtain the better segmentation result of foreground object, the optimal alpha matte and the sub-optimal alpha mattes are all considered at the same time.

The technique of unsupervised clustering can be applied to combine several foreground components into a complete foreground object. In this study, we investigate the matting Laplacian from the perspective of graph theory. Then we use the community detection method which is called network modularity to perform clustering. This detected community corresponds to the foreground component. Optimizing the modularity will turn out to be the vector partition problem. We propose an algorithm which finds the initial groups by the sign information of vectors to perform vector partition for unsupervised clustering

Through empirical studied, the results of vector partition can improve the segmentation of test images. It can not only distinguish the foreground from the background, but also form less component regions of the foreground. This new approach will enhance the segmentation of the foreground object that is matted with background image components.

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