立 大 究 統 研 計 所 術 演

主 講 人:林宗儀 教授(國立中興大學 應用數學系)

講	題: Mixture of Common Skew Factor Analyzers for Clustering High Dimensional Data	of
時	間:107年09月25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

Mixtures of common t factor analyzers (MCtFA) have been shown its effectiveness in robustifying mixtures of common factor analyzers (MCFA) when handling model-based clustering of the high-dimensional data with heavy tails. However, the MCtFA model may still suffer from a lack of robustness against observations whose distributions are highly asymmetric. The aim is to present a further robust extension of the MCFA and MCtFA models, called the mixture of common restricted skew-t factor analyzers (MCrstFA), by assuming a restricted multivariate skew-t distribution for the common factors. The MCrstFA model can be used to accommodate severely non-normal random phenomena while preserving its parsimony in factor-analytic representation and performing graphical visualization in low-dimensional plots. A computationally feasible Expectation Conditional Maximization Either (ECME) algorithm is developed to carry out maximum likelihood estimation. The numbers of factors and mixture components are simultaneously determined based on common likelihood penalized criteria. The usefulness of our proposed model is illustrated with simulated and real datasets, and experimental results signify its superiority over some existing competitor.



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