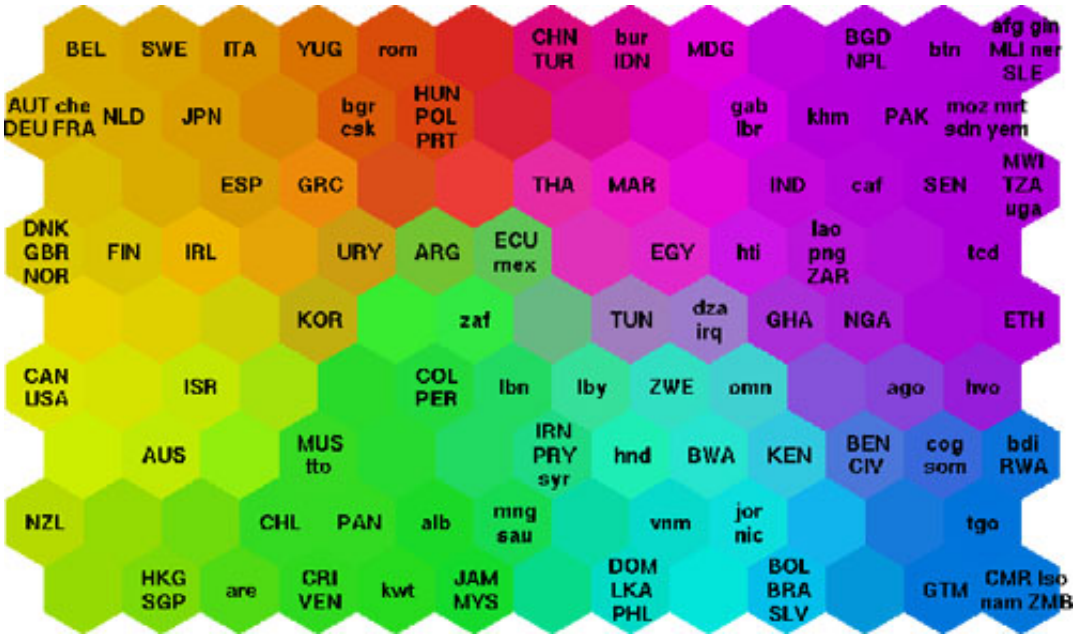
a i - j u n k i e

## Applications of SOMs

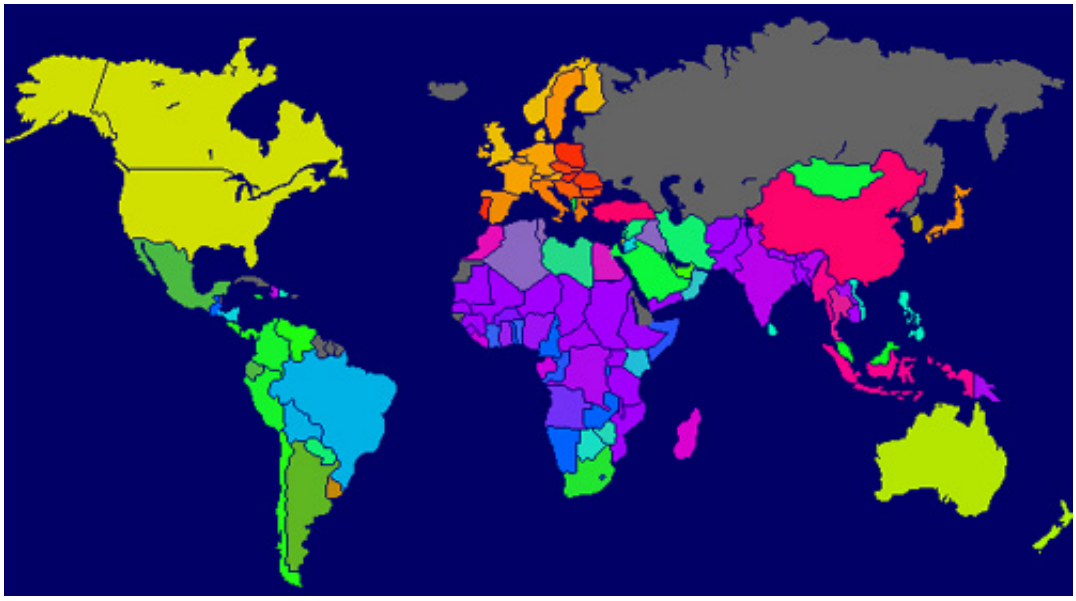
SOMs are commonly used as visualization aids. They can make it easy for us humans to see relationships between vast amounts of data. Let me show you an example

### World Poverty Map

A SOM has been used to classify statistical data describing various quality-of-life factors such as state of health, nutrition, educational services etc. . Countries with similar quality-of-life factors end up clustered together. The countries with better quality-of-life are situated toward the upper left and the most poverty stricken countries are toward the lower right. The hexagonal grid is a unified distance matrix, commonly known as a u-matrix. Each hexagon represents a node in the SOM.




This colour information can then be plotted onto a map of the world like so:



This makes it very easy for us to understand the poverty data.

### Other Uses

SOMs have been applied in many areas. Here are just some of them.

Bibliographic classification (click for more info)
Image browsing systems (click , click me too!)
Medical Diagnosis
Interpreting seismic activity
Speech recognition (this is what Kohonen used them for initially)
Data compression
Separating sound sources (click)
Environmental modelling (click)
Vampire classification! (click)

## Conclusion

I hope you've enjoyed reading this tutorial and, more importantly, I hope I've interested you enough for you to experiment with your own SOMs.

Have fun!

## Update

I found the following article the other day. It's a great read and may give you some ideas.

http://www.generation5.org/content/2004/aiSomPic.asp

## Update2

Robert DeLisle (KIrkD) has kindly made his code available for the generation and training of self organising maps. The code is well designed and commented and comes complete with step-by-step "how to" instructions and UML-like diagrams. You can find the files, documentation and a pre-compiled executable here (to see the executable run make sure you put the data file "Random4.csv" into the c:\temp folder)

If you have problems with the code or would like to ask Kirk questions please contact him here: REMOVErkdelisleREMOVE@earthlink.net.

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