

How do SOMs work?

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Deep Learning A-Z

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How Do SOMs Work?

Supervised	Artificial Neural Networks	Used for Regression & Classification
Unsupervised	Convolutional Neural Networks	Used for Computer Vision
Supervised	Recurrent Neural Networks	Used for Time Series Analysis
Unsupervised	Self-Organizing Maps	Used for Feature Detection
Supervised	Deep Boltzmann Machines	Used for Recommendation Systems
Unsupervised	AutoEncoders	Used for Recommendation Systems

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Self-organizing maps are sometimes called Kohonen maps.

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Teuvo Kohonen

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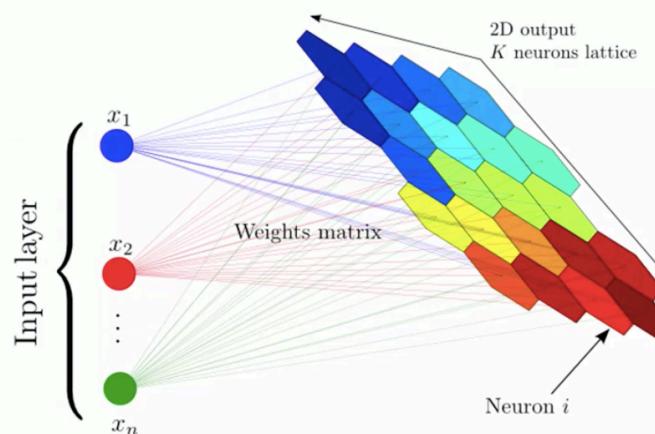


Image Adapted From: arxiv.org/pdf/1312.5753.pdf

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SOM take a multi-dimensional dataset which might have lots of columns (which are the dimensional of data set) and also lots of rows, to reduce the dimensionality. So instead of having a 20, 50, 100 columns, we end up having a map (2-dimensional representation of our data).

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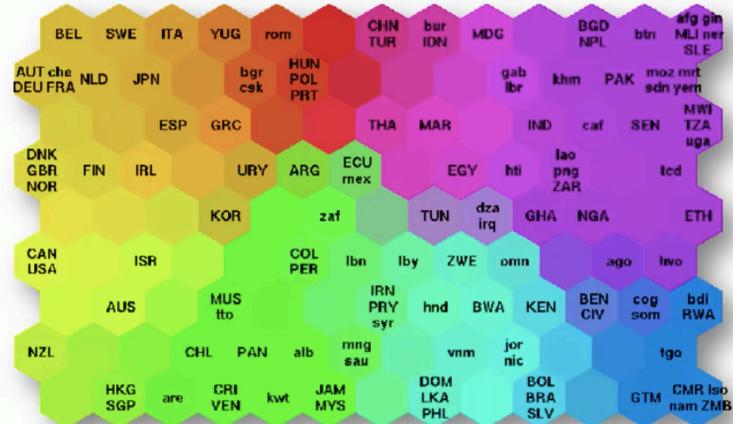


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Dataset related to the prosperity and living rate of different countries.

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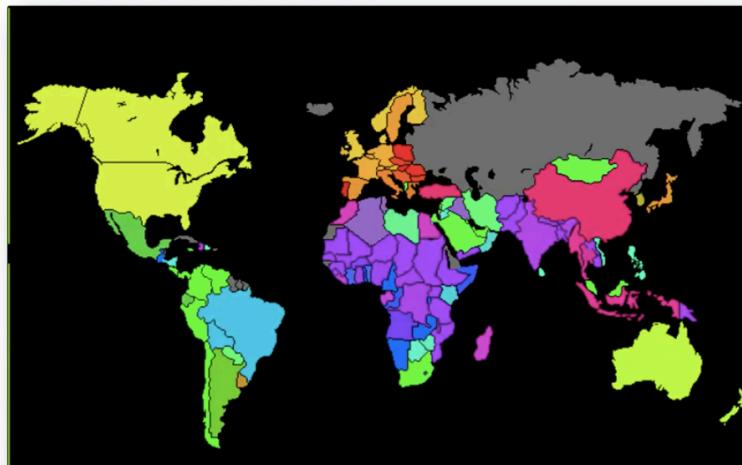


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#	A	B	C	D	E
1	Country	Country	GDP	Health	Ex Education
2	Aruba	ABW	9.418971	5.92467022	-2.13657
3	Afghanist	AFG	4.371774		-8.28308
4	Angola	AGO	5.791339		13.73145
5	Albania	ALB	6.75969		2.280502
6	Andorra	AND	4.57058	3.1638701	
7	Arab Wor	ARB	4.049924		3.524814
8	United Ar	ARE	7.834758		
9	Argentina	ARG	4.545323	4.88997984	6.282774
10	Armenia	ARM	3.84079003		3.406767
11	American	ASM	4.862062		
12	Antigua	a ATG	9.046056	2.55447006	-0.55016
13	Australia	AUS	11.19444	5.09362991	1.820112
14	Austria	AUT	5.85024	5.767498	0.506313
15	Azerbaijan	AZE	6.964187	3.22430992	1.401056
16	Burundi	BDI	10.39434	6.3197999	10.98147
17	Belgium	BEL	4.46431	6.41535997	-0.05315
18	Benin	BEN	7.405431	4.22204018	2.15683

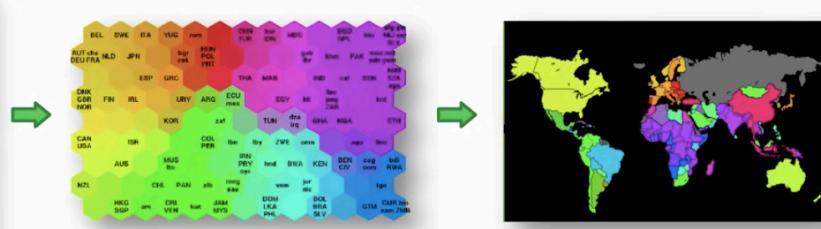


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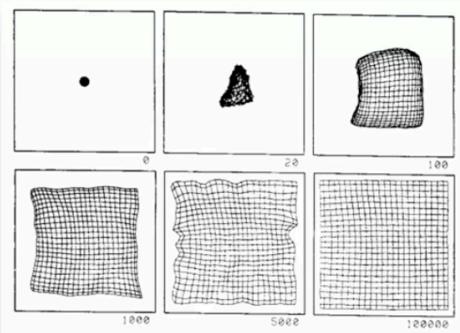
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Additional Reading:

The Self-Organizing Map

By Tuevo Kohonen (1990)

Link:



<http://sci2s.ugr.es/keel/pdf/algorithm/articulo/1990-Kohonen-PIEEE.pdf>

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