

100	Keestha Vacasci A
	. Keestha Vasanch A add as between
	12122222240048 6000000) but nowin with
	ugal with most bestilancearch and floores
	Jayer.
63)	In a practical of the project, how do you determine the
Ż.	most suitable function for different layers ling a
- Gr	neural network and why? Additionally, eaplain these
	activation function, and provide by Torch implementations
. ∏ A)	+ Explain any + 3 (CHN) variantecture, discussing their
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	key components, advantages and applications
	1
83)	Voisi, CIFAR Hompipytonch,
	i) Load the GIFAR adataset.
	11) Use a pre-trained voior model as the base
	model. US prists / 4
	iii) breate a skepnosotial model with the appropriate
	number of newson's in the output layer, activation
	function, and moss tunction.
	(v) Train the model with training dots and
	validation data.
	how of miterial miteration bitimps &
	for the Brany classification process.

ed the traped of the egan of 2

6B) Addivoction Functions:

* Activation function is a function that is implemented in the tridden layers of othe newson that is activated when the signals are snarsmitted from the apput Jayer.

These autivation functions improves the effect of each sinput signals so that the loss function so reduced and the accuracy the emproved, showing him without mith within

There are different types of activation function which are used based on the requirements, they are:

* 1 Signord (1971) total & granh with board (1

I set a lakom man war Relive a sel (il

* Leaking Relu Man

Jacques it don hom bother PRELV thad (ii)

gaite ites eight togher all ou ELVen to identice

Softman, is me thereit

has Signoid in at alow there with area? (1)

* signord activation function is used for the Benary Massification process.

The range of the output will be

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Roon to

	narging from 00 toolda. wea toothe
	Implementation: "IN pridate
	(sigmoid = nn. sigmoid (tout (200, 71.0, 0.5))
	te print his midant
	Tanh:
	ENGINEERING COULEGE (moitodasms/gra?)
	* Tanh is also called as Hyperboli
	((Tangent) autistion of function,
	Olston ular 81 - tigtuo
	# The output of Tanh ranges from
	-1 to 1.
	for Implementationals set of USAT 4
	Paramologe Redigled Unean Unit
	tanh = hn. TanH (torch (20,10,05)).
3"/-	mitted holds output - stanh & model (7,5" *
	troubert printians satt brown at northard
	Relv: androg
	(120 0 1 Relui (Routfied a Linear burit). Relu
	focusses on ? Zero+contined outputs.
	* Relu activation function ranges from
	D to entirely as st adds the sound

nelu = nn. Rel (tout (2.0, 1, 0.5)) output = retu. model () most gripmo

Leating ReLU:

"nototransform"

Go of beaky the Reluinour leating TRELU can be used to covord of the dying newson problem and spring st.

Implementation)

a Tank & also valled as Hyperbolic

Inclu = mon [Rel V (torch (20,1,10 5)) output = to Inely, model ().

and space and to trates and w

PRelu:

PRELU do the short form of Parametric Restifted Unean Unit.

((20, 0.1, 0.0) drot) (HAET . ad = Hast

* PRELIDE 3 & very gold activation function to avoid the varishing gradient moblem.

(10) (toppely = 1 hn. PReto (tout (2.0, 1.0, 0.5)) output - produce model (). 10

to the different function ranges to always with about the so utility on a

tals	1	10
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72441 115		

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ELU:	
there one many Appear of con	
# ELU le the mohent form the	
Exponential Linear Unit.	
sp-tahal 4	
* The ELU tradition function perform	
well even in vittal conditions like varied	710
gradient problem and dying newtons,	
ely = nn. ELU (tonch (0,1,0.5))	
lovest motorous at the soutestition restrict	
Softman:	
Is not the softmax remove comong the well	
known activation function and mostly	
implemented for smaller streads.	
& Lend has a Convolution layor	
# Softmax ray alsoulle good of in his the	
classification process and can expect accurate	
notesitta, montfor giver total the	
you some and can daying the mother to	
tool state o at alcate	

A CNN stands for Convolutional Neural Networks which has convolutional layers with different manges is present.

an whiteotures to but as a constitution of the

* LeNet-98

garding with good that Restleting at mys liver

graduat project bus moldary tracking

1) Le Net: ((310,1,0) durat) 013.00 = ids

Oldest anihitecture of the convolution Neural Network

1998 or ban meteral materities much

LeNd has a Convolution layers

thand in 2 horsfully and a Connected and layers #

the LeNet uses softman authorism function and can classify zero to the input signals for a single loop

The inpute are 32 x 32 graystale images

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Advantages of melentetrian top sola is
sandt han graphl borrettweet sitte
* LeNet anysteonie tand person well
for small number of expects and the
pracurary & well as be stroless, AT
iraye.
It was the fastest known anuniteduse
solvening ste nottlime of you told with a
nothering tegtors of weather bus
Applications:
and purious hiller as to a
* It is applied in character neagnition
from various input files like images and
PDFs.
garie & HOCKAL Coptical Character Recognition) works
111 Print LeNeth on whiteduse, often profes is als

ii) Alex Net:

of 2012.

five convolutional layors and three

the fully connected watlayers to the total

irrage.

Atex Not uses Recomposite processing and Softman for output generation.

Advantages.

classification method, for a higher pixel image,

can be seen.

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36	sonApplication: or Estas molgran or 10 M	
	processing and found neargestion	
	* Alex Net is implemented in the	
	Image Net.	
	1) Londing profest of 5/4712 profest (1	9
	# It can be also juste to forthe dig	Hta
	image is processing, I and medical images, now	
	iii) Resilvet :) you kust more water of) more reduced - do of	
	toubypin Peplan - True).	
	* The Restlet anchitecture of onvent	ted
ela	notin withe anythin april 2015, this door = anot	
	(end) = Vollette , wit =	
	* The input image ranges from	30
	to Some and about the medical subset and	
	do? with ResNet of Tuses & Softman was activation	
	functional = stiffed - sur? - boolowes	

network and can have any number of fully connected layers based on the nequirements.

Advantages and Implementation:

* Restlet gives jaster nexulte and the desired nexults are very accurate.

processing and facial necognition.

- tild sparit

86) i) Loading CIFAR-10 Dataset:-

Moment touch all tenth vision as in grant

torchibion. Replace = True).

train = torch. dataset. CIFARIO (train = True, dounload = True, shuffle = True).

train toader = torchuision, Dataloader (train).

between as substitute to these and the

download = True, shuffle = True)

le retest loader = torchvision. Dataloader (test).

for referred year and can be described at the set of th

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ii) Using voion model as base model -

show tarehvistoria emporet modele

vgg = models. voron ().

for vgg in parameters 11:

vgg = param. negwres -grad 1).

iii) Creating Sequential Model:

criterion = torch. ChassErthopy Loss ().

iv) Fraining,

epouls = 5.

for vgg in rarge ():

nunning - loss = 00

for param in parameters:

loss = criterion. loss ()

nunning - loss + = loss.

print ("Loss =" numming loss / len (train)

Sport trapped growt models.

VOG = modele Voite ().

Acr v89 in prometer (1).

VOD = param. regular Bred 1).

" what litting ? gritter) (iii

Cotteron . to who (nosstatinopylos).

garas.T (vi

g adjuda

to vag in rarge ():

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