David Carayon

Statistician

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I'm a statistician at the French National Research Institute for Agriculture, Food and the Environment (INRAE). My work mainly focuses on environmental evaluation. I build evaluation methods based on composite and statistically relevant indicators and also develop tools and software associated with these methods. My main programming langages/skills are R (advanced), LaTeX, SQL and Python.

Education

University of Bordeaux *Bordeaux*

MSc Environmental Monitoring *October 2015–September 2017*

- Statistics and GIS for environmental data
- Scientific writing
- 3 and 6 months internships related to environmental data analysis

University of Albi *Albi*

Biology degree *October 2012–September 2015*

- Biology, biochemistry, ecology, environmental chemistry, statistics
- 1 month internship related to environmental data analysis

Experience

INRAE *Bordeaux*

Statistician *July 2017–Today*

- Predictive modelling, inference, data visualisation
- Data querying and management
- Building R packages
- Dashboarding and Shiny app development
- Reporting and scientific paper writing

Skills

Analytical

Statistical modelling, Data science, Reproducible research, Data visualisation

Programming

R (advanced), Bash, LaTeX, SQL, Python

Packages

Shiny, Tidyverse, Tidymodels, sf

Tools

Microsoft Office, Rstudio, Git, Github, Docker

Training

University of Bordeaux *Bordeaux*

Short (1-2 days) courses *2017–2020*

- Rmarkdown, LaTeX, Scientific writing to be published, Git&Github, Python, Docker, Bayesian statistics, Web scraping

DataCamp *Online*

Data science career track *2019*

- Covering the full range of data science skills from data cleaning through to predictive modelling and inference.

Selected Software

R Packages

IDEATools
github.com/davidcarayon/IDEATools

An R package provinding tools to automate the processing of data collected as part of IDEA 4 diagnostics
2020

- Author and maintainer

InraeThemes
github.com/davidcarayon/InraeThemes

An R package rovinding a variety of ggplot themes and Rmarkdown templates to INRAE staff
2020

- Author and maintainer

IDGF
github.com/davidcarayon/IDGF

An R package allowing the use of the FGDI index (Carayon et al., 2020)
2019

- Author and maintainer

Interactive tools

ShinyIDEA
outils-idea.inrae.fr/

Developed in order to provide an intuitive and push-button interface of the {IDEATools} package
2020

Teaching

Montpellier SupAgro
Montpellier, France

Using the {IDEATools} R package
2019, 2020

- Teaching students how to use a package I developed for handling data collected with the IDEA4 method

Publications

First author

D Carayon, A Eulin-Garrigue, R Vigouroux, F Delmas   *Ecological Indicators*

A NEW MULTIMETRIC INDEX FOR THE EVALUATION OF WATER ECOLOGICAL QUALITY OF FRENCH GUIANA STREAMS BASED ON
BENTHIC DIATOMS   *2020*

D Carayon, J Tison-Rosebery, F Delmas   *Ecological Indicators*

DEFINING A NEW AUTOECOLOGICAL TRAIT MATRIX FOR FRENCH STREAM BENTHIC DIATOMS   *2019*

D Carayon, G Mederel   *Ephemera*

SPATIO-TEMPORAL EVOLUTION OF BENTHIC INVERTEBRATES COMMUNITIES ON THE DORDOGNE RIVER   *2017*

Non-first author

F Zahm, J.M Barbier, D Carayon…   *Agronomy, Environment and Society*

IDEA4: A DIAGNOSTIC METHOD FOR A CLINICAL ASSESSMENT OF SUSTAINABILITY IN AGRICULTURE   *2020*

Presentations

38th colloquium of French-speaking diatomists   *Metz, France*

USING A NEW AUTOECOLOGICAL REFERENCE SYSTEM FOR FRENCH DIATOMS TO BUILD METRICS FOR ASSESSING AND DIAGNOSIS
THE TROPHIC STATUS OF WATERCOURSES   *2019*

38th colloquium of French-speaking diatomists   *Metz, France*

ASSESSMENT OF THE ECOLOGICAL STATUS OF FRENCH GUIANA'S WATERCOURSES USING A NEW INDEX : THE FGDI   *2019*

37th colloquium of French-speaking diatomists   *Meise, Belgium*

ELABORATING A NEW AUTOECOLOGICAL REFERENCE SYSTEM FOR FRENCH DIATOMS   *2018*

Publications