

# Package ‘rethnicity’

October 14, 2022

**Type** Package

**Title** Predicting Ethnic Group from Names

**Version** 0.2.3

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**Description** Implementation of the race/ethnicity prediction method, described in “rethnicity: An R package for predicting ethnicity from names” by Fangzhou Xie (2022) <[doi:10.1016/j.softx.2021.100965](https://doi.org/10.1016/j.softx.2021.100965)> and “Rethnicity: Predicting Ethnicity from Names” by Fangzhou Xie (2021) <[arXiv:2109.09228](https://arxiv.org/abs/2109.09228)>.

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**Encoding** UTF-8

**RoxygenNote** 7.2.0

**URL** <https://github.com/fangzhou-xie/rethnicity>

**BugReports** <https://github.com/fangzhou-xie/rethnicity/issues>

**Depends** R (>= 3.4.0)

**LinkingTo** Rcpp, RcppEigen, RcppThread (>= 2.1.3)

**Imports** Rcpp, cli

**Suggests** knitr, rmarkdown, testthat (>= 3.0.0), magrittr, parallel

**VignetteBuilder** knitr

**Language** en-US

**Config/testthat/edition** 3

**NeedsCompilation** yes

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**Repository** CRAN

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## R topics documented:

predict_ethnicity	2
predict_fullname	3
predict_lastname	3

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predict_ethnicity	<i>Predict ethnicity from names.</i>
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### Description

Predict ethnicity either by last names or both first and last names. This is the default and recommended method for prediction.

### Usage

```
predict_ethnicity(  
  firstnames = NULL,  
  lastnames = NULL,  
  method = "fullname",  
  threads = 0,  
  na.rm = FALSE  
)
```

### Arguments

firstnames	A character vector of first names. Default to NULL. Only use this if you are using 'method' = 'fullname'.
lastnames	A character vector of last names. Default to NULL. Use this in both 'fullname' and 'lastname' methods.
method	"fullname" or "lastname". Inference method to choose from.
threads	single integer. Number of threads to use for multi-threading.
na.rm	TRUE or FALSE (bool). If TRUE, then the NAs will be removed; if FALSE, then return error if there is NA in the arguments.

### Value

data.frame with probability of being each ethnic group and the predicted group (one with highest probability)

### Examples

```
predict_ethnicity(firstnames = "Alan", lastnames = "Turing")
```

---

predict\_fullname      *Predict ethnicity from full name*

---

### Description

Predicts ethnicity from first names and last names, using self-trained model with customized labels. This is designed for advanced users who wish to use their own models. For most use cases, use [predict\_ethnicity()] for prediction.

### Usage

```
predict_fullname(
  firstnames,
  lastnames,
  na.rm = FALSE,
  threads = 0L,
  labels = NULL,
  model_path = NULL
)
```

### Arguments

firstnames	character vector, first names
lastnames	character vector, last names
na.rm	bool, default to FALSE, whether to remove the na in the 'lastnames'
threads	int, number of threads for multi-threading
labels	character vector, labels of the classification model, needs to be in the same order as the trained model
model_path	character file path, the path to the trained model in .json format (converted from Keras by frugally-deep)

### Value

data.frame with predicted probability and predicted ethnicity

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predict\_lastname      *Predict ethnicity from last name*

---

### Description

Predicts ethnicity from last names, using self-trained model with customized labels. This is designed for advanced users who wish to use their own models. For most use cases, use [predict\_ethnicity()] for prediction.

**Usage**

```
predict_lastname(  
  lastnames,  
  na.rm = FALSE,  
  threads = 0L,  
  labels = NULL,  
  model_path = NULL  
)
```

**Arguments**

<code>lastnames</code>	character vector, last names
<code>na.rm</code>	bool, default to FALSE, whether to remove the na in the 'lastnames'
<code>threads</code>	int, number of threads for multi-threading
<code>labels</code>	character vector, labels of the classification model, needs to be in the same order as the trained model
<code>model_path</code>	character file path, the path to the trained model in .json format (converted from Keras by frugally-deep)

**Value**

data.frame with predicted probability and predicted ethnicity

# Index

`predict_ethnicity`, [2](#)  
`predict_fullname`, [3](#)  
`predict_lastname`, [3](#)