

quollr: An R Package for Visualizing 2D Models in High Dimensional Space

by Jayani P.G. Lakshika, Dianne Cook, Paul Harrison, Michael Lydeamore, and Thiyanga S. Talagala

Abstract An abstract of less than 150 words.

1 Introduction

2 Implementation

Installation

The package can be installed from CRAN using

```
install.packages("quollr")
```

and from GitHub using

```
remotes::install_github("JayaniLakshika/quollr")
```

to install the development version.

Web site

More documentation of the package can be found at the web site (need to add the link).

Data sets

Functions

Compute hexagonal bin configurations

Generate full hex grid

Construct the 2D model with different options

Construct the high-D model with different options

Generate the triangular mesh

Compute parameter defaults

Shift the hexagonal grid origin

Benchmark value to remove the low-density hexagons

Benchmark value to remove the long edges

Model function

Predict 2D embeddings

Compute residuals

Visualizations

geom_trimesh

`coloured_long_edges`

`remove long edges`

`show_langevitour`

Tests

3 Examples

4 Conclusion

5 Acknowledgements

This article is created using `knitr` (Xie 2015) and `rmarkdown` (Xie, Allaire, and Grolemund 2018) in R with the `rjtools::rjournal_article` template. The source code for reproducing this paper can be found at: <https://github.com/JayaniLakshika/paper-quollr>.

References

- Xie, Yihui. 2015. *Dynamic Documents with R and Knitr*. 2nd ed. Boca Raton, Florida: Chapman; Hall/CRC. <https://yihui.name/knitr/>.
Xie, Yihui, J. J. Allaire, and Garrett Grolemund. 2018. *R Markdown: The Definitive Guide*. Boca Raton, Florida: Chapman; Hall/CRC. <https://bookdown.org/yihui/rmarkdown>.

Jayani P.G. Lakshika
Monash University
Department of Econometrics and Business Statistics, VIC 3800 Australia
<https://jayanilakshika.netlify.app/>
ORCID: 0000-0002-6265-6481
jayani.piyadigamage@monash.edu

Dianne Cook
Monash University
Department of Econometrics and Business Statistics, VIC 3800 Australia
<http://www.dicook.org/>
ORCID: 0000-0002-3813-7155
dicook@monash.edu

Paul Harrison
Monash University
MGBP, BDInstitute, VIC 3800 Australia
ORCID: 0000-0002-3980-268X
paul.harrison@monash.edu

Michael Lydeamore
Monash University
Department of Econometrics and Business Statistics, VIC 3800 Australia
ORCID: 0000-0001-6515-827X
michael.lydeamore@monash.edu

Thiyanga S. Talagala
University of Sri Jayewardenepura
Department of Statistics, Gangodawila, Nugegoda 10100 Sri Lanka
<https://thiyanga.netlify.app/>
ORCID: 0000-0002-0656-9789
ttalagala@sjp.ac.lk