2021년 제 11회 통계세미나

고려대학교 통계연구소와 BK21 통계학교육연구팀이 다음과 같이 공동으로 세미나를 개최하오니 많은 참여 바랍니다.

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장소 : 온라인(ZOOM)으로 진행
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Asymptotic Analysis of the Linear ROC-optimizing classifier and Its Variable Selection in High Dimensions

<Abstract>

ROC-optimizing classifier directly optimizes the area under the receiver operator characteristic curve (AUC). We investigate the asymptotic behaviors of the estimated coefficients of the linear ROC-optimizing classifiers and the oracle properties of the SCAD-penalized ROC-optimizing classifiers. First, we study the AUC consistency over the linear function class and then establish the consistency and asymptotic normality of the estimated coefficients of linear ROC-optimizing classifiers. Second, we prove that the estimated coefficients of the SCAD-penalized ROC-optimizing classifiers have the oracle properties in the settings where the number of predictors is fixed and diverges to infinity. The technical proofs rely on the U-process theory based on the Hoeffding decomposition. Through the simulation and real data analysis, we demonstrate the performance of the SCAD-penalized ROC-optimizing classifiers in terms of both variable selection and prediction.

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