



## **Nonparametric Monitoring of Unknown Structural Dependence in High-Dimensional Datastreams using Pseudo Copula and Eigenvectors**

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### **Abstract:**

This presentation considers a nonparametric approach of Phase-II monitoring of unknown structural dependence in multivariate and high-dimensional data streams using pseudo copula observation and the eigenvector of a suitably estimated covariance matrix. We study the in-control robustness, effect of estimation of covariance matrix in the high-dimensional setup and investigate the proposed scheme's out-of-control performance in various situations. Some comparisons with the existing procedures based on Monte-Carlo indicate that the proposed design is more robust, efficient and flexible. We consider an application in quality monitoring semiconductor manufacturing data.

### **Keywords:**

<Copula>; <Covariance Matrix>; <Eigenvectors>; <Monte-Carlo>; <Robustness>

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