

# **A heuristic for nonlinear global optimization**

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We propose a new heuristic for nonlinear global optimization combining a variable neighbourhood search framework with a modified trust-region algorithm as local search. The proposed method presents the capability to prematurely interrupt the local search if the iterates are converging to a local minimum which has already been visited or if they are reaching an area where no significant improvement can be expected. The neighborhoods as well as the neighbors selection procedure are exploiting the curvature of the objective function. Numerical tests are performed on a set of unconstrained nonlinear problems from the literature. Results illustrate that the new method significantly outperforms existing heuristics from the literature in terms of success rate, CPU time, and number of function evaluations.