Statistics Seminar

Department of Mathematical Sciences

DATE:	Thursday, November 13, 2014
TIME:	1:15pm to 2:15pm
PLACE:	OW 100E
SPEAKER:	Withanage A. De Mel (Binghamton University)
TITLE:	Chi-Squared Goodness of Fit Test Based on Random Cells with Recurrent Event Data

Abstract

We consider a recurrent event wherein the inter-event time distribution F is assumed to belong to some parametric family of the distributions $\mathcal{F},$ where the unknown parameter θ is q-dimensional. This work deals with the problem of goodness-of-fit test for $F.$ We develop a chi-square type test where the k nonoverlapping cell boundaries are randomly chosen. Our test used a Kaplan Meier type nonparametric maximum likelihood estimator (NPMLE) of F to obtain the observed frequencies. The minimum distance estimator of θ is obtained by minimizing the quadratic form that resulted from the properly scaled vector of differences between the observed and expected cell frequencies. The proposed chi-square test statistic is constructed by using the NPMLE of F and the minimum distance estimator. We show that the proposed test statistic is asymptotically chi-square with $k - q -1$ degrees of freedom. Results for specific families of distributions such as Weibull and Exponential are presented. We also discuss results of a simulation study as well as application to a biomedical data set.