Abstract

Most commercial products in the market place are sold with warranties and they are sold indirectly through dealers. This results in some serious missing data problems in the analysis of field return data. In this work, we develop a general framework of statistical analysis for this kind of incomplete field failure data. The objective of this work is two-fold. First, we introduce a general model for reliability analysis based on field failure data arising from reverse logistics with the consideration of a warranty period. We are interested in estimating the distributions of the date of purchase and the lifetime (time from purchase to failure) of the product under study. Second, we propose the use of the stochastic expectation-maximization (SEM) algorithm to obtain the maximum likelihood estimates of the model parameters. Construction of confidence intervals of the parameters is also discussed. A Monte Carlo simulation study is used to evaluate the performance of the proposed algorithm. Three real examples are used to demonstrate the broad applicability of the proposed methodology.
About the Speaker

Dr. Ye received a joint B.E. (2008) in Material Science & Engineering, and Economics from Tsinghua University. He received a Ph.D. degree from National University of Singapore. He is currently a research Assistant Professor in the Department of Applied Mathematics at The Hong Kong Polytechnic University. His research areas include burn-in testing, degradation analysis, lifetime data analysis and reliability modeling. He held the prestigious President Graduate Fellowship during his study in National University of Singapore. He was the recipient of the Global Scholarship for Research Excellence from Chinese University of Hong Kong in 2011 and of the National Semiconductor Mfr Singapore Gold Medal Award in 2012.

Enquiry: 3442 8408

All are Welcome!