

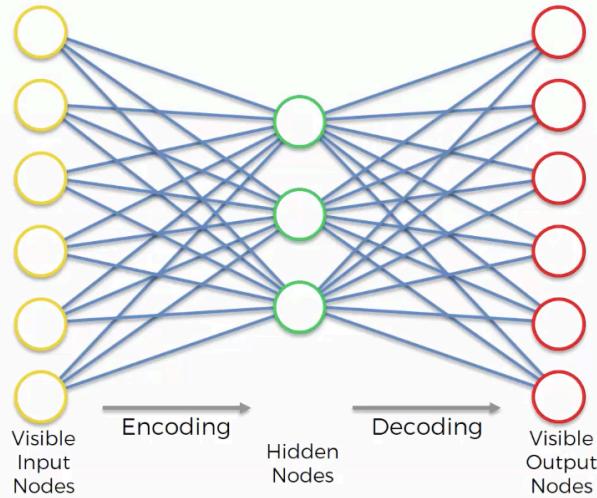
Auto Encoders

check out the website: probablydance.com

Auto Encoders

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

Auto Encoders

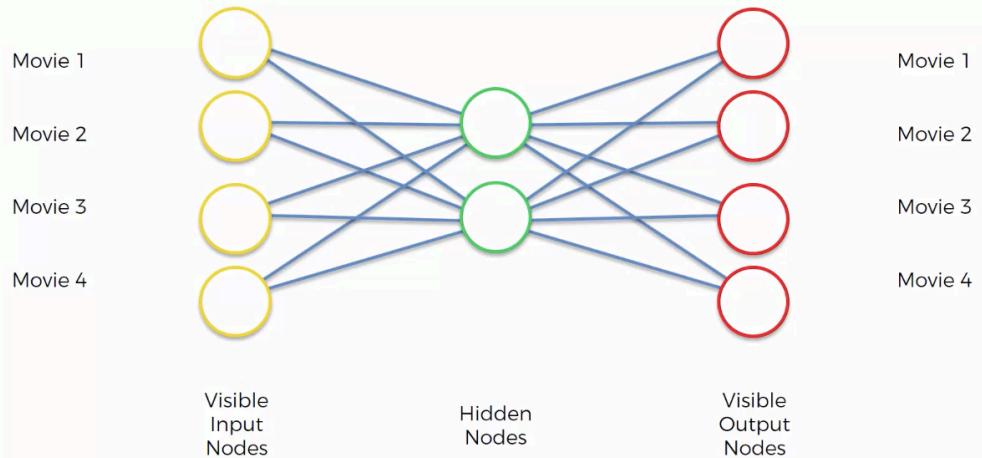


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The inputs and the output are same in here and auto encoders have directed network

Auto Encoders

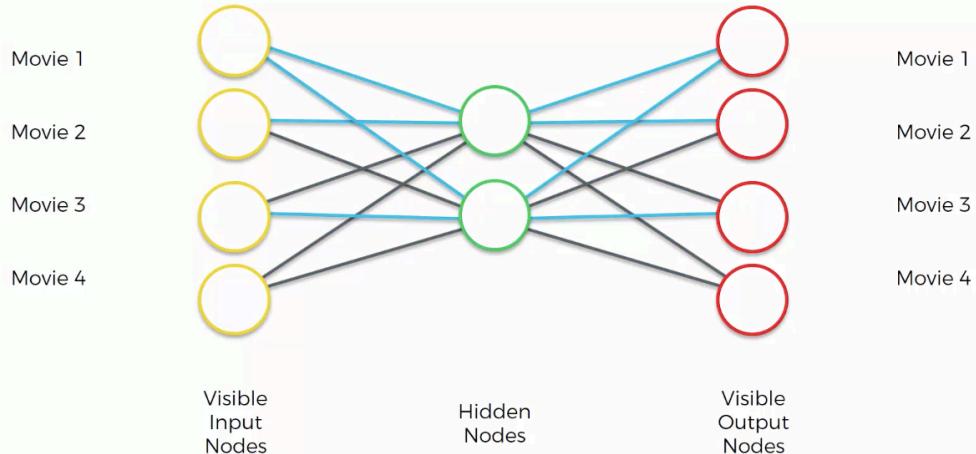


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The inputs are the movies that the user watched and we want to encode them in two values inside the hidden nodes.

