
Josh, D Griffin
**An asynchronous parallel derivative-free algorithm for
handling general constraints**

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We will discuss an asynchronous parallel implementation of a derivative-free augmented Lagrangian algorithm for handling general nonlinear constraints recently proposed by Kolda, Lewis, and Torczon. The method solves a series of linearly constrained subproblems, seeking to approximately minimize the augmented Lagrangian which involves the nonlinear constraints. Each subproblem is solved using a generating set search algorithm capable of handling degenerate linear constraints. We use APPSPACK to solve the linearly-constrained subproblems, enabling the objective and nonlinear constraint functions to be computed asynchronously in parallel. A description and theoretical analysis of the algorithm will be given followed by numerical results.