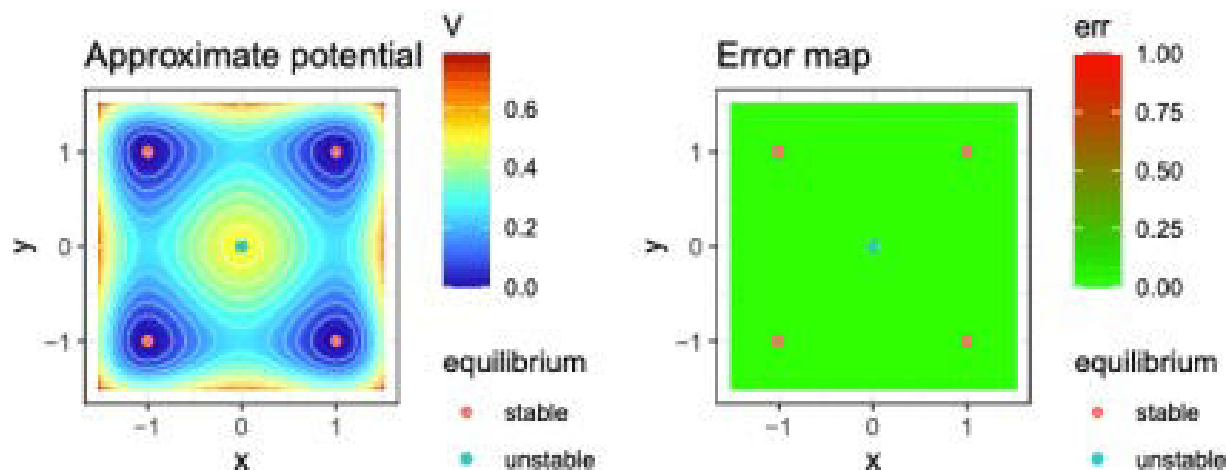


By my count, two hundred twenty-one new packages *stuck* to CRAN in March 2021.<sup>1</sup> Here are my "Top 40" selections in twelve categories: Computational Methods, Data, Engineering, Genomics, Machine Learning, Medicine, Music, Networks, Science, Statistics, Utility, and Visualization. Two of these categories Engineering and Music have only one entry each. However, I decided to give them their own category in order to draw attention to the use of R outside of the mainstream, and I have always lamented the fate of the *Miscellaneous*. In the same spirit, note that the complete works of *the Bard* appear in the Data category and that due to `tidypaleo` *Paleoenvironmental* is now *a thing* in R.

## Computational Methods

`gamiss` v1.0-5: Implements computationally intensive calculations for Generalized Additive Models for location, scale, and shape as described in [Rigby & Stasinopoulos \(2005\)](#).

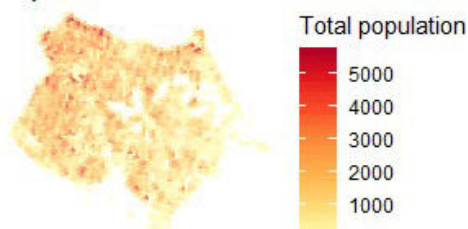
`waydown` v1.1.0: Implements an algorithm based on the classical Helmholtz decomposition to obtain an approximate potential function for non gradient fields. See [Rodríguez-Sánchez \(2020\)](#) for background and the [vignette](#) for examples.



## Data

`aopdata` v0.2.1: Provides functions to download data from the [Access to Opportunities Project](#) (AOP) which includes annual estimates of access to employment, health and education services by transport mode, as well as data on the spatial distribution of population, schools and health-care facilities at a fine spatial resolution for all cities included in the study. There is an [Introduction](#) to the package, and there are vignettes on [Analyzing Inequality](#), [Mapping Urban Accessibility](#), and [Mapping Population and Land Use](#).

