

## Sequential Projection Maximin Distance Sampling Method

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Computational experiments are employed to evaluate performances instead of real-life experiments. However, because a single simulation can be time-consuming process, routine tasks such as optimization become impossible since they require many simulations. Thus surrogate models have been developed as an attractive alternative. And it is essential to select appropriate sample points for an accurate surrogate model. Consequently, computational design of experiment was introduced. There were one-stage sampling methods that only consider input information and sequential sampling methods that select new sample points through output information from previous steps. In this paper, sequential projection maximin distance sampling method based on relative importance such as global sensitivity, contribution ratio, and correlation coefficient is proposed. The proposed method has a good projective property on each variable and satisfies space filling concept without Latin hypercube concept.

**Keywords:** Design of experiment (DOE), Sequential design, Space-filling, Projective property, Surrogate model, Maximin distance design, Multi-objective