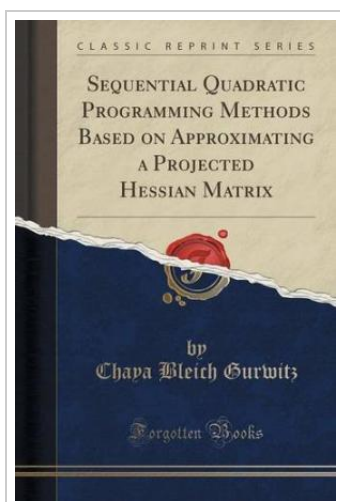




Sequential Quadratic Programming Methods Based on Approximating a Projected Hessian Matrix (Classic Reprint)

By Chaya Bleich Gurwitz

Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.Excerpt from Sequential Quadratic Programming Methods Based on Approximating a Projected Hessian Matrix We consider the nonlinear programming problem, namely minimizing a nonlinear function subject to a set of nonlinear equality and inequality constraints. Sequential quadratic programming (SQP) methods are particularly effective for solving problems of this nature. It is assumed that first derivatives of the objective and constraint functions are available, but that second derivatives may be too expensive to compute. Instead, the methods typically update a suitable matrix which approximates second derivative information at each iteration. We are interested in developing SQP methods which maintain an approximation to second derivative information projected onto the tangent space of the constraints. The main motivation for our work is that only the projected matrix enters into the optimality conditions for the nonlinear problem. Updating projected second derivative information reduces the dimension of the matrix to be recurrent; we avoid the necessity of introducing an augmenting term which can lead to ill-conditioned matrices; and we are able to make use of standard quasi-Newton updates which maintain hereditary positive definiteness....



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