## Population distribution



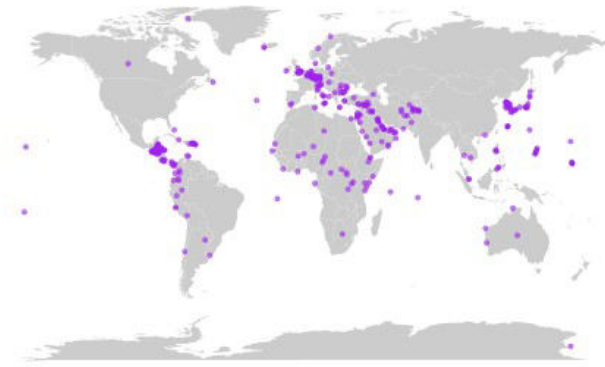
`bardr` v0.0.9: Provides R data structures for Shakespeare's complete works, as provided by [Project Gutenberg](#). See [README](#).

`metro` v0.9.1: Provides access to the [Metro Transparent Data Sets API](#) published by the Washington Metropolitan Area Transit Authority, the government agency operating light rail and passenger buses in the Washington D.C. area. See [README](#).

`RAQSAPI` v2.0.1: Provides functions to retrieve air monitoring data and associated metadata from the US Environmental Protection Agency's [Air Quality System Service](#). There are several short vignettes including an [Introduction](#) and a vignette on [Usage tips and precautions](#).

`troopdata` v0.1.3: Provides access to U.S. Department of Defense data on overseas military deployments and includes functions for pulling country-year troop deployment and basing data. See [README](#) to get started

## Locations of U.S. military facilities, 1950-2018



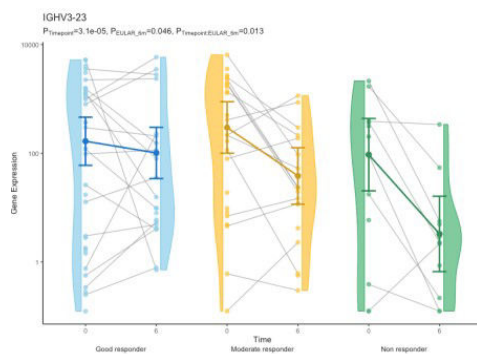
## Engineering

[pipenostics](#) v0.1.7: Implements empirical and data-driven models of heat losses, corrosion diagnostics, reliability and predictive maintenance of pipeline systems which should be of interest to the engineering departments of heat generating and heat transferring companies. See [Timashev et al. \(2016\)](#) and [Reddy \(2017\)](#) for the methods used and [README](#) to get started.



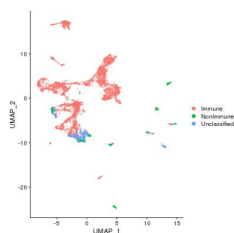
## Genomics

[glmSeq](#) v0.1.0: Provides functions to fit negative binomial mixed effects models with matched samples to model expression data. See the [vignette](#) for examples.



[ondisc](#) v1.0.0: Implements a method to allow researchers to analyze large-scale single-cell data as an R object stored on disk. There is a tutorial on the [ondisc matrix class](#) and another on [Metadata](#).

[SignacX](#) v2.2.0: Implements a neural network trained with flow-sorted gene expression data to classify cellular phenotypes in single cell RNA-sequencing data. See [Chamberlain et al. \(2021\)](#) for background. There are seven vignettes including an [Analysis of Kidney Lupus Data](#) and an [Analysis of PBMCs from 10X Genomics](#).



## Machine Learning

[opitools](#) v1.0.3: Implements a tool to analyze opinions inherent in a text document relating to a specific subject (A) and assess how opinions expressed with respect to another subject (B) may affect the opinions on subject A. This package has been designed specifically for application to social media datasets, such as Twitter and Facebook. See [Adepeju and Jimoh \(2021\)](#) for an extended example that demonstrates the utility of the approach and the [vignette](#) to get started.





## Networks

[sfnetworks](#) v0.5.1: Provides a tidy approach to spatial network analysis in the form of classes and functions that enable a seamless interaction between the network analysis package [tidygraph](#) and the spatial analysis package [sf](#). There are vignettes on [sf network structure](#), [Preprocessing](#), [Spatial joins and filters](#), [Routing](#), and [Spatial morphers](#).



