Proximal Quasi-Newton Method for Composite Optimization over the Stiefel Manifold

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Abstract: In this talk, based on a proximal gradient method, we present a Riemannian proximal quasi-Newton method, named ManPQN, to solve the composite optimization problems over the Stiefel manifold. The global convergence of the ManPQN method is proved and iteration complexity for obtaining an ϵ-stationary point is analyzed. Under some mild conditions, we also establish the local linear convergence result of the ManPQN method. Numerical results are encouraging, which show that the proximal quasi-Newton technique can be used to accelerate the proximal gradient method.