steve@steve-Inspiron-3521:~$ Welcome to my session

steve@steve-Inspiron-3521:~$ I hope i can entertain you lovely folks well:D

steve@steve-Inspiron-3521:~$ geting started with AI and self driving cars.

steve@steve-Inspiron-3521:~$ created by Steve Jose

steve@steve-Inspiron-3521:~$ About me

steve@steve-Inspiron-3521:~$ I someone whom you can consider as the following:

>> I am a nerd 8D.
>> I am an innovator.
>> I am techie.

steve@steve-Inspiron-3521:~$ My technical skills:

>> Web development
>> Python automation
>> AI
>> Machine learning
>> Robotics

steve@steve-Inspiron-3521:~$ cat < what will we be covering.

>> Introduction to AI, duhhh.. 
>> Artificial neural networks.
>> Convolutional neural networks
>> Polynomial regression. 
>> Introduction to self driving cars. 
>> About udacity self driving car simulation. 
>> Data processing.
>> Input graph analysis. 
>> AI model (behavioural clonning).
>> Output graph analysis. 
>> Output 
>> What else. 
>> Where can you find me ? 

steve@steve-Inspiron-3521:~$ Introduction to AI

steve@steve-Inspiron-3521:~$ Artificial inteligence or also called machine intelligence is the intelligence demonstrated by machine in a way to mimic neural intelligence displayed by humans and animals.

steve@steve-Inspiron-3521:~$ Artificial intelligence can be classified into three different types of systems: analytical, human-inspired, and humanized artificial intelligence

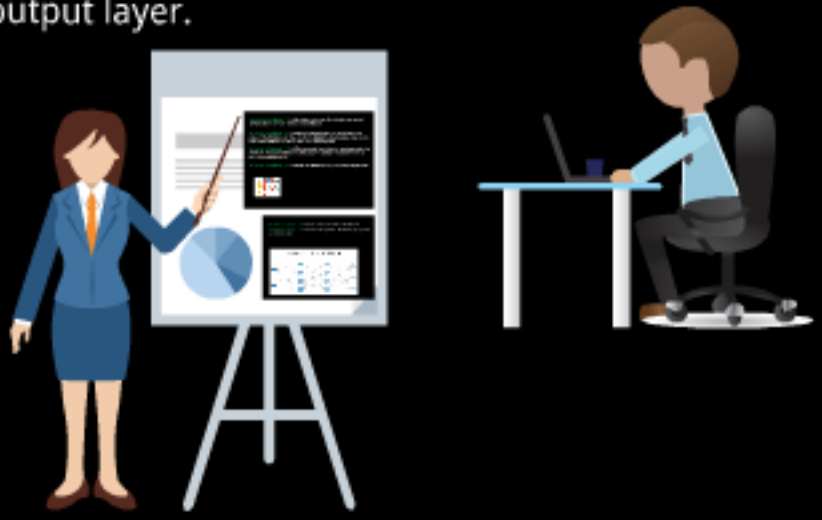



steve@steve-Inspiron-3521:~$ This is what we will see in self driving cars.

steve@steve-Inspiron-3521:~$ Neural Network

steve@steve-Inspiron-3521:~$ In an artificial neural network there are three keypoints to keep in mind: Input layer, hidden layer and output layer these three layers are interconnected.

steve@steve-Inspiron-3521:~$ The input layer takes in the input informations, these informations are then send to the hiden layer after multiplying and adding the respective weights together, and finally from the hiden layer the output neuraons are send to the output layer.

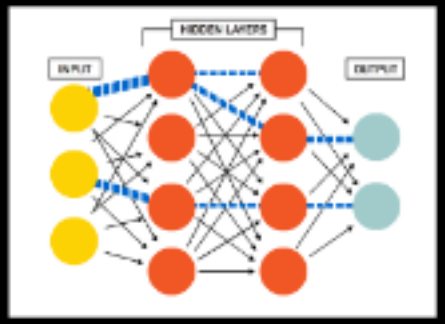


steve@steve-Inspiron-3521:~$ But what do we actually do in the deep neural network that makes ot match human intelligence

steve@steve-Inspiron-3521:~$ When each input nodes are send to the each nodes of the hidden layers they are first multiplied by their weights, and at each node of the hidden layer these values are added together.

