

## **Modeling repairable system failures with interval failure data and time dependent covariate**

### **ABSTRACT**

An application of a repairable system model for interval failure data with a time dependent covariate is examined. The performance of several models based on the NHPP when applied to real data on ball bearing failures is also explored. The best model for the data was selected based on results of the likelihood ratio test. The bootstrapping technique was applied to obtain the variance estimate for the estimated expected number of failures. Results demonstrate that the proposed model works well and is easy to implement, in addition the bootstrap variance estimate provides a simple substitute for the traditional estimate.

**Keyword:** Interval; Repairable; NHPP; Covariate; Bootstrap