

# Package ‘forestControl’

February 16, 2018

**Type** Package

**Title** Approximate False Positive Rate Control in Selection Frequency  
for Random Forest

**Version** 0.1.1

**Date** 2018-02-16

**Description** Approximate False Positive Rate Control in Selection Frequency for  
Random Forest using the methods described by Ender Konukoglu and Melanie Ganz.  
Methods for calculating the selection frequency threshold at false positive rates  
and selection frequency false positive rate feature selection.

**Imports** Rcpp

**Suggests** testthat, randomForest, ranger

**License** MIT + file LICENSE

**Encoding** UTF-8

**LazyData** true

**URL** <https://github.com/aberHRML/forestControl>

**BugReports** <https://github.com/aberHRML/forestControl/issues>

**RoxyenNote** 6.0.1

**LinkingTo** Rcpp

**Roxyen** list(markdown = TRUE)

**NeedsCompilation** yes

**Author** Tom Wilson [aut, cre],  
Jasen Finch [aut]

**Maintainer** Tom Wilson <tpw2@aber.ac.uk>

## R topics documented:

forestControl-package . . . . .	2
extract_params . . . . .	2
fpr_fs . . . . .	3
selection_freqs . . . . .	3
sft . . . . .	4

**Index****5**


---

forestControl-package	<i>False Positive Rate Control in Selection Frequency for Random Forest</i>
-----------------------	---

---

**Description**

This package is an implementation of the methods described by Ender Konukoglu and Melanie Ganz in Konukoglu, E. and Ganz, M., 2014. *Approximate false positive rate control in selection frequency for random forest*. *arXiv preprint arXiv:1410.2838* <https://arxiv.org/abs/1410.2838>.

---

extract_params	<i>Extract forest parameters</i>
----------------	----------------------------------

---

**Description**

For a randomForest or ranger classification object, extract the parameters needed to calculate an approximate selection frequency threshold

**Usage**

```
extract_params(x)
```

**Arguments**

**x** a randomForest or ranger object

**Value**

a list of four elements

**Fn** The number of features considered at each internal node (mtry)

**Ft** The total number of features in the data set

**K** The average number of binary tests/internal nodes across the entire forest

**Tr** The total number of trees in the forest

**Author(s)**

Tom Wilson <tpw2@aber.ac.uk>

---

fpr_fs	<i>False Postivie Rate Feature Selection</i>
--------	--

---

**Description**

Calculate the False Positive Rate (FPR) for each feature using it's selection frequency

**Usage**

```
fpr_fs(x)
```

**Arguments**

x                      a randomForest or ranger object

**Value**

a data.frame of selection frequencies and their false positive rate

**Author(s)**

Jasen Finch <jsf9@aber.ac.uk>

---

selection_freqs	<i>Variable Selection Frequencies</i>
-----------------	---------------------------------------

---

**Description**

Extract variable selection frequencies from randomForest and ranger model objects

**Usage**

```
selection_freqs(x)
```

**Arguments**

x                      a randomForest or ranger object

**Value**

data.frame of variable selection frequencies

---

sft	<i>Selection Frequency Threshold</i>
-----	--------------------------------------

---

**Description**

Selection Frequency Threshold

**Usage**

```
sft(x, alpha)
```

**Arguments**

x	a randomForest or ranger object
alpha	a false positive rate (ie, 0.01)

**Value**

a list of two elements

**sft** the selection frequency threshold

**probs\_atsft** the esimated false positive rate

**Author(s)**

Tom Wilson <tpw2@aber.ac.uk>

# Index

`extract_params`, [2](#)  
`forestControl-package`, [2](#)  
`fpr_fs`, [3](#)  
`selection_freqs`, [3](#)  
`sft`, [4](#)