

## **A randomized nonparametric statistic for multivariate multisample testing hypothesis**

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We consider a multivariate multisample testing hypothesis, which is one of the most common types of statistical problems. Recent progress in computerized measurement technology has permitted the accumulation of multivariate data. The analysis of multivariate data is particularly important in studies of biological data, image data, and functional data. For the multivariate data, it is important to determine how to represent the rank based on the observation distances. One of the multivariate multisample testing problems based on the Jureckova - Kalina ranks of distance is discussed in this paper. A randomized multivariate multisample nonparametric statistic is proposed for the equality of two continuous distribution functions for the two-sided alternatives. Simulations are used to investigate the power of the suggested statistic for the two-sided alternative with various population distributions.

**Key Words:** Multivariate multisample rank test, Jureckova-Kalina's ranks, Power comparison;