

Deep Belief Network for Star[~]Galaxy Classification

Suja A. Alex^{1,*}

1 St. Xavier's Catholic College of Engineering, Nagercoil

* Presenting author (suja@sxcce.edu.in)

Machine learning is a part of artificial intelligence, and it can discover styles in the information. Deep learning is a new area of machine learning research. It sets deep learning over one level of representation and abstraction that assist to make sense of data such as image, sound, and text. Deep learning is in the intersections among the research areas of graphical modeling, artificial intelligence, neural networks, pattern recognition, optimization, and signal processing.

Deep belief network is a kind of Deep Neural Network built by stacking RBMs. Restricted Boltzmann Machine is a generative Artificial Neural Network. It is a two-layer network (Visible and Hidden layers). It learns the features using Contrastive Divergence algorithm. The hidden neurons in RBM1 capture the features from the visible neurons. Those features become the input to RBM2 and so on. After learning the features directly from the image, it performs logistic regression for star[~]galaxy classification.

.