[valhallr](#) v0.1.0: Implements an interface to the [Valhalla](#) routing engine's API for turn-by-turn routing, isochrones, and origin-destination analyses. See the [vignette](#) for examples.



## Science

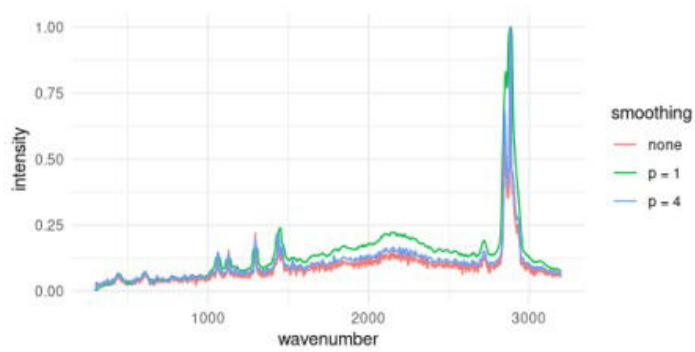
[asterisk](#) v0.99.4: Provides functions to calculate the positions of satellites given a known state vector. It includes implementations of the SGP4 and SDP4 simplified perturbation models to propagate orbital state vectors. See [Hoots et al. \(1988\)](#), [Vallado et al. \(2012\)](#), and [Hoots et al. \(2014\)](#) for background and the [vignette](#) for examples.



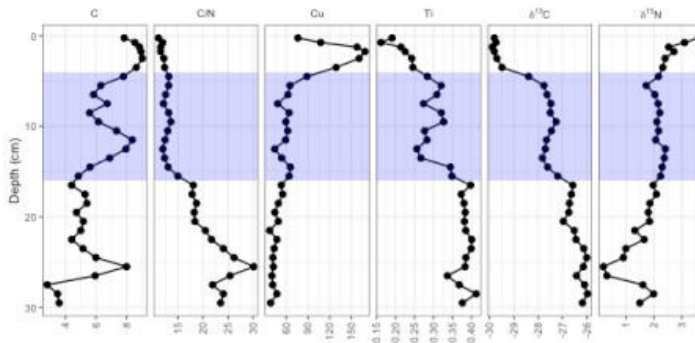
[forImage](#) v0.1.0: Implements a tool to measure the size of foraminifera and other unicellulars and includes functions to guide foraminiferal test biovolume calculations and cell biomass estimations. The volume function includes several microalgae models geometric adaptations based on [Hillebrand et al. \(1999\)](#), [Sun & Liu \(2003\)](#), and [Vadrucci et al. \(2007\)](#). See the [vignette](#) to get started.



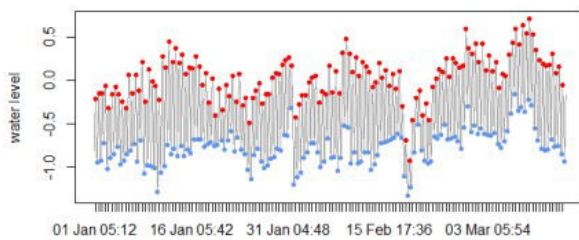
**OpenSpecy** v0.9.1: Provides functions to analyze, process, identify and share Raman and (FT)IR spectra with functions to implement Savitzky-Golay smoothing in accordance with [Zhao et al. \(2007\)](#) and identify spectra using an onboard reference library, see [Cowger et al. 2020](#). Analyzed spectra can be shared via [Shiny App](#). There is a [vignette](#).



**tidypaleo** v0.1.1: Provides functions with a common framework for age-depth model management, stratigraphic visualization, and common statistical transformations with a focus on stratigraphic visualization using `ggplot2`. There are vignettes on [Age-depth Models](#), [Nested Analyses](#), and [Stratigraphic Diagrams](#).

