

**The Hong Kong Polytechnic University
Department of Applied Mathematics**

AMA Distinguished Seminar Series in Data Science and Machine Learning

Graphical proportional hazards models with measurement error

By

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Abstract

In survival data analysis, the Cox proportional hazards (PH) model is perhaps the most widely used model to feature the dependence of survival times on covariates. While many inference methods have been developed under such a model or its variants, those models are not adequate for handling data with complex structured covariates. High-dimensional survival data often entail several features: (1) many covariates are inactive in explaining the survival information, (2) active covariates are associated in a network structure, and (3) some covariates are error-contaminated. To handle such survival data, we propose graphical PH measurement error models and develop inferential procedures for the parameters of interest. Our proposed models significantly enlarge the scope of the usual Cox PH model and have great flexibility in characterizing survival data. Theoretical results are established to justify the proposed methods. Numerical studies are conducted to assess the performance of the proposed methods.

Biography

Dr. Grace Y. Yi is a professor in the Department of Statistical and Actuarial Sciences and the Department of Computer Science at the University of Western Ontario. She currently holds a Tier I Canada Research Chair in Data Science. Dr. Yi's research interests focus on developing the statistical methodology to address challenges concerning measurement error, causal inference, imaging data, missing data, high dimensional data, survival data, longitudinal data as well as statistical machine learning. She authored the monograph "*Statistical Analysis with Measurement Error or Misclassification: Strategy, Method and Application*" (2017, Springer), and co-edited "*Handbook of Measurement Error Models*" (Grace Y. Yi, Aureore Delaigle and Paul Gustafson, 2021, Chapman & Hall/CRC).

Date: 2 December 2022 (Friday)

Time: 10:00-11:00 (Hong Kong Standard Time GMT +8)

Venue: Online Talk via Zoom (Meeting ID: 928 3082 8034)

Speaker: Prof. Grace Yi, University of Western Ontario

Host: Prof. Xingqiu Zhao, The Hong Kong Polytechnic University

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<https://polyu.zoom.us/j/92830828034?pwd=WmRhV0FkMEJWN0lqWVBPUgtiTlFIUT09>



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