

Package ‘fastText’

May 8, 2026

Type Package

Title Efficient Learning of Word Representations and Sentence Classification

Version 1.0.7

Date 2026-02-20

URL <https://github.com/mlampros/fastText>,
<https://mlampros.github.io/fastText/>

BugReports <https://github.com/mlampros/fastText/issues>

Description An interface to the 'fastText' <<https://github.com/facebookresearch/fastText>> library for efficient learning of word representations and sentence classification. The 'fastText' algorithm is explained in detail in (i) ``Enriching Word Vectors with subword Information'', Piotr Bojanowski, Edouard Grave, Armand Joulin, Tomas Mikolov, 2017, <[doi:10.1162/tacl_a_00051](https://doi.org/10.1162/tacl_a_00051)>; (ii) ``Bag of Tricks for Efficient Text Classification'', Armand Joulin, Edouard Grave, Piotr Bojanowski, Tomas Mikolov, 2017, <[doi:10.18653/v1/e17-2068](https://doi.org/10.18653/v1/e17-2068)>; (iii) ``FastText.zip: Compressing text classification models'', Armand Joulin, Edouard Grave, Piotr Bojanowski, Matthijs Douze, Herve Jegou, Tomas Mikolov, 2016, <[doi:10.48550/arXiv.1612.03651](https://doi.org/10.48550/arXiv.1612.03651)>.

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Encoding UTF-8

Imports Rcpp (>= 1.0.0), ggplot2, grid, utils, glue, data.table, stats

Depends R(>= 3.2.3)

LinkingTo Rcpp

Suggests testthat, covr, knitr, rmarkdown

VignetteBuilder knitr

RoxygenNote 7.3.2

NeedsCompilation yes

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Repository CRAN

Date/Publication 2026-02-20 14:10:03 UTC

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fasttext_interface	<i>Interface for the fasttext library</i>
--------------------	---

Description

Interface for the fasttext library

Usage

```
fasttext_interface(
  list_params,
  path_output = "",
  MilliSecs = 100,
  path_input = "",
  remove_previous_file = TRUE,
  print_process_time = FALSE
)
```

Arguments

<code>list_params</code>	a list of valid parameters
<code>path_output</code>	a character string specifying the file path where the process-logs (or output in generally) should be saved
<code>MilliSecs</code>	an integer specifying the delay in milliseconds when printing the results to the specified <i>path_output</i>
<code>path_input</code>	a character string specifying the path to the input data file
<code>remove_previous_file</code>	a boolean. If TRUE, in case that the <i>path_output</i> is not an empty string (""), then an existing file with the same output name will be removed
<code>print_process_time</code>	a boolean. If TRUE then the processing time of the function will be printed out in the R session

Details

This function allows the user to run the various methods included in the fasttext library from within R

The "output" parameter which exists in the named list (see examples section) and is passed to the "list_params" parameter of the "fasttext_interface()" function, is a file path and not a directory name and will actually return two files (a *.vec* and a *.bin*) to the output directory.

Value

a vector of class character that includes the parameters and file paths used as input to the function

References

<https://github.com/facebookresearch/fastText>

<https://github.com/facebookresearch/fastText/blob/master/docs/supervised-tutorial.md>

Examples

```
## Not run:

library(fastText)

#####
# If the user intends to run the following examples then he / she must replace #
# the 'input', 'output', 'path_input', 'path_output', 'model' and 'test_data' file #
# paths depending on where the data are located or should be saved! #
# ( 'tempdir()' is used here as an example folder ) #
#####

# -----
# print information for the Usage of each function [ parameters ]
```

```

# -----

fastText::printUsage()
fastText::printTestUsage()
fastText::printTestLabelUsage()
fastText::printQuantizeUsage()
fastText::printPrintWordVectorsUsage()
fastText::printPrintSentenceVectorsUsage()
fastText::printPrintNgramsUsage()
fastText::printPredictUsage()
fastText::printNNUsage()
fastText::printDumpUsage()
fastText::printAnalogiesUsage()
fastText::print_parameters(command = "supervised")

# -----
# In case that the 'command' is one of 'cbow', 'skipgram' or 'supervised'
# -----

list_params = list(command = 'cbow',
                   lr = 0.1,
                   dim = 200,
                   input = file.path(tempdir(), "doc.txt"),
                   output = tempdir(),
                   verbose = 2,
                   thread = 1)

res = fasttext_interface(list_params,
                        path_output = file.path(tempdir(), "model_logs.txt"),
                        MilliSecs = 100)

# -----
# 'supervised' training
# -----

list_params = list(command = 'supervised',
                   lr = 0.1,
                   dim = 200,
                   input = file.path(tempdir(), "cooking.train"),
                   output = file.path(tempdir(), "model_cooking"),
                   verbose = 2,
                   thread = 1)

res = fasttext_interface(list_params,
                        path_output = file.path(tempdir(), 'logs_supervise.txt'),
                        MilliSecs = 5)

# -----
# In case that the 'command' is 'predict'
# -----

list_params = list(command = 'predict',

