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Simple principal components. (English) [Zbl 0965.62052](#)
J. R. Stat. Soc., Ser. C, Appl. Stat. 49, No. 4, 441-451 (2000).

Summary: We introduce an algorithm for producing simple approximate principal components directly from a variance-covariance matrix. At the heart of the algorithm is a series of ‘simplicity preserving’ linear transformations. Each transformation seeks a direction within a two-dimensional subspace that has maximum variance. However, the choice of directions is limited so that the direction can be represented by a vector of integers whenever the subspace can also be represented by vectors of integers. The resulting approximate components can therefore always be represented by integers. Furthermore, the elements of these integer vectors are often small, particularly for the first few components. We demonstrate the performance of this algorithm on two data sets and show that good approximations to the principal components that are also clearly simple and interpretable can result.

MSC:

[62H25](#) Factor analysis and principal components; correspondence analysis

Cited in **18** Documents

Keywords:

[interpretation](#); [pairwise linear transformations](#); [principal components analysis](#); [simplification](#)

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