The Chinese University of Hong Kong
Department of Statistics

Seminar

Change Point Detection for Dynamic Functional Brain Connectivities

By

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Abstract

In neuroscience, functional connectivity describes the connectivity between brain regions that share functional properties. It is often characterized by a time series of covariance matrices between functional measurements of distributed neuron areas. An effective statistical model for functional connectivity and its changes over time is critical for better understanding neurological diseases. To this end, we propose a log-linear mean model with a heterogeneous noise for modeling random symmetric positive definite matrices that lie in a Riemannian manifold. A screening procedure is then developed for the purpose of multiple change point detection. Despite that the proposed model is linear and additive, it is able to account for the curved nature of the symmetric positive definite matrix manifold. Theoretically, we establish the sure coverage property. Simulation studies and an application to the Human Connectome Project lend further support to the proposed methodology.

Date: June 21, 2018 (Thursday)
Time: 2:30 p.m. - 3:30 p.m.
Venue: Liang Y C Hall - LHC Room 103
        The Chinese University of Hong Kong

ALL INTERESTED ARE WELCOME !!