

# 國立中央大學

## 統計研究所

### 學術演講

主 講 人：楊雅芳小姐（國立中央大學統計研究所博士候選人）

講 題：A kernel smooth approach for joint modeling of accelerated failure time and longitudinal data

時 間：102 年 06 月 04 日（星期二）上午 11：00 ~ 12：00

地 點：中央大學鴻經館 M605 室

### ABSTRACT

Joint likelihood approaches have been widely used to handle survival data with time-dependent covariates. In construction of the joint likelihood function for the accelerated failure time model, the unspecified baseline hazard function is assumed to be a piecewise constant function in the literature. However, there are usually no close form formulas for the regression parameters, which require numerical methods in the EM iterations. The non-smooth step function assumption leads to very spiky likelihood function which is very hard to find the globe maximum. Besides, due to non-smoothness of the likelihood function, direct search methods are conducted for the maximization which are very inefficient and time consuming. To overcome the two disadvantages, we propose a kernel smooth pseudo-likelihood function to replace the non-smooth step function assumption. The performance of the proposed method is evaluated by simulation studies. A case study of reproductive egg-laying data is provided to demonstrate the usefulness of the new approach.

Keywords: AFT model; Hazard smoothing; Joint model; EM algorithm.

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