Hodges Lehmann estimator for robust design using Dual Response Surface Approach.

ABSTRACT

In this paper, we proposed the usage of the robust Hodges Lehmann estimator (HLE) as a location measure in the construction of optimal designs using the Dual Response Surface Approach (DRSA) where the location and scale measures were incorporated simultaneously into the model. The performance of six models with different pairs of location and scale estimators were compared. The results from a simulation study showed that for the non-normal and normal distribution with contaminated data, the model using HLE and inter-quartile range (IQR) performed better than the pair of the sample median and IQR as achieved by Park and Cho (2002).