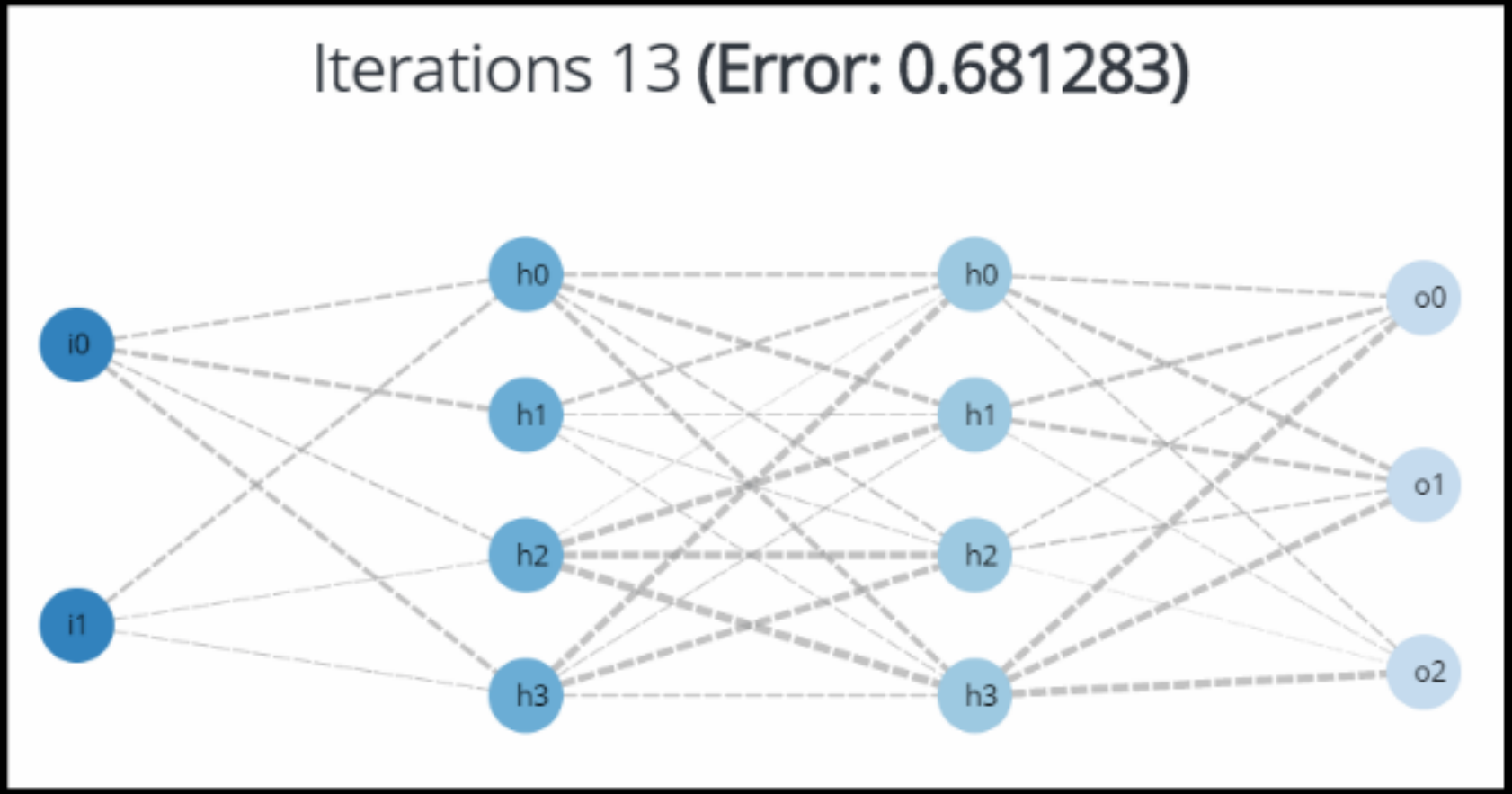
steve@steve-Inspiron-3521:~$ This new node formed acts as our input nodes for further layers in our hidden layer. This process continues for all the layers we have for our hidden layer.