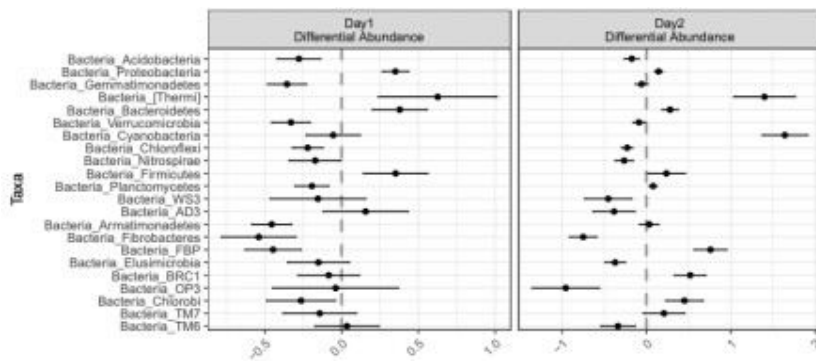


**VulnToolkit** v1.1.2: Provides functions to analyze and summarize tidal data sets and to access to NOAA mean sea level data. See [Hill & Anisfeld \(2015\)](#) for background and the [vignette](#) for examples.



## Statistics

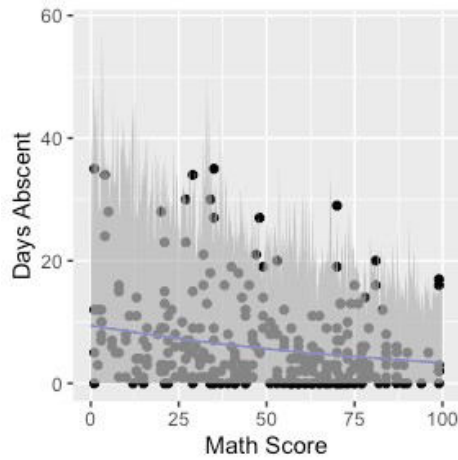
**corncob** v0.2.0: Implements functions for modeling correlated count data using the beta-binomial distribution, described in [Martin et al. \(2020\)](#). See the [vignette](#) for an introduction.



[hawkesbow](#) v1.0.2: Implements an estimation method for [Hawkes processes](#) when count data are only observed in discrete time, using a spectral approach derived from the Bartlett spectrum. See [Cheyssou and Lang \(2020\)](#) for background and the [vignette](#) for examples.

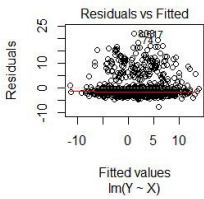
[LMMELSM](#) v0.1.0: Implements two-level mixed effects location scale models on multiple observed or latent outcomes, and between-group variance modeling. See [Williams et al. \(2020\)](#) and [Hedeker et al. \(2008\)](#) for background and [README](#) for an example.

[mixpoissonreg](#) v1.0.0: Provides functions to fit mixed Poisson regression models (Poisson-Inverse Gaussian or Negative-Binomial) with count data response variables. See [Barreto-Souza and Simas \(2016\)](#) for background. There are five vignettes on [Global and Local Influence](#), [Confidence and Prediction Intervals](#), [MLE](#), [Tidy Methods](#), and [Overdispersed Count Data](#).

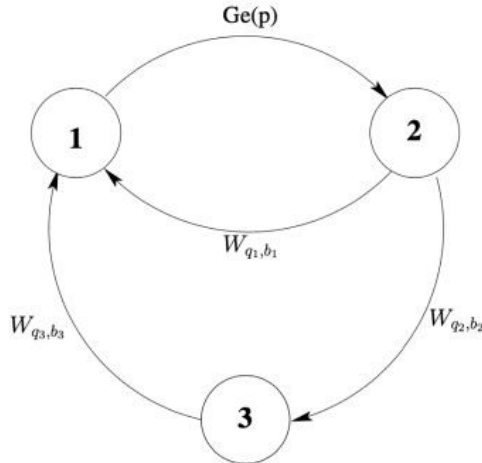


[ppdiag](#) v0.1.0: Provides a suite of diagnostic tools for univariate point processes including tools for simulating and fitting both common and more complex temporal point processes and the diagnostic tools described in [Brown et al. \(2002\)](#) and [Wu et al. \(2020\)](#). There is a vignette on [Markov Modulated Point Processes](#) and another on [Diagnostic Tools](#).

