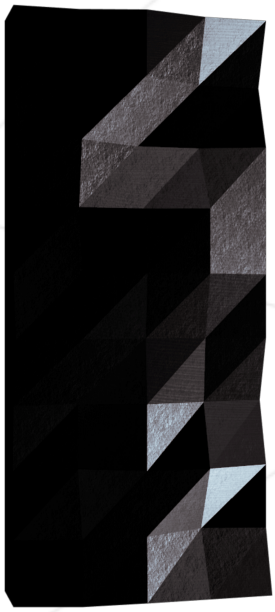


Professional training

Neural network model without library

Summary: In this Module, you will learn about neural network model without library.

Version: 1.00

Contents

Chapter I

Introduction

Greetings!

If you haven't already done so, read en.toolkit.pdf.

In this module, we'll dive into the world of neural networks without relying on external libraries. We'll explore the core concepts of building neural networks from scratch, gaining insights into their fundamental components, data preprocessing, forward and backward propagation, and optimization techniques.

By taking this hands-on approach, you'll not only develop a deeper understanding of neural networks but also enhance your ability to comprehend and work with neural network libraries and frameworks.

Let's begin this exciting journey into the inner workings of neural networks.

Wishing you success in your learning journey.

Chapter II

General instructions

Unless explicitely specified, the following rules will apply every day of this Professional training.

- This subject is the one and only trustable source. Don't trust any rumor.
- This subject can be updated up to one hour before the turn-in deadline.
- The assignments in a subject must be done in the given order. Later assignments won't be rated unless all the previous ones are perfectly executed.
- Be careful about the access rights of your files and folders.
- Your assignments will be evaluated by your peers.
- You must not leave in your turn-in your workspace any file other than the ones explicitly requested By the assignments.
- You have a question? Ask your left neighbor. Otherwise, try your luck with your right neighbor.
- Every technical answer you might need is available in the `man` or on the Internet.
- By Thor, by Odin! Use your brain!!!

Chapter III

Exercise 00

	Exercise 00
Data exploration	
Turn-in directory : $ex00/$	
Files to turn in : `Medium02.ipynb`	
Allowed functions : `numpy`	

For this first exercise, you'll need to load the data into colab and do some data exploration, i.e. you'll need to understand your data.

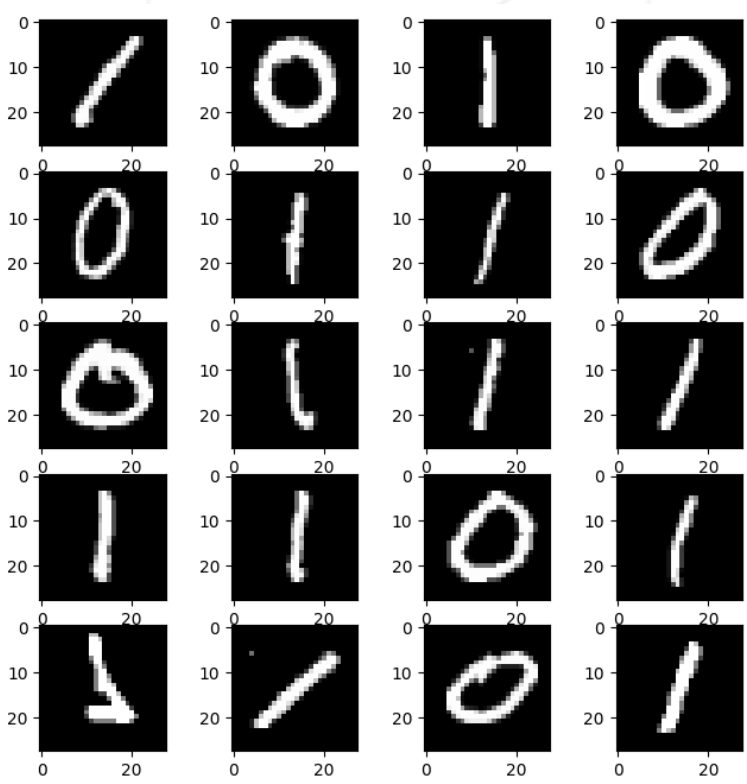
Chapter IV

Exercise 01

	Exercise 01
Data Visualisation	
Turn-in directory : $ex01/$	
Files to turn in : `Advanced00.ipynb`	
Allowed functions : `numpy, matplotlib`	

In this exercise, you need to display your data in a numpy matrix as an image.

