The Chinese University of Hong Kong
Department of Statistics

Seminar

New HSIC-based Tests For Independence Between Two Stationary Multivariate Time Series

By

Dr ZHU Ke
Department of Statistics and Actuarial Science
The University of Hong Kong

Abstract

This paper proposes some novel one-sided omnibus tests for independence between two multivariate stationary time series. These new tests apply the Hilbert-Schmidt independence criterion (HSIC) to test the independence between the innovations of both time series. Under regular conditions, the limiting null distributions of our HSIC-based tests are established. Next, our HSIC-based tests are shown to be consistent. Moreover, a residual bootstrap method is used to obtain the critical values for our HSIC-based tests, and its validity is justified. Compared with the existing cross-correlation-based tests for linear dependence, our tests examine the general (including both linear and non-linear) dependence to give investigators more complete information on the causal relationship between two multivariate time series. The merits of our tests are illustrated by some simulation results and a real example.

Date: November 6, 2018 (Tuesday)
Time: 3:30 p.m. - 4:30 p.m.
Venue: Liang Y C Hall Room LPN LT
         The Chinese University of Hong Kong

ALL INTERESTED ARE WELCOME !!