

# Gauss-Newton methods with approximate projections for solving constrained nonlinear least squares problems

Tiago da Costa Menezes

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This paper is concerned with algorithms for solving constrained nonlinear least squares problems. We first propose a local Gauss-Newton method with approximate projections for solving the aforementioned problems and study, by using a general majorant condition, its convergence results, including results on its rate. By combining the latter method and a nonmonotone line search strategy, we then propose a global algorithm and analyze its convergence results. Finally, some preliminary numerical experiments are reported in order to illustrate the advantages of the new schemes.