STEVE VAVASIS, University of Waterloo
Nonlinear Conjugate Gradient for Convex Functions

Nonlinear conjugate gradient is a classic and widely used method for unconstrained optimization. Nemirovskii and Yudin in their 1983 book showed that these methods can converge slowly even for strongly convex functions. We propose an inexpensive safeguard operation to assure the optimal convergence rate for these methods when applied to smooth, convex functions. The safeguard step preserves the asymptotic property of the method. We also present preliminary computational experiments. Joint work with S. Karimi.