```

```

        model = file.path(tempdir(), 'model_cooking.bin'),
        test_data = file.path(tempdir(), 'cooking.valid'),
        k = 1,
        th = 0.0)

res = fasttext_interface(list_params,
                        path_output = file.path(tempdir(), 'predict_valid.txt'))

# -----
# In case that the 'command' is 'test' [ k = 5 , means that precision and recall are at 5 ]
# -----

list_params = list(command = 'test',
                  model = file.path(tempdir(), 'model_cooking.bin'),
                  test_data = file.path(tempdir(), 'cooking.valid'),
                  k = 5,
                  th = 0.0)

res = fasttext_interface(list_params) # It only prints 'Precision', 'Recall' to the R session

# -----
# In case that the 'command' is 'test-label' [ k = 5 , means that precision and recall are at 5 ]
# -----

list_params = list(command = 'test-label',
                  model = file.path(tempdir(), 'model_cooking.bin'),
                  test_data = file.path(tempdir(), 'cooking.valid'),
                  k = 5,
                  th = 0.0)

res = fasttext_interface(list_params, # prints also 'Precision', 'Recall' to R session
                        path_output = file.path(tempdir(), "test_valid.txt"))

# -----
# quantize function [ it will take a .bin file and return an .ftz file ]
# -----

# the quantize function is currently (01/02/2019) single-threaded
# https://github.com/facebookresearch/fastText/issues/353#issuecomment-342501742

list_params = list(command = 'quantize',
                  input = file.path(tempdir(), 'model_cooking.bin'),
                  output = file.path(tempdir(), gsub('.bin', '.ftz', 'model_cooking.bin')))

res = fasttext_interface(list_params)

# -----
# quantize function [ by using the optional parameters 'qnorm' and 'qout' ]
# -----

```

```

list_params = list(command = 'quantize',
                   input = file.path(tempdir(), 'model_cooking.bin'),
                   output = file.path(tempdir(), gsub('.bin', '.ftz', 'model_cooking.bin')),
                   qnorm = TRUE,
                   qout = TRUE)

res = fasttext_interface(list_params)

# -----
# print-word-vectors [ each line of the 'queries.txt' must be a single word ]
# -----

list_params = list(command = 'print-word-vectors',
                   model = file.path(tempdir(), 'model_cooking.bin'))

res = fasttext_interface(list_params,
                        path_input = file.path(tempdir(), 'queries.txt'),
                        path_output = file.path(tempdir(), 'print_vecs_file.txt'))

# -----
# print-sentence-vectors [ See also the comments in the main.cc file about the input-file ]
# -----

list_params = list(command = 'print-sentence-vectors',
                   model = file.path(tempdir(), 'model_cooking.bin'))

res = fasttext_interface(list_params,
                        path_input = file.path(tempdir(), 'text.txt'),
                        path_output = file.path(tempdir(), 'SENTENCE_VECs.txt'))

# -----
# print-ngrams [ print to console or to output-file ]
# -----

list_params = list(command = 'skipgram', lr = 0.1, dim = 200,
                   input = file.path(tempdir(), "doc.txt"),
                   output = tempdir(), verbose = 2, thread = 1,
                   minn = 2, maxn = 2)

res = fasttext_interface(list_params,
                        path_output = file.path(tempdir(), "ngram_out.txt"),
                        MilliSecs = 5)

list_params = list(command = 'print-ngrams',
                   model = file.path(tempdir(), 'ngram_out.bin'),
                   word = 'word') # print n-grams for specific word

res = fasttext_interface(list_params, path_output = "") # print output to console
res = fasttext_interface(list_params,
                        path_output = file.path(tempdir(), "NGRAMS.txt")) # output to file

