ENHANCED LINE SEARCH : A NOVEL METHOD TO ACCELERATE PARAFAC (TueAmPO2)

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Abstract :

The ALS algorithm, used to fit the PARAFAC model, sometimes needs a large number of iterations before converging. The slowness in convergence can be due to the large size of the data, or to the presence of degeneracies, etc. Several methods have been proposed to speed up the algorithm, some of which are compression, and Line Search proposed by Bro and Harshman. In this paper, after a description of PARAFAC, we will present a novel method for speeding up the algorithm that shows better results in simulations compared to the existing methods, especially in the case of degeneracy. The paper gives an application of the method to blindly identify the mixing matrix of an Under−Determined Mixture (UDM), but it can be applied to any N−way decomposition problem.

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