Package 'safetensors'

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Title Safetensors File Format

Version 0.1.2

Description A file format for storing tensors that is secure (doesn't allow for code execution), fast and simple to implement. 'safetensors' also enables cross language and cross frameworks compatibility making it an ideal format for storing machine learning model weights.

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Encoding UTF-8

RoxygenNote 7.2.3

Suggests testthat (>= 3.0.0), torch (>= 0.11.0)

Config/testthat/edition 3

Imports cli, jsonlite, R6, rlang

URL https://github.com/mlverse/safetensors, https://mlverse.github.io/safetensors/

BugReports https://github.com/mlverse/safetensors/issues

NeedsCompilation no

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Repository CRAN

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`safetensors` *Low level control over safetensors files*

Description

Low level control over safetensors files

Low level control over safetensors files

Details

Allows opening a connection to a safetensors file and query the tensor names, metadata, etc. Opening a connection only reads the file metadata into memory. This allows for more fined grained control over reading.

Public fields

`con` the connection object with the file

`metadata` an R list containing the metadata header in the file

`framework` the framework used to return the tensors

`device` the device to where tensors are copied

`max_offset` the largest offset boundary that was visited. Mainly used in torch to find the end of the safetensors file.

Methods

Public methods:

- `safetensors$new()`
- `safetensors$keys()`
- `safetensors$get_tensor()`
- `safetensors$clone()`

Method `new()`**:** Opens the connection with the file

Usage:

```
safetensors$new(path, ..., framework = "torch", device = "cpu")
```

Arguments:

`path` Path to the file to load

`...` Unused

`framework` Framework to load the data into. Currently only torch is supported

`device` Device to copy data once loaded

Method `keys()`**:** Get the keys (tensor names) in the file

Usage:

```
safetensors$keys()
```

Method `get_tensor()`**:** Get a tensor from its name

Usage:

```
safetensors$get_tensor(name)
```

Arguments:

`name` Name of the tensor to load

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
safetensors$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Examples

```
if (rlang::is_installed("torch") && torch::torch_is_installed()) {
tensors <- list(x = torch::torch_randn(10, 10))
temp <- tempfile()
safe_save_file(tensors, temp)
f <- safetensors$new(temp)
f$get_tensor("x")
}
```

`safe_load_file` *Safe load a safetensors file*

Description

Loads an safetensors file from disk.

Usage

```
safe_load_file(path, ..., framework = "torch", device = "cpu")
```

Arguments

`path`	Path to the file to load
`...`	Unused
`framework`	Framework to load the data into. Currently only torch is supported
`device`	Device to copy data once loaded

Value

A list with tensors in the file. The `metadata` attribute can be used to find metadata the metadata header in the file.

See Also

safetensors, `safe_save_file()`

Examples

```
if (rlang::is_installed("torch") && torch::torch_is_installed()) {
  tensors <- list(x = torch::torch_randn(10, 10))
  temp <- tempfile()
  safe_save_file(tensors, temp)
  safe_load_file(temp)
}
```

`safe_save_file` *Writes a list of tensors to the safetensors format*

Description

Writes a list of tensors to the safetensors format

Usage

```
safe_save_file(tensors, path, ..., metadata = NULL)

safe_serialize(tensors, ..., metadata = NULL)
```

Arguments

`tensors`	A named list of tensors. Currently only torch tensors are supported.
`path`	The path to save the tensors to. It can also be a binary connection, as eg, created with `file()`.
`...`	Currently unused.
`metadata`	An optional string that is added to the file header. Possibly adding additional description to the weights.

Value

The path invisibly or a raw vector.

Functions

- `safe_serialize()`: Serializes the tensors and returns a raw vector.

Examples

```
if (rlang::is_installed("torch") && torch::torch_is_installed()) {
  tensors <- list(x = torch::torch_randn(10, 10))
  temp <- tempfile()
  safe_save_file(tensors, temp)
  safe_load_file(temp)

  ser <- safe_serialize(tensors)
}
```

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