[robustlm](#) v0.1.0: Implements a computationally efficient exponential squared loss algorithm for variable selection proposed by [Wang et al.\(2013\)](#). See the [vignette](#).



[smmR](#) v1.0.2: Provides functions to estimate and simulate multi-state semi-Markov models. The methods implemented are described in [Barbu & Limnios \(2008\)](#) and [Trevezas & Limnios \(2011\)](#). The [vignette](#) contains an extended example.



[spotaroo](#) v0.1.1: Implements an algorithm to cluster satellite hot spot data spatially and temporally. See the [vignette](#).

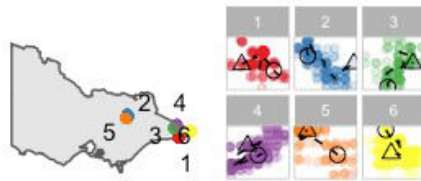


## Fire Movement ( $\Delta$ : Start | O: End)

Fires Selected: 6

From: 2019-12-29 13:10:00

To: 2020-02-07 22:50:00



## Utilities

**clock** v0.2.0: Provides a comprehensive library for date-time manipulations using a new family of orthogonal date-time classes (duration, time points, zoned-times, and calendars) that partition responsibilities so that the complexities of time zones are only considered when they are really needed. There is a [Getting Started](#) guide, as well as vignettes on [FAQ](#), and [Examples and Recipes](#).

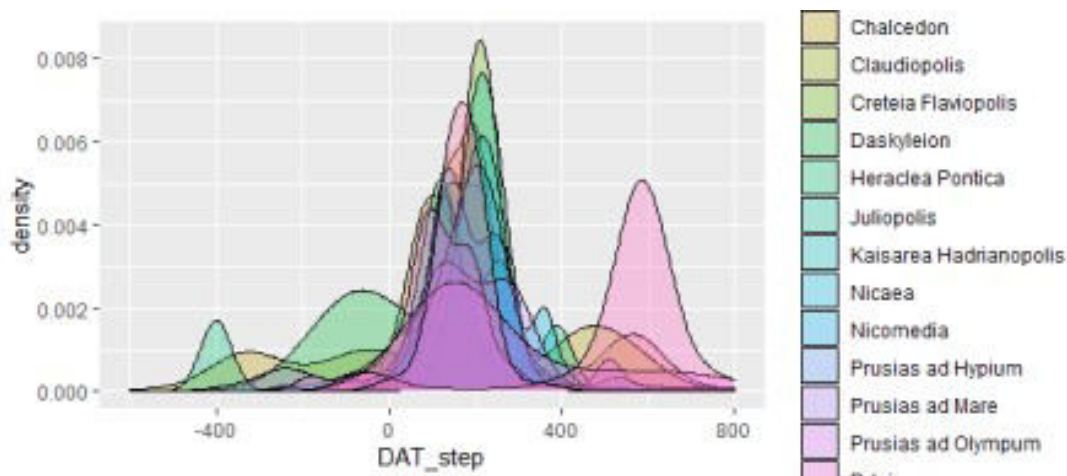
**crosstable** v0.2.1: Provides functions to create descriptive tables for continuous and categorical variables, apply summary statistics, and create reports using `rmarkdown` or `officer`. There is an [Introduction](#), and vignettes on [Troubleshooting](#), [Making Automatic Reports](#), and [Selecting Variables](#).

**pkgdepends** v0.1.0: Provides functions to find recursive dependencies for R packages from various sources including CRAN, Bioconductor, and GitHub enabling users to obtain a consistent set of packages to install. See [README](#) to get started.