```

```
# -----
# 'nn' function
# -----

list_params = list(command = 'nn',
                   model = file.path(tempdir(), 'model_cooking.bin'),
                   k = 20,
                   query_word = 'word')      # a 'query_word' is required

res = fasttext_interface(list_params,
                        path_output = file.path(tempdir(), "nn_output.txt"))

# -----
# analogies [ in the output file each analogy-triplet-result is separated with a newline ]
# -----

list_params = list(command = 'analogies',
                   model = file.path(tempdir(), 'model_cooking.bin'),
                   k = 5)

res = fasttext_interface(list_params,
                        path_input = file.path(tempdir(), 'analogy_queries.txt'),
                        path_output = file.path(tempdir(), 'analogies_output.txt'))

# -----
# dump function [ the 'option' param should be one of 'args', 'dict', 'input' or 'output' ]
# -----

list_params = list(command = 'dump',
                   model = file.path(tempdir(), 'model_cooking.bin'),
                   option = 'args')

res = fasttext_interface(list_params,
                        path_output = file.path(tempdir(), "DUMP.txt"))

## End(Not run)
```

language_identification

Language Identification using fastText

Description

Language Identification using fastText

Usage

```
language_identification(
  input_obj,
  pre_trained_language_model_path,
  k = 1,
  th = 0,
  threads = 1,
  verbose = FALSE
)
```

Arguments

input_obj	either a valid character string to a valid path where each line represents a different text extract or a vector of text extracts
pre_trained_language_model_path	a valid character string to the pre-trained language identification model path, for more info see https://fasttext.cc/docs/en/language-identification.html
k	predict top k labels (1 by default)
th	probability threshold (0.0 by default)
threads	an integer specifying the number of threads to run in parallel. This parameter applies only if k > 1
verbose	if TRUE then information will be printed out in the console

Value

an object of class `data.table` which includes two or more columns with the names `'iso_lang_N'` and `'prob_N'` where `'N'` corresponds to 1 to `'k'` input parameter

References

<https://fasttext.cc/docs/en/language-identification.html> <https://becominghuman.ai/a-handy-pre-trained-model-for-language-identification-cadd89db9db8>

Examples

```
library(fastText)

vec_txt = c("Incapaz de distinguir la luna y la cara de esta chica,
            Las estrellas se ponen nerviosas en el cielo",
            "Unable to tell apart the moon and this girl's face,
            Stars are flustered up in the sky.")

file_pretrained = system.file("language_identification/lid.176.ftz", package = "fastText")

dtbl_out = language_identification(input_obj = vec_txt,
                                  pre_trained_language_model_path = file_pretrained,
                                  k = 3,
                                  th = 0.0,
                                  verbose = TRUE)
```

dtbl_out

plot_progress_logs *Plot the progress of loss, learning-rate and word-counts*

Description

Plot the progress of loss, learning-rate and word-counts

Usage

```
plot_progress_logs(path_logs = "progress_data.txt", plot = FALSE)
```

Arguments

`path_logs` a character string specifying a valid path to a file where the progress-logs are saved

`plot` a boolean specifying if the loss, learning-rate and word-counts should be plotted

Value

an object of class `data.frame` that includes the progress logs with columns `'progress'`, `'words_sec_thread'`, `'learning_rate'` and `'loss'`

References

[http://www.cookbook-r.com/Graphs/Multiple_graphs_on_one_page_\(ggplot2\)/](http://www.cookbook-r.com/Graphs/Multiple_graphs_on_one_page_(ggplot2)/)

Examples

```
## Not run:

library(fastText)

#-----
# the 'progress_data.txt' file corresponds to the 'path_output'
# parameter of the 'fasttext_interface()'. Therefore the user has
# to run first the 'fasttext_interface()' function to save the
# 'progress_data.txt' file to the desired folder.
#-----

res = plot_progress_logs(path = file.path(tempdir(), "progress_data.txt"),
                        plot = TRUE)

## End(Not run)
```

printAnalogiesUsage *Print Usage Information when the command equals to 'analogies'*

Description

Print Usage Information when the command equals to 'analogies'

Usage

```
printAnalogiesUsage(verbose = TRUE)
```

Arguments

verbose if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printAnalogiesUsage' function in the R session

