Computer vision course

Proff. Stefano Ghidoni | Matteo Terreran

Lab 10 - DL for image classification

Task 1 | MNIST dataset classification

Have a look at the Keras code examples, section Computer Vision:

https://keras.io/examples/vision/

and familiarize with the examples. Then select the Simple MNIST convnet:

https://keras.io/examples/vision/mnist_convnet/

and implement it using Colab. Try starting with the layer parameters reported in the example, then try:

- changing the number of filters and the filter size in the convolutional layers;
- changing the number of convolutional layers
- augmenting the data keeping the network parameters as in the example (look for data augmentation in the documentation).

For every configuration evaluate the performance metrics on the test dataset: what is the best performing configuration? What is the effect of augmentation? Why?

Task 2 | Cat vs Dog classification

Implement the example of Cat vs Dog classification:

https://keras.io/examples/vision/image_classification_from_scratch/

Try data augmentation techniques different from those proposed in the tutorial and compare the results.