Auto Encoders

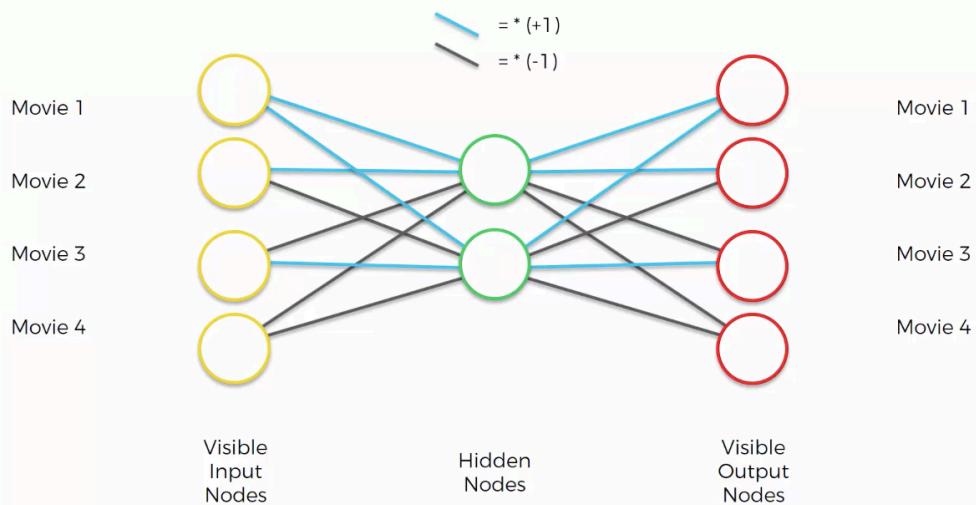


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coloring up the synapsis in two colors of blue and black.

Auto Encoders

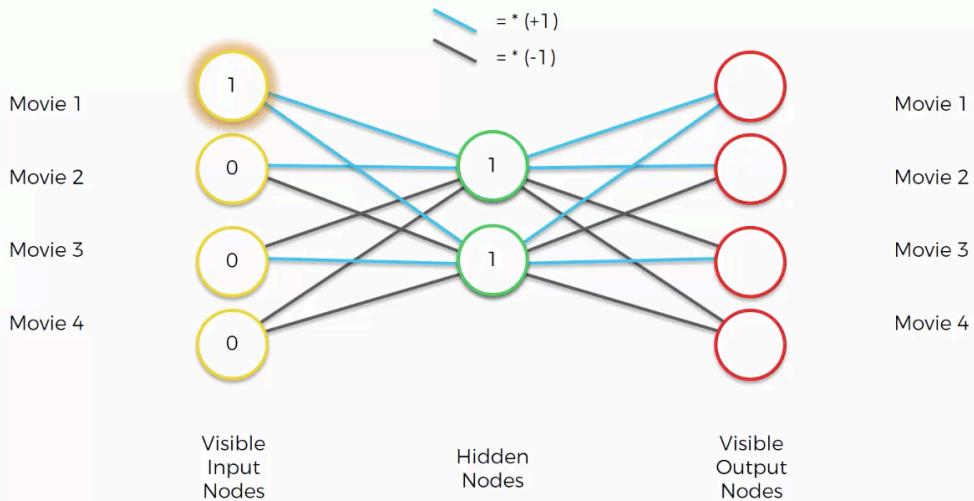


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Light blue is the multiplication by 1 and black is the multiplication by -1.

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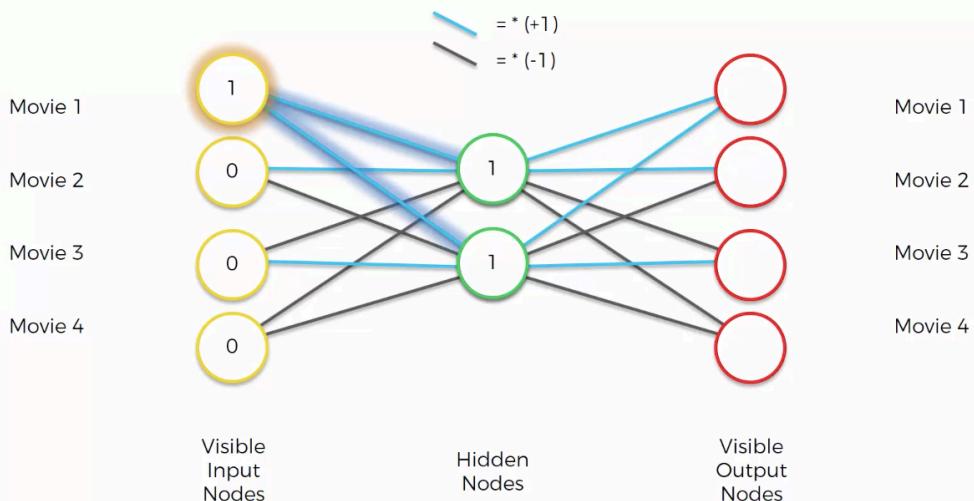
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1 means that the person liked that movie and 0 means that the person didn't like that movie. In here we just considering the movie 1 on the input and then multiplying the hidden nodes to its weight to get the output.

