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NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

16th Meeting of the Hamburg R-User-Group, 13th Feb 2019

# Project „easystats“
# Making R stats easier!

Daniel Lüdecke
d.luedecke@uke.de

https://github.com/easystats

Universitätsklinikum Hamburg-Eppendorf

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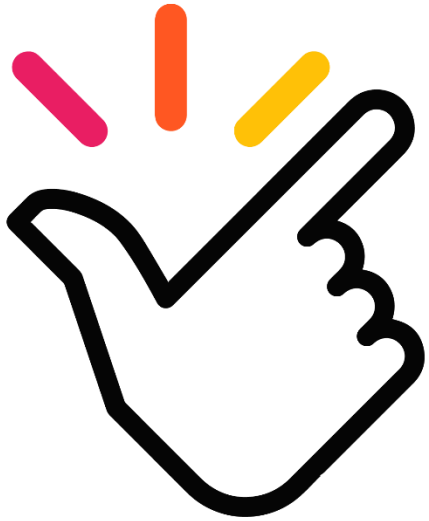
# easystats



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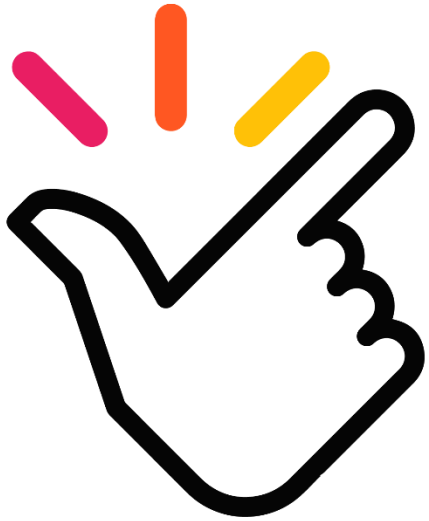

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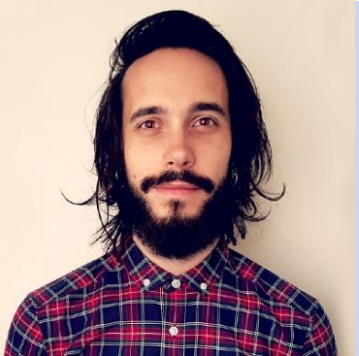
Dominique



Neuropsychologist, psychotherapist, pizza lover

Postdoc at the Clinical Brain Lab (Singapore) on the neuroscience of deception

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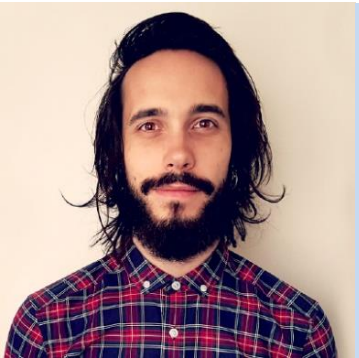
## Dominique



Neuropsychologist, psychotherapist, pizza lover

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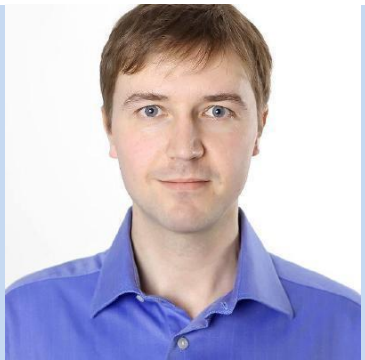
## Daniel



Gerontologist, kind of sociologist, prefers burgers

Postdoc at the Department of Medical Sociology (University Medical Center Hamburg)


# Objectives

- Provide a set of packages that makes it easier to do statistical analysis and reporting with R.

  - Low-level (or „core“) packages
    - Target group: advanced users and developers
    - Aims (examples): accessor functions to access the internals of models, such as variables, formulas, model frame/data, random effects, their structure and so on...


# Objectives

- Provide a set of packages that makes it easier to do statistical analysis and reporting with R.

  - Mid-level packages
    - Target group: end-user
    - Aims (examples): computation of model "performance" metrics (R2, ICC, CoD, AIC, BIC and whatnot), model comparison, Bayesian analysis, …


# Objectives

- Provide a set of packages that makes it easier to do statistical analysis and reporting with R.

  - High Level
    - Target groups: non-experts/beginners that want fully-baked solutions to solve their problems and that want to experience the power of R
    - Aims: reporting, plotting

# Objectives

- Provide a set of packages that makes it easier to do statistical analysis and reporting with R.

