CONSTRUCTION OF SLICED ORTHOGONAL LATIN HYPERCUBE DESIGNS

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Abstract: We propose several methods to construct a new type of design, called a sliced orthogonal Latin hypercube design. Such a design is a special orthogonal Latin hypercube design, of first-order or second-order, that can be divided into slices of smaller orthogonal Latin hypercube designs of the same order. This type of design is useful for computer experiments with qualitative and quantitative factors, multiple experiments, data pooling and cross-validation. Examples are given to illustrate the proposed methods.

Key words and phrases: Computer experiment; Experimental design; Orthogonal array; Orthogonal design; Space-filling design.