eigen analysis : how to recompose the signal?

Source: http://sci.tech−archive.net/Archive/sci.stat.math/2005−05/msg00338.html

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- *Date*: Sun, 22 May 2005 00:25:49 +0000 (UTC)

Hello,

Let's imagine I am using an eigen analysis to decompose n variables observed p times. This will produce a subset of c components, c<<n, explaining most of the signal : a vector of [c] eigenvalues, a matrix of [n,c] loadings and a matrix of [p,c] scores.

Now, I would like to use only the variables having the greatest loadings in order to estimate what the 'real' observation would be. How do I recompose the signal ? How can I better characterize this estimatation (e.g. confidence interval) ?

Is it something like :
observation = sum(1 to c)
[sqrt(eigenvalue(c)).loading(variable,c).measure(variable)]

Thanks

Olivier.

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