Department of Statistics and Data Science
THE CHINESE UNIVERSITY OF HONG KONG

SEMINAR

DEPARTMENT OF STATISTICS AND DATA SCIENCE
THE CHINESE UNIVERSITY OF HONG KONG

Coverage correlation: detecting singular dependencies between random variables

INVITED SPEAKER

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Department of Statistics
London School of Economics and Political Science

TIME

Nov 4th, 2026 (Wednesday) · 2:30pm – 3:30pm

VENUE

LSB LT5 · CUHK

ABSTRACT

We introduce the coverage correlation coefficient, a novel nonparametric measure of statistical association designed to quantifies the extent to which two random variables have a joint distribution concentrated on a singular subset with respect to the product of the marginals. Our correlation statistic consistently estimates an f-divergence between the joint distribution and the product of the marginals, which is 0 if and only if the variables are independent and 1 if and only if the copula is singular. Using Monge–Kantorovich ranks, the coverage correlation naturally extends to measure association between random vectors. It is distribution-free, admits an analytically tractable asymptotic null distribution, and can be computed efficiently, making it well-suited for detecting complex, potentially nonlinear associations in large-scale pairwise testing.