# Eigen vector and eigen value

**Ramanandh25** **Aug 5**

can some one give me an intuitive explanation of what eigen vector and eigen value are and if possible how they are used in pagerank TIA

**ThamNgapWei** **Aug 5**

This **post** may help you, cheers

**Ramanandh25** **Aug 6**

Thank you very much I will check it

**Adrian** Chief PyImageSearcher **Aug 6**

Here is another intuitive explanation of Eigenvectors and Eigenvalues. I personally like this visualization because it's so visual:

**http://setosa.io/ev/eigenvectors-and-eigenvalues/**

If you're looking to level-up your Linear Algebra skills, I can't suggest enough the *Coding the Matrix* book:

**http://codingthematrix.com/**

**leonardo.honorio** **Aug 18**

by the time you must already figured out, but a very good visualization is to image a number of points in 2D space and also imagine a oriented bounding box around them. The eigenvectors of the covariance matrix of those points are alined with the axes of the OB. The eigenvalues represents how those points are spread along each axis. The biggest eigenvalue indicates the direction of the larger axis of the OBB.
sorry for the late answer, i was traveling around.

**Adrian** Chief PyImageSearcher **Aug 20**

> leonardo.honorio:
>
> by the time you must already figured out, but a very good visualization is to image a number of points in 2D space and also imagine a oriented bounding box around them.

I might be making this up, but isn't that typically referred to as the "shadow" of the data since we are visualizing the points in a 2D space rather than the original N-dimensional space? I've also heard of this technique as the "data shadow", but I can't remember where I originally heard the term from.

**leonardo.honorio** **Aug 20**

Hi, it was the first time i heard about "data shadow", i google it and the definition i found is a bit out of context (https://www.techopedia.com/definition/28091/data-shadow). but as it is new to me, i don't know if there is more then one concept of that. Another possibility is that i may be missing some point in the concept..... The OBB can be used in n-dimensional space, in fact it is used to find collisions in games (Gottschalk, S., Lin, M. & Manocha, D. (1996). Obbtree: a hierarchical structure for rapid interference detection. In Proceedings of the 23rd Annual Conference on Computer Graphics and Interactive Techniques, ACM (pp. 171–180)). I also can be used to build a neural network classifier (http://link.springer.com/article/10.1007%2Fs40313-014-0119-5).
cheers!

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**Adrian** Chief PyImageSearcher **Aug 21**

It could very well be that my memory regarding the "data shadow" isn't correct. I just vaguely remember one of my data mining professors mentioning it before, but I can't recall the exact context. Also, thanks for passing along the link to the publication!