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## **Neural network simulation for principal component analysis case of supervised learning**

**Donking Kialanda Nsidiyova, Simon Ntumba Badibanga and Eugène Mbuyi Mukendi**  
University in Kinshasa, D R Congo

In our paper, we need to describe the investigation made to simulate a neural network which can calculate the Principal Components Analysis, PCA acronym. Its implementation allows us to obtain the result close to those obtained as done by PCA conventional method. A better understanding of this investigation requires reminding the general principles of operation of a neural network and those of the PCA. Also, we will point out that the study will be conducted on the student's score of the second session, first mathematical graduate, Science Faculty of the University of Kinshasa in the Democratic Republic of Congo, 2011-2012. We will implement the network by using this student's scores. The fundamental advantage of neural network compared to traditional statistics models is that it allows automating the discovery of most important dependencies to predict a process. The method used in our paper is based on Sammon algorithm. The learning methods using the neural network are in fact the linear separation techniques to compare with common techniques used in data analysis. Their big advantage is that they don't need any parameters. It means that they can be utilized directly without any separable data hypothesis hence the interest of this paper. Besides the introduction and the conclusion, our paper will be organized in three sections. The first takes care of the neural networks; the second covers the application with the PCA and the third presents our application.

### **Biography**

Donking Kialanda Nsidiyova has graduated in Mathematics and Computer Science from University of Kinshasa. Currently, he is working as an Assistant Professor of data analysis at the same university and also in the Central Bank of Congo, responsible for IT security and planning in IT department.

[donkingkialanda@gmail.com](mailto:donkingkialanda@gmail.com)

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