For finding the hidden nodes just multiply the 1 in movie 1 by its weight to find its hidden node $1 \times 1 = 1$ / $1 \times 1 = 1$

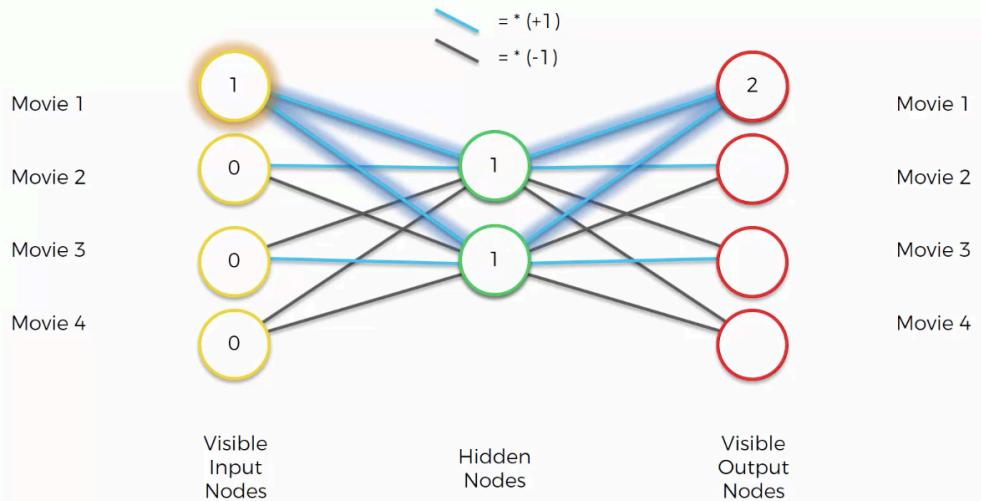
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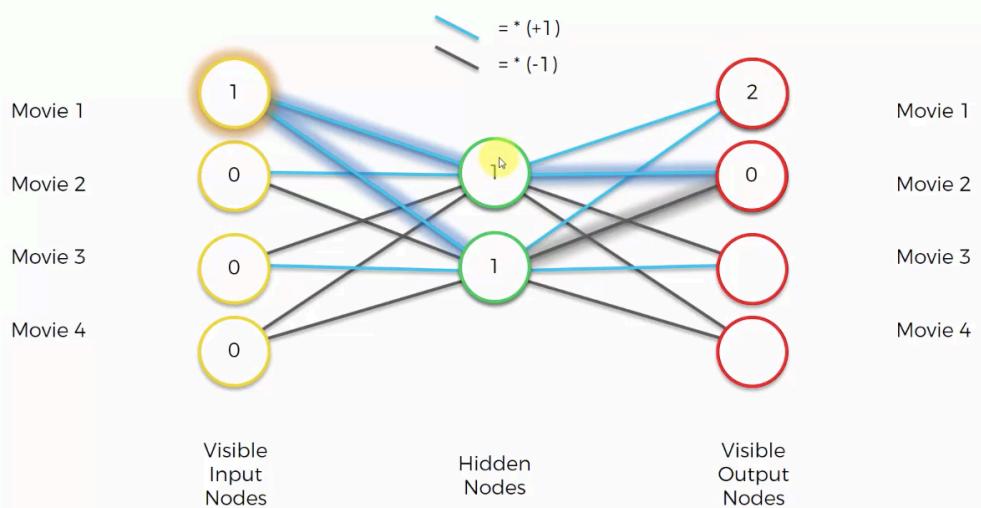


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$$(1 \times 1) + (1 \times 1) = 2$$

