SVD Factorization for Tall and Fat Matrices on Map/Reduce Architectures

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Abstract

We demonstrate an implementation for a SVD factorization scheme combining well/known randomized projection techniques. We incorporate previously implemented map/reduce solutions in order to compute various steps of this procedure such as QR factorizations. We structure the problem in a way it is reduced to local Cholesky factorization on k by k matrices greatly reducing the complexity of the problem.

1 Introduction

References

[1] N. Halko, *Randomized methods for computing low-rank approximations of matrices*

[2] Gleich, Benson, Demmel, *Direct QR factorizations for tall-and-skinny matrices in MapReduce architectures*