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Response surface methods for maximizing accuracy of genomic predictions

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We introduce Response Surface Methodology (RSM) as a strategy to find the combination of attribute levels that results in accurate predictions for a given genomic prediction (GP) method, and compare GP methods. We illustrate RSM with a simulated example where the response we optimize is the difference between prediction accuracy using the parametric best linear unbiased prediction (BLUP) and the nonparametric support vector machine (SVM). The greatest impact on the response is due to the genetic architecture of the population and the heritability. When epistasis and heritability are highest, the advantage of using the SVM versus the BLUP is greatest.