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A COMPARISON OF SEQUENTIAL DESIGN METHODS FOR RF CIRCUIT BLOCK MODELING

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ABSTRACT

When modeling complex systems, the locations of the data points are essential to the success of the algorithm. Sequential design methods are iterative algorithms that use data acquired from previous iterations to guide future sample selection. They are often used to improve an initial design such as a Latin hypercube or a simple grid, in order to focus on highly dynamic parts of the design space. In this paper, a comparison is made between different sequential design methods on a real-world electronics problem. Error-based and density-based methods are compared against a novel hybrid technique which incorporates both an error-based measure, using gradient estimations of the objective function, and a density-based measure, using a Voronoi tessellation approximation. The test results indicate that a considerable improvement of the average model accuracy can be achieved by using this new approach.

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