Examples

```
library(fastText)

printAnalogiesUsage()
```

printDumpUsage *Print Usage Information when the command equals to 'dump'*

Description

Print Usage Information when the command equals to 'dump'

Usage

```
printDumpUsage(verbose = TRUE)
```

Arguments

verbose if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printDumpUsage' function in the R session

Examples

```
library(fastText)

printDumpUsage()
```

printNNUsage *Print Usage Information when the command equals to 'nn'*

Description

Print Usage Information when the command equals to 'nn'

Usage

```
printNNUsage(verbose = TRUE)
```

Arguments

verbose if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printNNUsage' function in the R session

Examples

```
library(fastText)

printNNUsage()
```

printPredictUsage *Print Usage Information when the command equals to 'predict' or 'predict-prob'*

Description

Print Usage Information when the command equals to 'predict' or 'predict-prob'

Usage

```
printPredictUsage(verbose = TRUE)
```

Arguments

`verbose` if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printPredictUsage' function in the R session

Examples

```
library(fastText)
printPredictUsage()
```

`printPrintNgramsUsage` *Print Usage Information when the command equals to 'print-ngrams'*

Description

Print Usage Information when the command equals to 'print-ngrams'

Usage

```
printPrintNgramsUsage(verbose = TRUE)
```

Arguments

`verbose` if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printPrintNgramsUsage' function in the R session

Examples

```
library(fastText)
printPrintNgramsUsage()
```

```
printPrintSentenceVectorsUsage
  Print Usage Information when the command equals to 'print-sentence-
  vectors'
```

Description

Print Usage Information when the command equals to 'print-sentence-vectors'

Usage

```
printPrintSentenceVectorsUsage(verbose = TRUE)
```

Arguments

verbose if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printPrintSentenceVectorsUsage' function in the R session

Examples

```
library(fastText)

printPrintSentenceVectorsUsage()
```

```
printPrintWordVectorsUsage
  Print Usage Information when the command equals to 'print-word-
  vectors'
```

Description

Print Usage Information when the command equals to 'print-word-vectors'

Usage

```
printPrintWordVectorsUsage(verbose = TRUE)
```

Arguments

verbose if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printPrintWordVectorsUsage' function in the R session

Examples

```
library(fastText)

printPrintWordVectorsUsage()
```

printQuantizeUsage *Print Usage Information when the command equals to 'quantize'*

Description

Print Usage Information when the command equals to 'quantize'

Usage

```
printQuantizeUsage(verbose = TRUE)
```

Arguments

verbose if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printQuantizeUsage' function in the R session

Examples

```
library(fastText)

printQuantizeUsage()
```

printTestLabelUsage *Print Usage Information when the command equals to 'test-label'*

Description

Print Usage Information when the command equals to 'test-label'

Usage

```
printTestLabelUsage(verbose = TRUE)
```

Arguments

verbose if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printTestLabelUsage' function in the R session

Examples

```
library(fastText)

printTestLabelUsage()
```

printTestUsage *Print Usage Information when the command equals to 'test'*

Description

Print Usage Information when the command equals to 'test'

Usage

```
printTestUsage(verbose = TRUE)
```

Arguments

verbose if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printTestUsage' function in the R session

Examples

```
library(fastText)
printTestUsage()
```

printUsage	<i>Print Usage Information for all parameters</i>
------------	---

Description

Print Usage Information for all parameters

Usage

```
printUsage(verbose = TRUE)
```

Arguments

verbose if TRUE then information will be printed in the console

Value

It does not return a value but only prints the available parameters of the 'printUsage' function in the R session

Examples

```
library(fastText)
printUsage()
```

print_parameters	<i>Print the parameters for a specific command</i>
------------------	--

Description

Print the parameters for a specific command

Usage

```
print_parameters(command = "supervised")
```

Arguments

`command` a character string specifying the command for which the parameters should be printed in the R session. It should be one of "skipgram", "cbow", "supervised", "test", "test-label" or "quantize"

Value

It does not return a value but only prints the available parameters in the R session

References

<https://github.com/facebookresearch/fastText#full-documentation>

<https://github.com/facebookresearch/fastText/issues/341#issuecomment-339783130>

Examples

```
## Not run:  
  
library(fastText)  
  
print_parameters(command = 'supervised')  
  
## End(Not run)
```

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