Package: DamiaNN (via r-universe)

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Type Package

Title Neural Network Numerai

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Description Interactively train neural networks on Numerai, <https://numer.ai/>, data. Generate tournament predictions and write them to a CSV.

Imports caret, methods, testthat

License GPL-3

LazyData FALSE

RoxygenNote 5.0.1

Repository https://the-wayvy.r-universe.dev

RemoteUrl https://github.com/the-wayvy/damiann

RemoteRef HEAD

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Contents

`back_propogation,Neural_Network,numeric,numeric,numeric-method`
back prop

Description

updates connection strengths using results of last forward prop

Usage

```
## S4 method for signature 'Neural_Network,numeric,numeric,numeric'
back_propogation(object,
  target, regularization_parameter, learning_rate)
```

Arguments

`object`	is a Neural_Network
`target`	is a numeric vector
`regularization_parameter`	is non-negative number punishes strong connections
`learning_rate`	is a positive number that controls the rate at which connections are adjusted

Value

Neural_Network

`forward_propogation,Neural_Network,matrix-method`
f_prop

Description

... part of the training program

Usage

```
## S4 method for signature 'Neural_Network,matrix'
forward_propogation(object, dataset)
```

Arguments

`object`	is a Neural_Network
`dataset`	is a matrix not containing the target vector

Value

Neural_Network

Get_Cost,Neural_Network,numeric-method *cost*

Description

get the logarithmic loss for a set of predictions

Usage

```
## S4 method for signature 'Neural_Network,numeric'
Get_Cost(object, target)
```

Arguments

object	... a Neural_Network that has run forward_prop at least once
target	... a numeric vector ... the target ...

Value

Numeric

Get_LogLoss *log loss*

Description

get log loss

Usage

```
Get_LogLoss(predictions, target)
```

Arguments

predictions	is a numeric vector
target	is a numeric vector

Value

Numeric

`Get_Number_Observations,Neural_Network-method`
num observs

Description

returns the number of observations that the network has processed

Usage

```
## S4 method for signature 'Neural_Network'
Get_Number_Observations(object)
```

Arguments

`object`	... a Neural Network that has called fprop. ie. that has called train/predict

Value

Numeric

`initialize,Neural_Network-method`
init

Description

initalizes a neural network capable of studying datasets with ncol = to the ncol(sample_dataset) and making predictions on such datasets

Usage

```
## S4 method for signature 'Neural_Network'
initialize(.Object, number_predictors,
  hidden_layer_lengths)
```

Arguments

`.Object`	... a Neural_Network object
`number_predictors`	... a numeric telling how many preditors there are
`hidden_layer_lengths`	... a numeric telling the number of layers and the number of neurons in each layer

Details

NN is parametrized by its connection_strength matrices

Value

Neural_Network

Neural_Network-class *Neural Network implementation*

Description

Neural Network implementation

Predict,Neural_Network,data.frame-method *predict stuff*

Description

returns predictions

Usage

```
## S4 method for signature 'Neural_Network,data.frame'
Predict(object, dataset)
```

Arguments

object	: a neural network
dataset	: a dataframe of features and observations

Value

Numeric

Start *start script*

Description

main function that runs the interactive script

Usage

```
Start()
```

Details

takes your numerai training data and trains a neural network to your architectural specifications. provides you with the out of sample error offers to retrain with a new architecture or predict on a numerai tournament dataset. Can then write the predictions to a CSV

Train,Neural_Network,data.frame,numeric,numeric,numeric-method *train the NN*

Description

gets NN parameters that minimize cost on dataset using optimization_method

Usage

```
## S4 method for signature 'Neural_Network,data.frame,numeric,numeric,numeric'
Train(object,
  dataset, regularization_constant, learning_rate, tolerable_error)
```

Arguments

object	is a Neural Network
dataset	is a data.frame, the original data frame that includes the target
regularization_constant	is a numeric
learning_rate	is a numeric
tolerable_error	is a numeric, units : log loss

Value

Neural_Network

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