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Insegnamento

Advanced Machine Learning

2122-2-F1801Q151

Assignment 1

Opened: Friday, 22 October 2021, 11:59 PM

Due: Monday, 1 November 2021, 11:59 PM

the assignment consists of the "default payments" prediction using a neural network.

The provided dataset contains information on default payments (y_{train}), demographic factors, credit data, history of payment, and bill statements of credit card clients (X_{train} , X_{test}) in Taiwan from April 2005 to September 2005.

Please find a description of the featured dataset in the "Data Dictionary" attached pdf.

The provided data comprises the training set that can be used for the training (and for the validation) and the unlabelled test set.

In order to be evaluated, each student should submit a zip file named Nome_Cognome_Matricola_assignment1.zip containing all and only:

- the source code (we advise to use Keras, but you can use any other framework of your choice);
- a brief report, in the form of a separate PDF document (1 or 2 pages) or a jupyter notebook (the same containing the source code), describing the resolution of the problem of supervised classification with a traditional neural network (Fully-connected Neural Network). Please include in the report:
 - some basic data exploration and motivations about the choices on data processing,
 - some comments regarding the selected hyperparameters and optimization choices (e.g. number and dimension of the layers, optimization algorithms)
 - some performance metric evaluations (on a validation set) and some comments about the results and the generalization capability of the model.
 - (OPTIONAL) The investigation on the effect of the use of any regularization technique of your choice.
- (optional) a txt file named Nome_Cognome_Matricola_score2.txt, where each line corresponds to the prediction (0/1 class) of the instances of the test set. The file should contain only one 0/1 column and no header.

A minimal jupyter notebook template is provided [here](#). Collaboration is allowed, but the final product must be individual.

At the end of the course, the name of the students with the highest classification performance (in terms of F1-score) evaluated on the submitted results will be announced. Only well-formatted submissions will be considered.

For any problem --> post in the forum (preferred) or -- dario.bertazioli@unimib.it

Data Dictionary.pdf	22 October 2021, 9:41 PM
X_test.csv	22 October 2021, 9:41 PM
X_train.csv	22 October 2021, 9:41 PM
y_train.csv	22 October 2021, 9:41 PM

Submission status

Submission status	Submitted for grading
Grading status	Graded
Time remaining	Assignment was submitted 2 days 6 hours early
Last modified	Saturday, 30 October 2021, 6:58 PM

File submissions

[Nabil ELAsri 826040_assignment1.zip](#)

30 October 2021, 6:56 PM

[Export to portfolio](#)Submission
comments▶ [Comments \(0\)](#)

Feedback

Grade 3.00 / 3.00**Graded on** Saturday, 22 January 2022, 5:47 PM**Graded by**

Dario Bertazioli

Feedback
comments

— Okay exploration e preprocessing, but it's always good to use just one scaler (e.g. scale the initial dataset before train/test split, or use the same fitted scaler for both train/test (or val)). Well commented network section, network is okaysh dimensioned but number of neurons in the comments and in the code differs. Also would have been better to justify why `#neurons_2nd_layer > #neurons_first_layer`. Good interpretation of the learning curves (probably slightly underfitting? or I'd have just trained longer to find out at least). Okay performance discussion. Good comparison with the balanced case. Optional section (overall okay) saved +0.5 pts given by inconsistency of the reported number of neurons.

[◀ Lab 4 session 5-11-2021 8:30 am Webex](#)

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