Please note that we use Coursera materials, if you don't have an account please use the uploaded videos using the link to google drive or to google albums.

Basic theory

1. Perceptron: HSE course video coursera link, google album, google drive link
2. Chain Rule: HSE course video coursera link, google album, google drive link
3. Backpropagation: HSE course video coursera link, google album, google drive link
4. Backpropagation effective implementation tips: HSE course videos
    - coursera [link 1, link 2], google album, google drive link
5. Regularization: D.AI course videos"Regularizing your neural network" coursera link, google album link, google drive link
6. Optimization
    - D.AI course video: "Setting up your optimization problem" coursera link, google album link, google drive link
    - post Recommendations for Deep Learning Neural Network Practitioners
    - post An overview of gradient descent optimization algorithms
    - post How to choose an activation function for deep learning?
7. Mini-batch GD D.AI course video coursera link, google album link, google drive link
8. Batch normalization post

Additional but helpful for high-level understanding

- NN philosophy HSE course video course [link 1, link 2], google album link, google drive link

Practical guides

Please, choose one of them, you have not to study all frameworks in one week.

Tensorflow / Keras

- TensorFlow 2 Tutorial: Get Started in Deep Learning With tf.keras

- Hands-On Computer Vision with TensorFlow (chapters 2-3, optional chapter 4)

PyTorch

- A Gentle Introduction to PyTorch 1.2
- The ABCs of PyTorch in 4 Minutes
- Deep Learning with PyTorch (chapters 2-3, optional 85-106)

Basic Computer Vision

- Intuitively Understanding Convolutions for Deep Learning
- Convolutions examples
- Dilated Convolution

- How to Configure Image Data Augmentation in Keras
- An Intuitive Explanation of Convolutional Neural Networks
- It all started with— CNN's & AlexNet

Additional

- Network types