Deep Learning with Python and PyTorch

1.0 Tensors & Gradients

Overview of Tensors
https://www.youtube.com/watch?v=eHGt3DFicCg
1.1.1 Tensors in One Dimension
https://www.youtube.com/watch?v=8eBF2LUav6k
1.1.2 2-Dimensional PyTorch Tensors
https://www.youtube.com/watch?v=60NBW0Vlh1w
1.2.1 Derivatives
https://www.youtube.com/watch?v=_YMNYdvCUbw
1.3.1 Simple Dataset
https://www.youtube.com/watch?v=i69B3RnWrz4

2.0 Fundamentals of Pytorch with Linear Regression

2.1.1 Linear Regression in 1D - Prediction
https://www.youtube.com/watch?v=Cco80jKboDE
2.2.1 Linear Regression Training
https://www.youtube.com/watch?v=52hah0v-lg8
2.2.2 Loss
https://www.youtube.com/watch?v=IfGWAWqXR0M
2.2.3 Gradient Descent
https://www.youtube.com/watch?v=Jq7Jh3nQMpw
2.2.4 Cost
https://www.youtube.com/watch?v=vHrPzyhmbDM
2.2.5 Training Parameters in PyTorch the Hard Way
https://www.youtube.com/watch?v=nZWb7sf1BuA
2.2.6 Training with Slope and Bias
https://www.youtube.com/watch?v=FR3gfhRUXO4
2.3.1 Stochastic Gradient Descent
https://www.youtube.com/watch?v=zHaybDlvuEI
2.3.2 Stochastic and batch gradient descent PyTorch
https://www.youtube.com/watch?v=tVevURQNc5w
2.3.3 Mini-Batch Gradient Descent
https://www.youtube.com/watch?v=3-Lpcm6rQPE
2.4.1 PyTorch Way
https://www.youtube.com/watch?v=4w6LFKox5sg
2.5.1.1 Training and Validation Data
https://www.youtube.com/watch?v=ee89Ul7uTZQ
2.5.1.2 Training and Validation Data PyTorch
https://www.youtube.com/watch?v=OEuRJd7vMA4
2.5.2 Early Stopping
https://www.youtube.com/watch?v=TOHCAPVFN9s
2.6.1.1 Multiple Linear Regression Prediction

https://www.youtube.com/watch?v=MckXA9WlNB4

2.6.1.2 Multiple Linear Regression Training

https://www.youtube.com/watch?v=ECqRp3TGvJA

2.6.2.1 Multiple Output Linear Regression

https://www.youtube.com/watch?v=WurmIbrvYgA

2.6.2.2 Multiple Output Linear Regression Training

https://www.youtube.com/watch?v=kLCtas7SVGw

3.0 Logistic and Softmax Regression

3.1.1 Introduction to Linear Classifiers and Logistic Regression

https://www.youtube.com/watch?v=94LjyPyGS0w

3.1.2 Logistic Regression: Making a Prediction with PyTorch

https://www.youtube.com/watch?v=jlUwn_-VB9c

3.2.2 Bernoulli Distribution and Maximum Likelihood Estimation

https://www.youtube.com/watch?v=0jp1lT9RQQY

3.2.3 Cross Entropy Loss

https://www.youtube.com/watch?v=e-amuJsTqSA

3.2.4 Training Logistic Regression in PyTorch Cross Entropy

https://www.youtube.com/watch?v=bqK5MmIh4wQ

3.3.1 Softmax Prediction in PyTorch

https://www.youtube.com/watch?v=ogfslHQa6AI

3.3.2 Softmax Function

https://www.youtube.com/watch?v=zJSY2C9xzoU

3.3.3 Softmax PyTorch

https://www.youtube.com/watch?v=VGSU8_rtGJ0

4.0 Feed Forward Neural Network

4.1.1 What are Neural Networks?

https://www.youtube.com/watch?v=xR4Ian1UIGM

4.1.2 Neural Networks with Multiple Dimensions

https://www.youtube.com/watch?v=rTc845AoE_Y

4.1.3 Multi-Class Networks

https://www.youtube.com/watch?v=aMyInC6dWGI

Neural Networks for Regression

https://www.youtube.com/watch?v=e-uy_uGJPSE

4.2 Back-propagation

https://www.youtube.com/watch?v=TnK1EnvDr4k

4.3.1 Activation Functions

https://www.youtube.com/watch?v=Q73G2kL4LXE

4.4.1 Building Deep Networks In Pytorch

https://www.youtube.com/watch?v=GkX5qe9DufE

4.4.2 Deeper Neural Networks with ModuleList

https://www.youtube.com/watch?v=dOj82rxfHvw

5.0 Deep Networks (THINGS WE CAN DO TO INCREASE ACCURACY)

5.1 Dropout
https://www.youtube.com/watch?v=yX__MweFYrI
5.2 Neural Network Initialization
https://www.youtube.com/watch?v=a1Nr8txYMAk
5.3 Gradient Descent with Momentum
https://www.youtube.com/watch?v=ijhuoZPimHI
5.4 Batch Normalization
https://www.youtube.com/watch?v=TfQPThFYK6w

6.0 Intro to Networks for Computer Vision

6.1.1 What's Convolution?
https://www.youtube.com/watch?v=aySj4PY2vwM
6.1.2 Multiple Channel Convolution
https://www.youtube.com/watch?v=mHqzTbiYeno
6.1.3 Activation Functions and Max Pooling
https://www.youtube.com/watch?v=Ff67BUyQxsg
6.2.1 Simple Convolutional Neural Network I
https://www.youtube.com/watch?v=5adlDw8hBFs
6.2.2 Simple Convolutional Neural Network II
https://www.youtube.com/watch?v=aqTh2sTEBFI
6.2.3 Convolutional Neural Network MNIST
https://www.youtube.com/watch?v=SRmBTZeCq0E
6.3 Pre-trained Models
https://www.youtube.com/watch?v=BFHBNXTdoEo