國　立　中　央　大　學

統　計　研　究　所

學　術　演　講

主 講 人：呂恒輝 教授（東海大學統計學系）

講　　題：**Pairwise directions estimation for multivariate response regression data**

時　　間：**108年5月14日（星期二）** <u>**上午11：00 ～ 12：00**</u>

地　　點：**中央大學鴻經館M429室**

茶　　會：<u>**上午 10：30 ～ 11：00**</u>　　地　點：**鴻經館 510 室**

ABSTRACT

This article concerns the analysis of multivariate response data with high-dimensional covariates. Based on local linear smoothing techniques, we propose an iteratively adaptive estimation method to reduce the dimensions of response variables and covariates. Two weighted estimation strategies are incorporated in our approach to provide initial estimates. Our proposal is also extended to curve response data for a data-adaptive basis function searching. Instead of focusing on goodness of fit, we shift the problem to reveal the data structure and basis patterns. Simulation studies with multivariate response and curve data are conducted for our pairwise directions estimation (PDE) approach in comparison with sliced inverse regression of Li et al. (2003). The results demonstrate that the proposed PDE method is useful for data with responses approximating linear or bending structures. Illustrative applications to two real datasets are also presented.

Keywords: Canonical correlation; Effective dimension reduction; Curve data analysis; Local linear smoother; Principal Hessian directions; Sliced inverse regression.

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