

3dsystems23

ASSIGNMENT 5

In this assignment, we will design and train a Convolutional Neural Network (CNN). This time, you will be able to choose 1 of the 2 tasks described in the assignment notebook. The first option is an analysis task while the second option is an analysis-synthesis task.

The goals of this practice are the following:

- Learn how to implement CNNs on practice.
- Work with a dataset of samples of a distribution.
- Train a data-based neural network model.
- Evaluate the model performance, specially with respect to generalization

Instructions:

If you're using Google Colab, you just need to have a google account and an associated Google Drive. Make a copy of the notebook located below and modify it as requested.

In case you're choosing to work locally in your machine you must set Anaconda or a `venv` virtual environment, and install the necessary libraries. Create a folder in your Google Drive or in your machine's workspace. Copy to your drive folder or download the following notebook:

[Assignment Notebook](#)  [Open in Colab](#)

1. Follow the instructions in the notebook for completing the assignment.
2. If you want, you can build auxiliary .py scripts and call them from your notebook, for organizational purposes.

Instructions:

If you're using Google Colab, you just need to have a google account and an associated Google Drive. In case you're choosing to work locally in your machine you must set Anaconda or a `venv` virtual environment, and install the necessary libraries.

Create a folder in your Google Drive or in your machine's workspace. Copy to your drive folder or download the notebook above.

Follow the instructions in the notebook for completing the assignment.

You can build auxiliary .py scripts and call them from your notebook, for organizational purposes.

Submission

The assignment is due on May 08th, 2023 at 11:59pm (GMT-3).

Students should send their assignments before the due date to hallpaz@impa.br with a copy to lvelho@impa.br. Late delivers will be consider subject to a lower score.

The submission email should be sent with the subject "Assignment 5 - [first-name] - [last-name]". The assignment can be structured and sent in two ways:

If your whole solution is implemented in the same notebook as the one provided for the assignment, then you can send just the .ipynb file as the solution. If parts of your implementation were done in auxiliary .py scripts, then you must send both the final notebook and the scripts inside a .zip file. The organization of the code will also be considered in the evaluation.

References and other useful contents:

1. Convolutional Neural Networks [video](#)
2. PyTorch Tutorial: [Training a Classifier](#)
3. PyTorch's [Documentation](#)

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Assignments and Notes for the course 3D
Graphics Systems @IMPA 2023