



Date: September 15, 2022

Time: 11:30am-12:30pm

Presenter: Cindy Feng (Dalhousie University)

Title: Cross-validated Z-residuals for Diagnosing Shared Frailty Models

Abstract: Residuals play a central role in diagnosing regression models. Cox-Snell, Martingale, and deviance residuals have been widely used for diagnosing survival models, but those tools have limitations. In this talk, we introduce a new type of residuals, named Z-residuals, for diagnosing shared frailty models for clustered survival data. The key idea of Z-residual is to introduce randomizations between the discontinuity gap of the estimated survival probabilities and then invert the fitted survival function to find the equivalent standard normal quantile. Furthermore, we proposed to calculate cross-validated Z-residuals to address the conservatism of the residual diagnosis. We conduct simulation studies to compare the performances of Z-residuals with and without cross-validation methods in detecting the nonlinear covariate effect and the outliers in survival time. We also demonstrate the effectiveness of cross-validated Z-residuals in diagnosing outliers for a kidney infection dataset. Our results showed that cross-validation helps improve the performance of Z residuals for detecting model misspecification.

How to connect? Via [Zoom](#)

Meeting ID 812 8548 6651

Passcode 970716