

Construction and analysis of D-optimal edge designs

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Abstract

Edge designs are screening experimental designs that allow a model-independent estimate of the set of relevant variables, thus providing more robustness than traditional designs. In this paper, new classes of D -optimal edge designs are constructed. This construction uses weighing matrices of order n and weight k together with permutation matrices of order n to obtain D -optimal edge designs. Linear and quadratic simulated screening scenarios are studied and compared using linear regression and edge designs analysis. An alternative method for constructing and analyzing expanded edge designs is introduced. This method provides a model-independent estimate of the set of active factors and also gives a linearity test for the underlying model.

Keywords

Screening, Linear models, Regression analysis, Conference matrices, Weighing matrices, Simulation experiments.

References

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