IRLB SVD methods for R

Bryan W. Lewis

1. Affiliation of author A and author B
2. Second affiliation of author A
3. Second affiliation of author B
4. Third affiliation of author B

* Contact author: email@adresse.fr Bryan@revolution-computing.com

Keywords: XVD,PCA, LDA

Abstract: The singular value decomposition (SVD) is used by many important statistical methods and applications including principal components analysis and linear discriminant analysis. Numerical implementations of the SVD are computationally intensive. Many applications of the SVD often require only a few singular values and corresponding singular vectors. We introduce Baglama's recent implicitly-restarted Lanczos (IRLB) methods for computing a few singular vectors of a matrix to the R language. These state of the art methods significantly outperform existing R-language SVD implementations in computational and memory efficiency. Moreover, the IRLB algorithm is simple and easily scalable to parallel implementations appropriate to huge data.

References

(2007). *J. Baglama and L. Reichel,*
Augmented Implicitly Restarted Lanczos Bidiagonalization Methods, SIAM J. Sci. Comput., 27 (2005), pp. 19-42.

URL IS NOT AVAILABLE BUT WILL BE PRIOR TO EVENT