國立成功大學統計學系暨數據科學研究所
專題演講

演講者: Prof. Wan-Lun Wang (王婉倫 教授)
Department of Statistics, Feng Chia University

時　間: 2021年04月15日 (星期四) 15:30 - 16:30

地　點: 統計學系三樓視聽教室 (62331)

茶　會: 15:00 - 15:25 (統計學系二樓教師休息室)

題　目: Multivariate-*t* linear mixed models for longitudinal data with censored and intermittent missing responses

摘　要

Multivariate longitudinal data arisen in clinical trials and medical studies often exhibit complex features such as censored responses, intermittent missing values, and atypical or outlying observations. The multivariate-*t* linear mixed model (MtLMM) has been recognized as a powerful tool for robust modeling of multivariate longitudinal data in the presence of potential outliers or fat-tailed noises. This paper presents a generalization of MtLMM, called the MtLMM-CM, to properly adjust for censorship due to detection limits of the assay and missingness embodied within multiple outcome variables recorded at irregular occasions. An expectation conditional maximization either (ECME) algorithm is developed to compute parameter estimates using the maximum likelihood (ML) approach. The asymptotic standard errors of the ML estimators of fixed effects are obtained by inverting the empirical information matrix according to Louis' method. The techniques for the estimation of random effects and imputation of missing responses are also investigated. The proposed methodology is illustrated on two real-world examples from HIV-AIDS studies and a simulation study under a variety of scenarios.