Auto Encoders

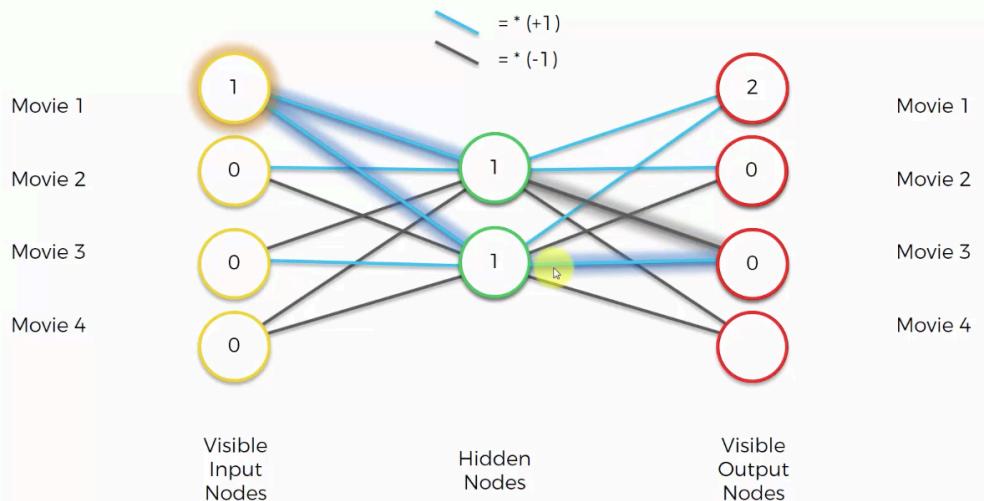


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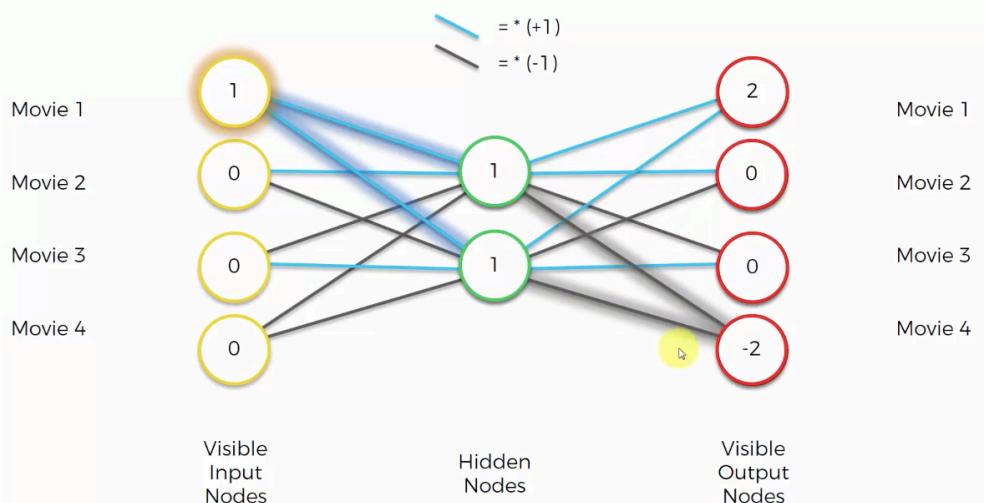
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$$(1 \times 1) + (1 \times -1) = 0$$

