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Algorithms for Generating Minimax Optimal Experimental Designs

We explore modern optimization methods in physics, engineering and operation research for generating minimax optimal designs for regression problems. Of particular interest is the Particle Swarm Optimization approach, which is a promising, stochastic based meta-heuristic optimization method that uses only objective function values and does not require derivative information. We apply the method to solve several types of minimax design problems in linear and nonlinear regression problems and report the quality of the optimal designs.