steve@steve-Inspiron-3521:~$ Finally the hidden layers goes to the output node



steve@steve-Inspiron-3521:~$ Then again how does the machine learn

steve@steve-Inspiron-3521:~$ This can be explained with forward propagation and back progation

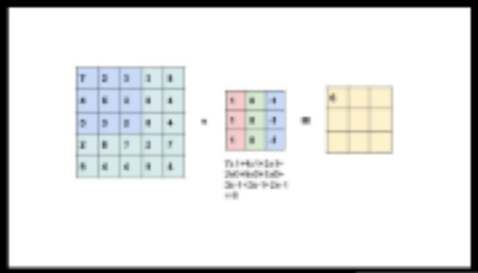


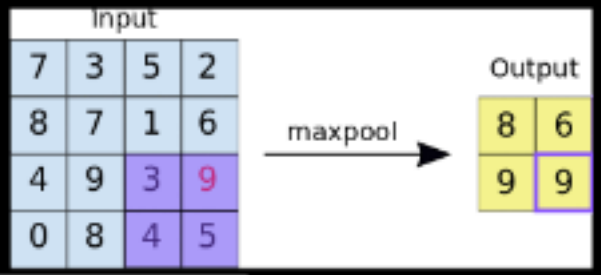
steve@steve-Inspiron-3521:~$ Convolutional Neural Networks

steve@steve-Inspiron-3521:~$ Convolutiional neural network is used over image identification, voice recognition, etc.

steve@steve-Inspiron-3521:~$ It is much similar to ANN but the difference comes in the starting.

steve@steve-Inspiron-3521:~$ In CNN we pass the image through a convolutional layer , pooling layer,flattening and finally through the fully cnnected neural network.





steve@steve-Inspiron-3521:~$ Introduction to Self Driving Car

steve@steve-Inspiron-3521:~$ Self driving cars are made by makin the using behavioural clonnig and more

steve@steve-Inspiron-3521:~$ In todays session ill be focussing maily on behavioural clonning, to drive a virtual car (udacity self driving car simulation).

steve@steve-Inspiron-3521:~$ As for packages we will be using keras for building models, opencv for image processing, sklearn for preparing the data and obvious numpy ,pandas and matplotlib



steve@steve-Inspiron-3521:~$ Udacity self driving car simulation

steve@steve-Inspiron-3521:~$ To all those who did ot know that udacity has open sourced its self driving car simulation on github which is a part of its nanodegree programme on self driving cars.

steve@steve-Inspiron-3521:~$ The simulation has two modes one to record your driving methods and the other to run your autonomous model

steve@steve-Inspiron-3521:~$ As for the recording it will take 3 camera images which are mounted on top of our car.

steve@steve-Inspiron-3521:~$ and a csv file will be created which will contain all the steering angles and throttle values and image to coresponding to that values.

steve@steve-Inspiron-3521:~$ Data processing

steve@steve-Inspiron-3521:~$ for processing the 10000+ images we will be using python opencv library run each image processing method at random to all.

steve@steve-Inspiron-3521:~$ further explained on the Jupiter notebook

steve@steve-Inspiron-3521:~$ What else

steve@steve-Inspiron-3521:~$ This is not it there is still:

>>> Lane detection
>>> Object detection (street signs and other cars)
>>> Sensor interaction
>>> Behaviour to moving bodies (cars, padestrians, animals)
>>> Linking with GPS
>>> Application connecting with the smart phones
>>> Emergency breaking system

steve@steve-Inspiron-3521:~$ Where can you find me?

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