

# **A study on deep learning algorithms and architectures**

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Deep learning is a subset of machine learning where artificial neural networks, algorithms inspired by the human brain, learn from large amounts of data. Deep learning uses multiple layers to extract high-level features from the given raw input. For example, in the case of image or video processing, the lower layers will be able to identify the edges or outlines of specific shapes or objects, while the higher-level layers will be able to make out other relevant details such as faces, shapes, and any letter or digit. Deep learning architectures include deep neural networks, recurrent neural networks, and convolution neural networks that can be applied to a vast number of fields like computer vision, audio and speech recognition, and natural language processing. This review presented different types of deep architectures such as deep convolution networks, deep residual networks, recurrent neural networks, reinforcement learning, variational autoencoders etc. This study explained various deep neural networks, well-known training algorithms and architectures. This review also highlighted their shortcomings, e.g., getting stuck in the local minima, overfitting and training time for large problem sets.

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