MUFFIN VS CHIHUAHUA

Statistical Method for Machine Learning

submitted by

Michele Ghirardelli
(16441A)

Department of Computer Science ”Giovanni Degli Antoni”
University of Milan
May 2024

DECLARATION

I declare that this material, which I now submit for assessment, is entirely my own work and has not been taken from the work of others, save and to the extent that such work has been cited and acknowledged within the text of my work. I/We understand that plagiarism, collusion, and copying are grave and serious offences in the university and accept the penalties that would be imposed should I engage in plagiarism, collusion or copying. This assignment, or any part of it, has not been previously submitted by me/us or any other person for assessment on this or any other course of study.

Place	:	Signature of student	: .....
Date	: April 17, 2024	Name of student	: Michele Ghirardelli

Chapter 1

INTRODUCTION TO THE PROJECT

The project aim to classify a dataset compose my photos of muffin and chihuaha using Neural Network. In specific we need to use a particular type of neural network called Convolution Neural Network (CNN).

1.1 WHAT ARE CONVOLUTIONAL NEURAL NETWORK?

A particular type of Neural Network that use convolutional filter as layers

1.2 OBJECTIVE OF THE PROJECT?

- Experiment with different network architectures (at least 3) and training hyperparameters.
- Use 5-fold cross validation to compute your risk estimates.
- Documenting the influence of the choice of the network architecture and the tuning of the hyperparameters on the final cross-validated risk estimate.

1.3 PROJECT CONSTRAINS

Images must be transformed from JPG to RGB (or grayscale) pixel values and scaled down. While The training loss can be chosen freely, the reported cross-validated estimates must be computed according to the zero-one loss.