國立中山大學應用數學系
學術演講

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講　題：Confidence Corridors for Multivariate Generalized Quantile Regression

時　間：2014/03/27（星期四）15：10～15：40

地　點：理學院四樓理 SC 4011 室

茶　會：15:40 於理 SC 4010 室 (系辦公室)

摘要

We focus on the construction of confidence corridors (or alternatively, simultaneous confidence bands/regions, uniform confidence bands/regions) for local constant multivariate nonparametric generalized quantile estimators with i.i.d. vector-valued samples. The method of this construction follows a series of approximation steps. We utilized a new strong approximation theorem and exponential tail inequalities for Gaussian random field. The final result of asymptotic Gumbel distribution then follows from the confidence corridor construction for multivariate kernel density estimate. To deal with the problem of meager coverage probability of the asymptotic confidence corridor, a simple bootstrap procedure is designed based on the leading term of the Bahadur representation. The bootstrap confidence corridors improve the coverage probability significantly, as shown by our simulation study. We apply our method to study the efficacy of the National Supported Work Demonstration, which is a randomized employment enhancement program launched in the 1970s.

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