And most important!

– All packages, especially the low-level packages, should run with minimum dependencies!

```
Package: insight
Type: Package
Title: Easily Access Model Information for Various Model Objects
Description: Although there are generic functions to get information about or
  data from models, many modelling-functions from different packages do not
  provide methods to access these information. 'insight' aims to close this
  gap by providing functions that work for (almost) any model object.
Version: 0.1.0.0001
Date: 2019-01-29
Authors@R: person("Daniel", "Lüdecke", role = c("aut", "cre"), email =
"d.luedecke@uke.de", comment = c(ORCID = "0000-0002-8895-3206"))
Maintainer: Daniel Lüdecke <d.luedecke@uke.de>
License: GPL-3
Depends: R (>= 3.2), stats
Suggests: brms, glmmTMB, lme4, nlme, splines, testthat
Encoding: UTF-8
LazyData: true
```

and no imports!

A first low-level package…

# insight

# Model objects are terrifying

```
# model frame?

library(nlme)

m <- gls(
  follicles ~ sin(2*pi*Time) +
  cos(2*pi*Time), Ovary,
  correlation = corAR1(form = ~ 1 | Mare)
)

model.frame(m)
#> corStruct  parameters:
#> [1] 1.960656
```

# Model objects are terrifying

```
# model family?

fm1 <- lme(
  distance ~ age, data = Orthodont
)

family(fm1)
#> Error in UseMethod("family") :
#>   no applicable method for 'family'
#>   applied to an object of class "lme"
```

# Model objects are terrifying

```
# model terms?

library(MCMCglmm)
data(PlodiaPO)

m <- MCMCglmm(
  PO~1, random=~FSfamily, data=PlodiaPO,
  verbose=FALSE, nitt=1300, burnin=300,
  thin=1
)

all.vars(terms(m))
#> Error in terms.default(m) : no
#> terms component nor attribute
```

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Gain insight into your models!

# Gain insight into your models!

- Thanks to a stunning x-ray-technology, the *insight*-package allows to easily get insights into your model object!


# Gain insight into your models!

- Simple, consistent API:
  - `get_*()` to retrieve data, `find_()*` to access model information.

# Objectives

- The goal of this package is to provide tools that make it easy and intuitive to access information contained in various models.
- Although there are generic functions to get information and data from models, many modelling-functions from different packages do not provide methods to access these information.
- *insight* aims at closing this gap by providing consistent functions that work for (almost) any models.

# I‘m afraid of no model

```
# model frame?

library(insight)
library(nlme)

m <- gls(
  follicles ~ sin(2*pi*Time) +
  cos(2*pi*Time), Ovary,
  correlation = corAR1(form = ~ 1 | Mare)
)

get_data(m)
#>     Mare        Time follicles
#> 1      1 -0.13636360        20
#> 2      1 -0.09090910        15
#> 3      1 -0.04545455        19
#> ... (truncated)
```

# I‘m afraid of no model

```
# model terms?

library(MCMCglmm)
data(PlodiaPO)
m <- MCMCglmm(
  PO~1, random=~FSfamily, data=PlodiaPO,
  verbose=FALSE, nitt=1300, burnin=300,
  thin=1
)

find_terms(m)
#> $response
[1] "PO"

$random
[1] "FSfamily"
```

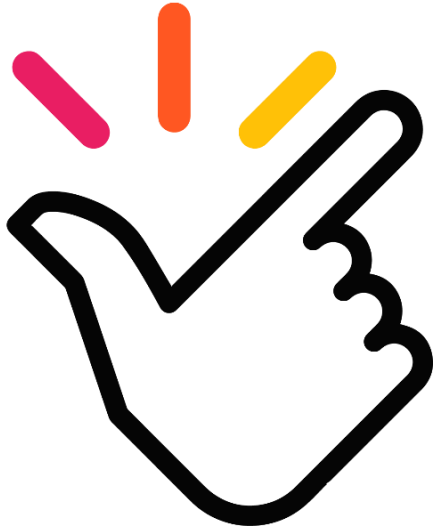
# I‘m afraid of no model

```
library(GLMMadaptive)

m <- mixed_model(
  count ~ child + camper,
  random = ~ 1 | persons,
  zi_fixed = ~ child + livebait,
  zi_random = ~ 1 | persons,
  data = fish,
  family = zi.poisson()
)

find_predictors(m, component = "zi")
#> [1] "child"    "livebait"
```

# easystats



Want to support us?
https://github.com/easystats

Dominique & Daniel