use cases of ANN

1. signal processing

2. weather prediction

3. patten recognition

4. facial recognition

5. credit rating firms

interconnection needed in CNN

CNN is 1.68 times faster than RNN

CNN is used for image processing

RNN is used for sequential data

hidden layers

major advantage: ability to produce output without incomplete knowledge

major disadvantage: lack of explanation behind probing solutions

vanilla neural network

vanilla means pure / without any adulteration. Its main feature is that we take small steps in the direction of the minima by taking gradient of the cost function.

when a non linear problem needs to be converted to linear problem

In GD, 1 epoch takes entire data but in SGD, takes every record or groups of records

step up optimiser

RMSprop - linear regression problem

AdaGrade, Adam, AdaDelta - multiclass problem

machine learning

datasets are small and fixed

small number of features

feature extraction by programmer

deep learning

datasets are large

large number of features

get more accuracy

no feature extraction by programmer

uses cases of deep learning

1. email filtering

2. automotive

3.healthcare

4.agriculture

5.banking

6.industries

convolutional neural networks

mechanism of finding interior structures of image

extract entire features

supervised learning on entire network is applied

Pooling

down sampling the entire data

Pre-trained unsupervised networks

unsupervised learning used to train each hidden layers in neural network to achieve accurate fitting of dataset

this is done one at a time independently while using the previously trained layer as the input

after pretraining is done on each layer, fine tuning step is performed on whole network using supervised learning

Types of PUNS

1. auto encoders

2. deep belief networks

3. generative adversarial networks

Steps:

1. Pre-training

2. Finetuning

pret

GAN

- create new dataset from original datasets

DAY 2

CNN

with increasing layers, we are combining images from previous layer to get an enhanced image that can be easily classified

https://towardsdatascience.com/covolutional-neural-network-cb0883dd6529

convolution is feature extraction and pooling is down sizing

down sizing - reduces the parameters that the system needs to learn, and not use many resources