ADVANTAGES AND DISADVANTAGES

ADVANTAGES:-

A convolutional neural network, or ConvNet, is just a neural network that uses convolution. To understand the principle, we are going to work with a 2-dimensional convolution first.The main advantage of CNN is Little dependence on pre processing, decreasing the needs of human effort developing its functionalities. It is easy to understand and fast to implement. It has the highest accuracy among all algorithms that predicts images.Convolutional neural networks have several benefits that make them useful for many different applications. If you want to see them in practice, watch this thorough explanation by StatQuest.

Feature learning:-

CNNs don't require manual feature engineering: they can grasp relevant features during training. Even if you're working at a completely new task, you can use the pre-trained CNN and, by feeding it data, adjust the weights. CNN will tailor itself to a new task.

Computational efficiency:-

CNN, due to the procedure of convolution, are much more computationally efficient than regular neural networks. CNN uses parameter sharing and dimensionality reduction, which makes models easy and quick to deploy. They can be optimised to run on any device, even on smartphones.

High accuracy:-

The current state-of-the-art NNs in image classification are not convolutional nets, for example, in image transformers. However, CNNs have now been dominating for a very long time in most cases and tasks regarding image and video recognition and similar tasks. They usually show higher accuricy than non-convolutional NNs, especially when there is a lot of data involved.

The main advantage is that it predicts the classification of arrhythmia that helps to predict fast without

Wasting of time by the patients.

DISADVANTAGES:-

Adversarial attacks

Adversarial attacks are cases of feeding the network 'bad' examples (aka slightly modified in a particular way images) to cause misclassification. Even a slight shift in pixels can make a CNN go crazy. For example, criminals can fool a CNN-based face recognition system and pass unrecognized in front of the camera.

Data-intensive training

For CNNs to showcase their magical power, they demand tons of training data. This data is not easy to collect and pre-process which can be an obstacle to the wider adoption of the technology. That is why even today there are only a few good pre-trained models such as GoogleNet, VGG, Inception, AlexNet. The majority are owned by global corporations.

The main Disadvantage of training cnn leads to misprediction of data and that leads to many issues

That leads to wrong predection of ECG classification(arrhythmia)