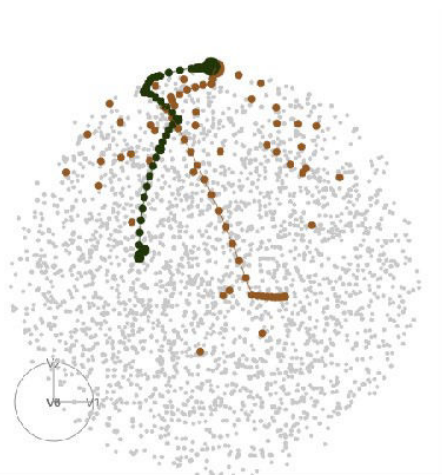
**pkglite** v0.1.1: Implements a tool, grammar, and standard to represent and exchange R package source code as text files. Converts one or more source packages to a text file and restores the package structures from the file. There are vignettes on [Generating File Specifications](#), [Representing Packages](#), and [Compact Package Representation](#).

## Visualization

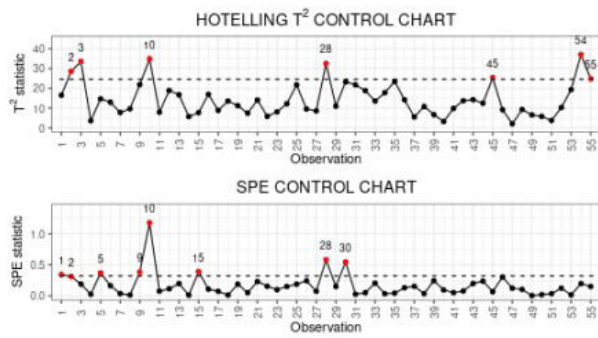
**datplot** v1.0.0: Provides tools to process and prepare data for visualization and employs the concept of [aoristic analysis](#). See [aorist](#) and the vignettes [Data Preparation and Visualization](#) and [Visualizing Chronological Distribution](#).



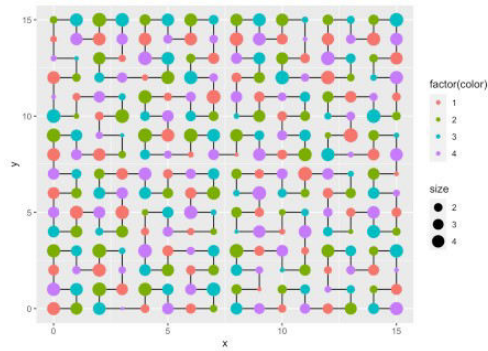
**ferm** v0.0.1: Implements diagnostic plots for optimization, with a focus on projection pursuit which show paths the optimizer takes in the high-dimensional space. See [README](#) for examples.



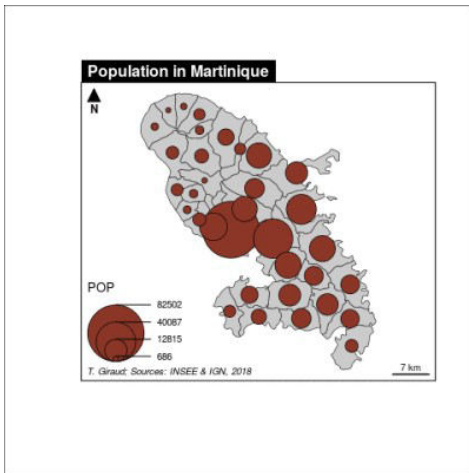
**funcharts** v1.0.0: Provides functional control charts for statistical process monitoring of functional data, using the methods of [Capezza et al. \(2020\)](#) and [Centofanti et al. \(2020\)](#). There are vignettes on [Capezza 2020](#), [Centofanti 2020](#) and on the `mfd` class.



[gghilbertstrings](#) v0.3.3: Provides functions to plot Hilbert curves which are used to map one dimensional data into the 2D plane. A specific use case maps a character column in a data frame into 2D space allowing visually comparing long lists of URLs, words, genes or other data that has a fixed order and position. See [README](#) for examples.



[mapsf](#) v0.1.1: Provides functions to create and integrate thematic maps including functions to design various cartographic representations such as proportional symbols, choropleth or typology maps. Look [here](#) for examples.



<sup>1</sup> I have used phrases like *By my count* and *stuck to CRAN* in the past, but I do not believe that I have explained what I mean. For some time now, but I believe more frequently in recent months, packages will appear as new on CRAN, only to be removed within a relatively short period of time for failing to resolve check problems....