You should have something like this:



Chapter V

Exercise 02

	Exercise 03
Models	
Turn-in directory : $ex03/$	
Files to turn in : `Advanced00.ipynb`	
Allowed functions : `numpy, matplotlib`	

Follow the ipynb document, to build your neural network, don't hesitate to do some research on the Internet to understand how it works and find the mathematical formulas.

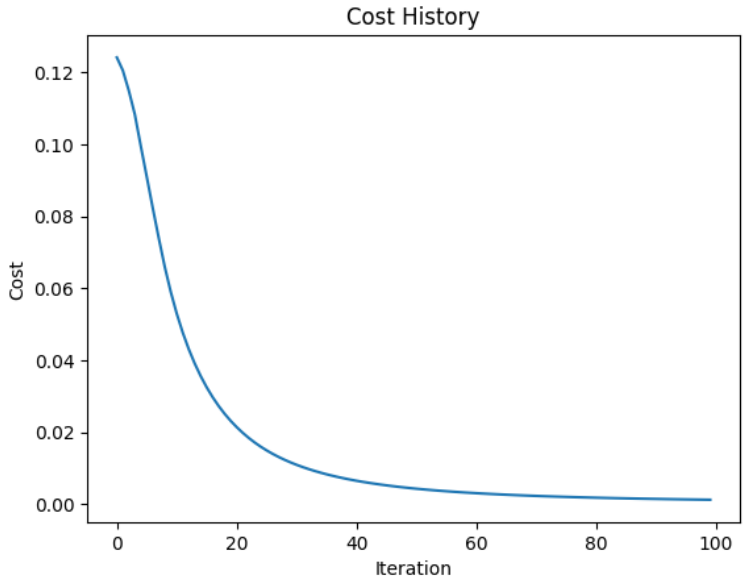
Chapter VI

Exercise 03

	Exercise 03
	Results
Turn-in directory : $ex03/$	
Files to turn in : `Advanced00.ipynb`	
Allowed functions : `numpy, matplotlib`	

You have to display the return of your cost function to get an idea of how it evolves over the iterations.

You should have something like this:



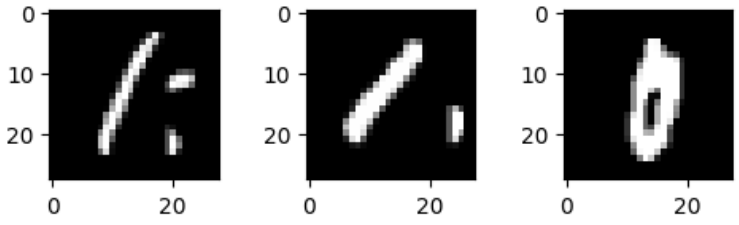
Chapter VII

Exercise 04

	Exercise 04
Predict	
Turn-in directory : $ex04/$	
Files to turn in : `Advanced00.ipynb`	
Allowed functions : `numpy, matplotlib`	

if you've made it this far, congratulations on being able to make predictions about your images, go back to exercise number 1 and display the images that are incorrectly classified.

You should have something like this:



Chapter VIII

Submission and peer-evaluation

- Create a `professional_training_advanced` folder at the root of your home, and move around in it.
- Create a new `module00` folder and navigate to it.

`Please note, during your defense anything that is not present in the folder for the day will not be checked.`