

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Covariance Models for Some Data Sets In Continuous Space and Discrete Time

Tuesday, April 6, 2021
10:20 AM - 11:10 AM [Eastern Daylight Time \(EDT\)](#)
Zoom

Abstract

Space- time data sets are often multivariate and collected at monitored discrete time lags, which are usually viewed as a component of time series. Valid and practical covariance models are needed to characterize the complex dependence structure of these types of data sets in various disciplines, such as environmental science, climatology, and agriculture. We propose several classes of univariate and multivariate spatio-temporal functions whose discrete temporal margins are some celebrated autoregressive and moving average (ARMA) models, and obtain necessary and sufficient conditions for them to be valid covariance (matrix) functions. The possibility of taking advantage of well-established time series and spatial statistics tools makes it relatively easy to identify and fit the proposed models in practice. Finally, applications of the proposed univariate and multivariate covariance (matrix) functions are illustrated on Kansas weather data in terms of (co-)kriging, compared with some traditional space-time models for prediction.

Zoom details can be found at: <https://stt.natsci.msu.edu/stt-colloquium-zoom-info/>

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