



Statistics Seminar

Statistical inference for one-shot device testing data

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Friday, February 12
12:00 - 1:00 pm

Abstract: One-shot devices are products that can only be used once. Typical one-shot devices include air-bags, fire-extinguishers, fireworks etc. The observations from those devices are either success and failure at the time of test/use. So, there is usually a considerable loss of information, and hence, the estimation of life characteristics becomes a difficult problem. In this case, the estimation problem has been discussed by many authors, mostly in a parametric setting. In this talk, we will focus on the following aspects of one-shot devices test data. First, we will discuss the Bayesian estimation and a semi-parametric estimation method for simple one-shot devices. Since most one-shot devices contain many components and that failure of any one of them may lead to the device's failure, a competing risk model will be discussed next in a one-shot device testing context. The second section will discuss the maximum likelihood estimation of model parameters using the EM algorithm, the Bayesian estimation, and the semi-parametric estimation for such a competing risk scenario. Finally, we will conclude the presentation by mentioning some open problems.

Bio: **Hon Yiu (Henry) So** is currently a Post-doctoral researcher at the University of Waterloo. He completed his PhD at McMaster University. He majored Risk Management Science at The Chinese University of Hong Kong. His research interest are accelerated life tests, longitudinal data, misclassification, missing data and survey methodology with applications in reliability analysis and population health.