

Dr. Thomas Fung

Lecturer in Statistics, Department of Statistics, Macquarie University

<https://directory.science.mq.edu.au/users/tfung>

Title:

Semiparametric generalized linear models for time-series data

Abstract:

Time-series data in population health and epidemiology often involve non-Gaussian responses. In this talk, we consider a semiparametric version of the generalized linear autoregressive moving average models (GLARMA) that does not require specification of a working conditional response distribution for the data. Instead, the underlying response distribution is treated as an infinite-dimensional parameter, which is estimated simultaneously with the usual finite-dimensional parameters via a maximum empirical likelihood approach. A general consistency result for the resulting estimators is given. Simulations suggest that both estimation and inferences using the proposed method can perform as well as the correctly-specified parametric models even for moderate sample sizes, but can be more robust than parametric methods under model misspecification. The method is used to analyse the Polio dataset from Zeger (1988) and a recent Kings Cross assault dataset from Menéndez et al. (2015). This talk represents joint research with Dr. Alan Huang.