

We propose a method with better predictions at extreme values than the standard method of Kriging. We construct our predictor in two ways: by penalizing the mean squared error through conditional bias and by penalizing the conditional likelihood at the target function value. Our prediction exhibits robustness to the model mismatch in the covariance parameters, a desirable feature for computer simulations with a restricted number of data points. Applications on several functions show that our predictor is robust to the non-Gaussianity of the function.

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