

I.E. Livieris and P. Pintelas, [A Descent Dai-Liao Conjugate Gradient Method Based on a Modified Secant Equation and Its Global Convergence](#), *ISRN Computational Mathematics*, 2012.



**Abstract** - In this paper, we propose a conjugate gradient method which is based on the study of the Dai-Liao conjugate gradient method. An important property of our proposed method is that it ensures sufficient descent independent of the accuracy of the line search. Moreover, it achieves a high-order accuracy in approximation the second order curvature information of the objective function by utilizing the modified secant condition proposed by Babaie-Kafaki (J. Comput. Appl. Math. 234:1374--1386, 2010). Under mild conditions, we establish that the proposed method is globally convergent for general functions provided that the line search satisfies the Wolfe conditions. Numerical experiments are also presented.