

**Newton-Raphson Versus Fisher Scoring Algorithms in Calculating
Maximum Likelihood Estimates**

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Abstract

In this work we explore the difficulties and the means by which maximum likelihood estimates can be calculated iteratively when direct solutions do not exist. The Newton-Raphson algorithm can be used to do these calculations. However, this algorithm has certain limitations that will be discussed. An alternative algorithm, Fisher scoring, which is less dependent on specific data values, is a good replacement. The Fisher scoring method converged for data sets available to the authors, that would not converge when using the Newton-Raphson algorithm. An analysis and discussion of both algorithms will be presented. Their real world application on analysis of jet engine part inspection data will also be discussed.