Bayesian Optimization Methodology for Design Optimization of Electromagnetic Systems

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Abstract

Mathematical optimization is pervasive in the most of the engineering problems. From practical point of view, real problems are computationally very expensive and enormous effort has to be exerted to find the best available values of the set of objective functions. Apart from the complexity of the optimization problem, huge attention has to be paid to address uncertainty in the optimization process. Nowadays, one of the promising optimization techniques is the Bayesian optimization, which seem to be the cutting edge in the current state-of-the-art approaches. The fundamentals of this methodology is presented and discussed from general viewpoint. All theoretical assumptions are verified by numerical experiments with the artificial test functions and also tested on practical engineering optimization problems.

References

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