

# VARIANCE REALLOCATION IN TAGUCHI'S ROBUST DESIGN FRAMEWORK

## Abstract

The appropriate use of antithetic random variates has been shown to improve the precision of response surface model estimation for simulation. We apply this approach to simulation experiments designed to determine operating conditions that reduce response variability by using Genichi Taguchi's parameter design framework. Antithetic random number streams can be viewed as another level of complexity in the experiment design: we call this class of simulation-specific factors *artificial factors*. A simple example illustrates how antithetic random variates may be beneficial for robust design in simulation settings.

## Full citation:

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