Package 'tensorflow'

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Type Package

Title R Interface to 'TensorFlow'

Version 0.9

Description Interface to 'TensorFlow' <https://www.tensorflow.org/>, an open source software library for numerical computation using data flow graphs. Nodes in the graph represent mathematical operations, while the graph edges represent the multidimensional data arrays (tensors) communicated between them. The flexible architecture allows you to deploy computation to one or more 'CPUs' or 'GPUs' in a desktop, server, or mobile device with a single 'API'. 'TensorFlow' was originally developed by researchers and engineers working on the Google Brain Team within Google's Machine Intelligence research organization for the purposes of conducting machine learning and deep neural networks research, but the system is general enough to be applicable in a wide variety of other domains as well.

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URL https://github.com/rstudio/tensorflow

BugReports https://github.com/rstudio/tensorflow/issues

SystemRequirements TensorFlow (https://www.tensorflow.org/)

Encoding UTF-8

LazyData true

Depends R (>= 3.0)

Imports utils, reticulate (>= 0.9), yaml, jsonlite, processx

RoxygenNote 6.0.1

Suggests testthat

NeedsCompilation no

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R topics documented:

`install_tensorflow` *Install TensorFlow and it's dependencies*

Description

Install TensorFlow and it's dependencies

Usage

```
install_tensorflow(method = c("auto", "virtualenv", "conda", "system"),
  version = "latest", gpu = FALSE, package_url = NULL, conda = "auto")
```

Arguments

`method`	Installation method. By default, "auto" automatically finds a method that will work in the local environment. Change the default to force a specific installation method. Note that the "virtualenv" method is not available on Windows (as this isn't supported by TensorFlow). Note also that since this command runs without privillege the "system" method is available only on Windows.
`version`	TensorFlow version to install (must be either "latest" or a full major.minor.patch specification, e.g. "1.1.0").
`gpu`	Install the GPU version of TensorFlow
`package_url`	URL of the TensorFlow package to install (if not specified this is determined automatically). Note that if this parameter is provied then the `version` and `gpu` parameters are ignored.
`conda`	Path to conda executable (or "auto" to find conda using the PATH and other conventional install locations).

parse_arguments *Parse Command Line Arguments*

Description

Parse command line arguments of the form `--key=value` and `--key value`.

Usage

```
parse_arguments(arguments = commandArgs(trailingOnly = TRUE))
```

Arguments

`arguments`	A vector of command line arguments. Defaults to the command line arguments received by R.

parse_flags *Parse script FLAGS from command line*

Description

Parse command line arguments to the Rscript and use them to populate the values of TensorFlow FLAGS

Usage

```
parse_flags()
```

Value

FLAGS object suitable for reading values from

shape *Tensor shape*

Description

Tensor shape

Usage

```
shape(...)
```

Arguments

`...`	Tensor dimensions

`tensorboard` *TensorBoard Visualization Tool*

Description

TensorBoard is a tool inspecting and understanding your TensorFlow runs and graphs.

Usage

```
tensorboard(log_dir = ".", action = c("start", "stop"),
  host = "127.0.0.1", port = "auto", launch_browser = interactive(),
  reload_interval = 5, purge_orphaned_data = TRUE)

unique_log_dir(log_dir = "logs")
```

Arguments

`log_dir`	Root directory for training logs.
`action`	Specify whether to start or stop TensorBoard for the given `log_dir` (TensorBoard will be stopped automatically when the R session from which it is launched is terminated).
`host`	Host for serving TensorBoard
`port`	Port for serving TensorBoard. If "auto" is specified (the default) then an unused port will be chosen automatically.
`launch_browser`	`TRUE` to open a web browser for TensorBoard after launching.
`reload_interval`	How often the backend should load more data.
`purge_orphaned_data`	Whether to purge data that may have been orphaned due to TensorBoard restarts. Disabling purge_orphaned_data can be used to debug data disappearance.

Details

When TensorBoard is passed a logdir at startup, it recursively walks the directory tree rooted at logdir looking for subdirectories that contain tfevents data. Every time it encounters such a subdirectory, it loads it as a new run, and the frontend will organize the data accordingly.

The TensorBoard process will be automatically destroyed when the R session in which it is launched exits. You can pass `action = "stop"`` to manually terminate a TensorBoard process for a givenlog_dir‘.

Value

URL for browsing TensorBoard (invisibly).

tensorflow *TensorFlow for R*

Description

TensorFlow is an open source software library for numerical computation using data flow graphs. Nodes in the graph represent mathematical operations, while the graph edges represent the multidimensional data arrays (tensors) communicated between them. The flexible architecture allows you to deploy computation to one or more CPUs or GPUs in a desktop, server, or mobile device with a single API.

Details

The TensorFlow API is composed of a set of Python modules that enable constructing and executing TensorFlow graphs. The tensorflow package provides access to the complete TensorFlow API from within R.

For additional documentation on the tensorflow package see https://tensorflow.rstudio.com

tf *Main TensorFlow module*

Description

Interface to main TensorFlow module. Provides access to top level classes and functions as well as sub-modules (e.g. `tf$nn`, `tf$contrib$learn`, etc.).

Usage

```
tf
```

Format

TensorFlow module

Examples

```
## Not run:
hello <- tf$constant('Hello, TensorFlow!')
b <- tf$Variable(tf$zeros(shape(1L)))

sess <- tf$Session()
sess$run(tf$global_variables_initializer())

learn <- tf$contrib$learn
slim <- tf$contrib$slim

## End(Not run)
```

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