The University of Chicago

Department of Statistics

Seminar

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"Generalized Linear Models for Covariance of Longitudinal Data"

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133 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

Specifying models for a covariance matrix in the spirit of the generalized linear models (GLM) is helpful in (i) reducing the high dimensionality, (ii) providing unconstrained parameterization and (iii) increasing efficiency of inferences about the regression (mean) parameters. We present a brief history of the developments in this direction. Motivated by the fundamental roles of the correlograms in identifying parsimonious models for time series, we introduce analogues and generalizations of these plots for nonstationary repeated measures data. Their roles in detecting heterogeneity, nonstationarity and correlation of the data and identifying parsimonious models for the covariance matrix will be illustrated using a real dataset. Various factorizations of the covariance matrix, particularly the Cholesky decomposition of its inverse, provide the necessary ingredients for flexible and parsimonious modeling of covariance matrices.
