Learning with Artificial Neural Networks

Practical Work 05 – Transfer learning, part 1

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1. Introduction

In the first part of this practical work, you will familiarize with transfer learning. To create a dataset you will download images from bing automatically.

You will use MobileNetV2 (https://keras.io/api/applications/mobilenet/)trained on imagenet (https://www.image-net.org/) as the base model. If you look at the classes of imagenet (https://gist.github.com/yrevar/942d3a0ac09ec9e5eb3a) you will see that this dataset has 1000 classes. You won't use the same classes as in imagenet. You will do transfer learning with this model to learn to classify images from three differents birds species.

2. Practical Work

Select a model with good performance by exploring a few hyperparameters (e.g., learning rate, epochs, …) and model architectures (nb of neurons in the dense layer(s), use of dropout , …)

Document your results for a future report.