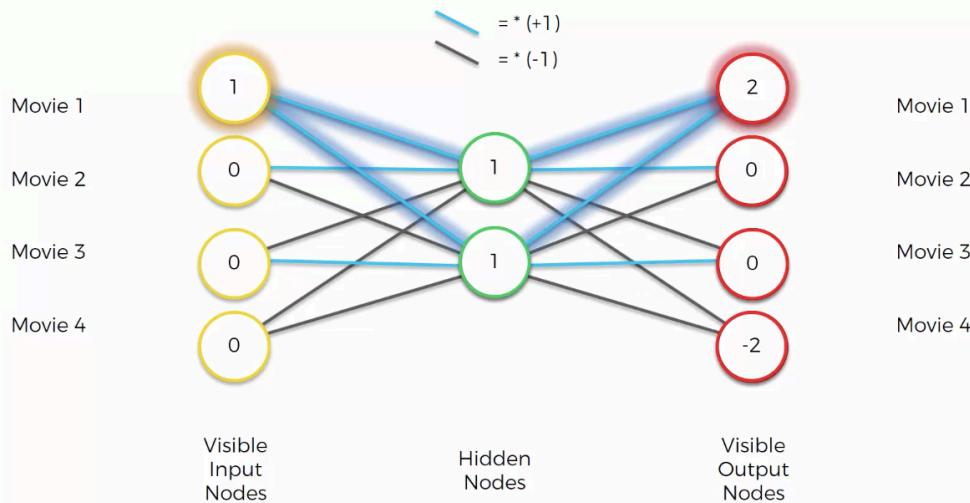
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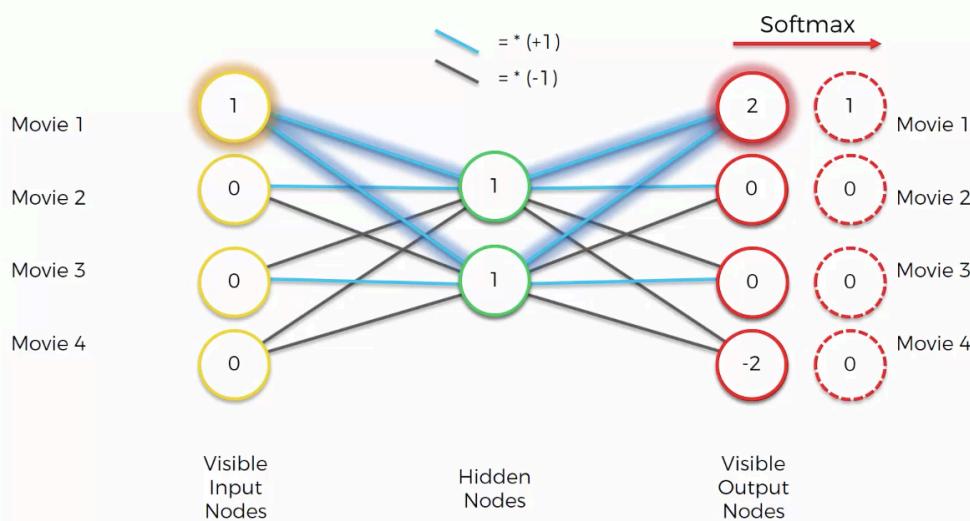
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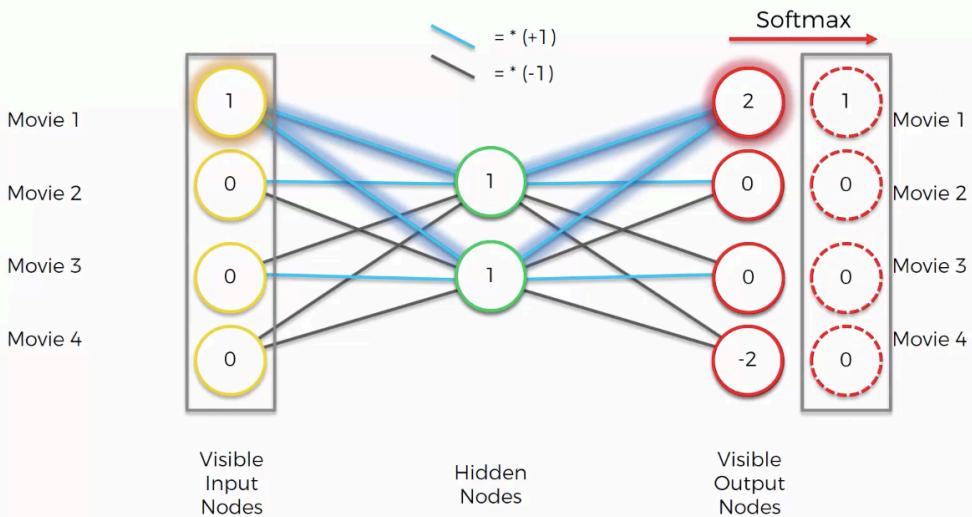
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Auto Encoders



