

國立中山大學應用數學系

學術演講

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講題：Regularized Low-Rank Matrix Regression

時間：2021/11/22 (Monday) 10:10 ~ 11:00

地點：本次為視訊演講

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Abstract

While matrix variate regression models have been studied in many existing works, classical statistical and computational methods for analysis of the regression coefficient estimation are highly affected by ultrahigh dimensional matrix-valued predictors. To address this issue, this paper proposes a framework of matrix variate regression methods, based on a rank-constraint optimization problem and its alternating gradient descent algorithm. In particular, we consider three low-rank matrix variate regression models including ordinary matrix regression, robust matrix regression, and matrix logistic regression, and we establish the convergence property and statistical consistency of the proposed estimator under these three models. The rank constraint effectively reduces the number of parameters in the model, and as a result, compared with existing methods based on regularization, our method has a better theoretical consistency rate. The experimental results show that the proposed algorithms are effective and efficient under various settings.

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