

Using derivative-free optimization algorithms to tune the global optimization solver BARON

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Optimization solvers provide various options that allow users to control different algorithmic aspects. Tuning solver options is often necessary since it leads to significant performance improvements. All previous proposed methods for tuning optimization solvers options have focused on MILP and local NLP solvers. We investigate the potential of tuning the global optimization solver BARON for NLP and MINLP problems. We perform a computational study over a set of 126 problems from GLOBALlib and MINLPlib collections in order to identify optimal values for each one of the problems and also find a single set of options that can improve the performance of BARON across the entire test collection. A total of 27 derivative-free optimization algorithms are used for this reason. Detailed computational results will be presented.