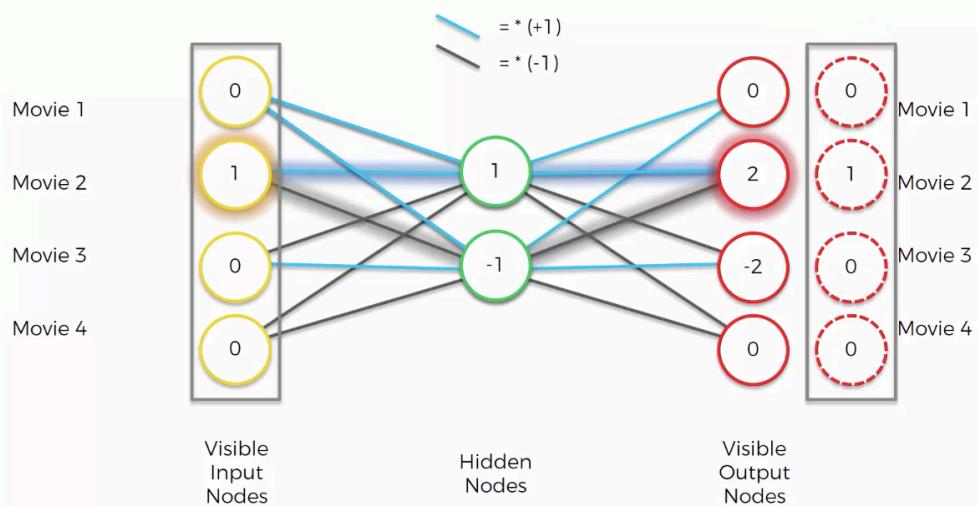
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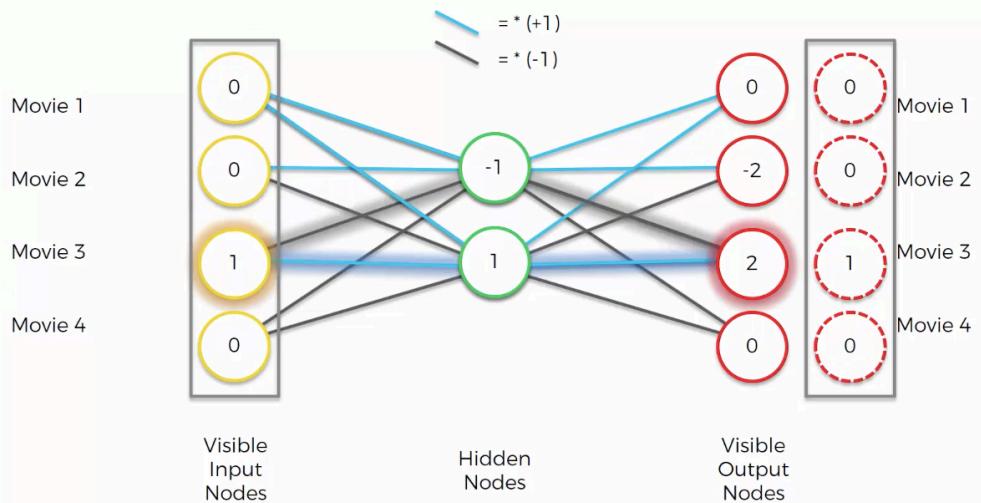
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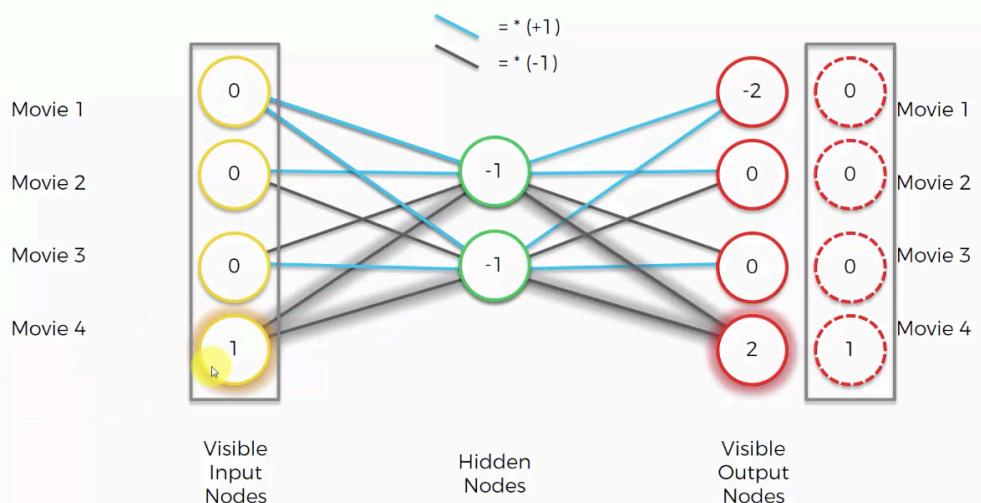
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Auto Encoders



Auto Encoders



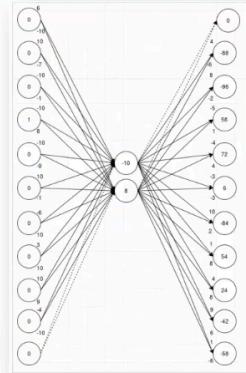
Deep Boltzmann Machines

Additional Reading:

Neural Networks Are Impressively Good At Compression

By Malte Skarupke (2016)

Link:



<https://probablydance.com/2016/04/30/neural-networks-are-impressively-good-at-compression/>