

# Package: mlr3batchmark (via r-universe)

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**Title** Batch Experiments for 'mlr3'

**Version** 0.2.0

**Description** Extends the 'mlr3' package with a connector to the package 'batchtools'. This allows to run large-scale benchmark experiments on scheduled high-performance computing clusters.

**License** LGPL-3

**URL** <https://mlr3batchmark.mlr-org.com>,  
<https://github.com/mlr-org/mlr3batchmark>

**BugReports** <https://github.com/mlr-org/mlr3batchmark/issues>

**Depends** R (>= 3.1.0), batchtools (>= 0.9.17)

**Imports** checkmate, data.table, lgr, mlr3 (>= 0.19.0), mlr3misc, uuid

**Suggests** renv, rpart, testthat

**Encoding** UTF-8

**RoxygenNote** 7.3.2

**NeedsCompilation** no

**Author** Marc Becker [cre, aut]  
(<<https://orcid.org/0000-0002-8115-0400>>), Michel Lang [aut]  
(<<https://orcid.org/0000-0001-9754-0393>>), Toby Hocking [ctb]  
(<<https://orcid.org/0000-0002-3146-0865>>)

**Maintainer** Marc Becker <[marcbecker@posteo.de](mailto:marcbecker@posteo.de)>

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mlr3batchmark-package *mlr3batchmark: Batch Experiments for 'mlr3'*

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### Description

Extends the 'mlr3' package with a connector to the package 'batchtools'. This allows to run large-scale benchmark experiments on scheduled high-performance computing clusters.

### Author(s)

**Maintainer:** Marc Becker <marcbecker@posteo.de> ([ORCID](#))

Authors:

- Michel Lang <michellang@gmail.com> ([ORCID](#))

Other contributors:

- Toby Hocking ([ORCID](#)) [contributor]

### See Also

Useful links:

- <https://mlr3batchmark.mlr-org.com>
- <https://github.com/mlr-org/mlr3batchmark>
- Report bugs at <https://github.com/mlr-org/mlr3batchmark/issues>

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batchmark

*Benchmark Experiments on Batch Systems*

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### Description

This function provides the functionality to leave the interface of **mlr3** for the computation of benchmark experiments and switch over to **batchtools** for a more fine grained control over the execution. `batchmark()` populates a `batchtools::ExperimentRegistry` with jobs in a `mlr3::benchmark()` fashion. Each combination of `mlr3::Task` and `mlr3::Resampling` defines a `batchtools::Problem`, each `mlr3::Learner` is an `batchtools::Algorithm`.

After the jobs have been submitted and are terminated, results can be collected with `reduceResultsBatchmark()` which returns a `mlr3::BenchmarkResult` and thus to return to the interface of **mlr3**.

### Usage

```
batchmark(
  design,
  store_models = FALSE,
  reg = batchtools::getDefaultRegistry(),
  renv_project = NULL
)
```

**Arguments**

design	( <a href="#">data.frame()</a> ) Data frame (or <a href="#">data.table::data.table()</a> ) with three columns: "task", "learner", and "resampling". Each row defines a resampling by providing a <a href="#">Task</a> , <a href="#">Learner</a> and an instantiated <a href="#">Resampling</a> strategy. The helper function <a href="#">benchmark_grid()</a> can assist in generating an exhaustive design (see examples) and instantiate the <a href="#">Resamplings</a> per <a href="#">Task</a> . Additionally, you can set the additional column 'param_values', see <a href="#">benchmark_grid()</a> .
store_models	( <a href="#">logical(1)</a> ) Store the fitted model in the resulting object= Set to TRUE if you want to further analyse the models or want to extract information like variable importance.
reg	<a href="#">batchtools::ExperimentRegistry</a> .
renv_project	<a href="#">character(1)</a> Path to a renv project. If not NULL, the renv project is activated in the job environment.

**Value**

[data.table::data.table\(\)](#) with ids of created jobs (invisibly).

**Examples**

```
tasks = list(mlr3::tsk("iris"), mlr3::tsk("sonar"))
learners = list(mlr3::lrn("classif.featureless"), mlr3::lrn("classif.rpart"))
resamplings = list(mlr3::rsmp("cv", folds = 3), mlr3::rsmp("holdout"))

design = mlr3::benchmark_grid(
  tasks = tasks,
  learners = learners,
  resamplings = resamplings
)

reg = batchtools::makeExperimentRegistry(NA)
batchmark(design, reg = reg)
batchtools::submitJobs(reg = reg)

reduceResultsBatchmark(reg = reg)
```

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reduceResultsBatchmark

*Collect Results from batchmark*

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**Description**

Collect the results from jobs defined via [batchmark\(\)](#) and combine them into a [mlr3::BenchmarkResult](#).

Note that `ids` defaults to finished jobs (as reported by [batchtools::findDone\(\)](#)). If a job threw an error, is expired or is still running, it will be ignored with this default. Just leaving these jobs

out in an analysis is **not** statistically sound. Instead, try to robustify your jobs by using a fallback learner (c.f. [mlr3::Learner](#)).

### Usage

```
reduceResultsBatchmark(
  ids = NULL,
  store_backends = TRUE,
  reg = batchtools::getDefaultRegistry(),
  fun = NULL,
  unmarshal = TRUE
)
```

### Arguments

ids	[ <a href="#">data.frame</a> or integer] A <a href="#">data.frame</a> (or <a href="#">data.table</a> ) with a column named “job.id”. Alternatively, you may also pass a vector of integerish job ids. If not set, defaults to the return value of <a href="#">findDone</a> . Invalid ids are ignored.
store_backends	(logical(1)) Keep the <a href="#">DataBackend</a> of the <a href="#">Task</a> in the <a href="#">ResampleResult</a> ? Set to TRUE if your performance measures require a <a href="#">Task</a> , or to analyse results more conveniently. Set to FALSE to reduce the file size and memory footprint after serialization. The current default is TRUE, but this eventually will be changed in a future release.
reg	[ <a href="#">Registry</a> ] Registry. If not explicitly passed, uses the default registry (see <a href="#">setDefaultRegistry</a> ).
fun	[function] Function to apply to each result. The result is passed unnamed as first argument. If NULL, the identity is used. If the function has the formal argument “job”, the <a href="#">Job/Experiment</a> is also passed to the function.
unmarshal	<a href="#">Learner</a> Whether to unmarshal learners that were marshaled during the execution. If TRUE all models are stored in unmarshaled form. If FALSE, all learners (that need marshaling) are stored in marshaled form.

### Value

[mlr3::BenchmarkResult](#).

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