Dr. Björn C. **Rall**

Computational Ecologist, Biostatistician, and Lecturer

0000-0002-3191-8389 | G-1508-2013 | kxLDLIMAAAAJ&hl | b-c-r | bjoern-c-rall

Professional Experience

Note that all the below mentioned jobs included research, publishing peer-reviewed papers, oral presentations (e.g. invited talks), and collaborating internationally.

Career Break

02/2023 - now

- Since 10/2024: Job Seeking
- Since 04/2024: Professional Reorientation and Online Training in Data Science (see my DataCamp Profile)

Scientific Data Curator

Frankfurt / Main, Germany

Senckenberg Biodiversity and Climate Research Center (SBIK-F)

07/2022 - 01/2023

- e.g. Further Development of the Data Guidelines for the Kili-SES Research Group

Lecturer and Scientist

Darmstadt, Germany

Darmstadt University of Technology - Biology Department

11/2021 - 06/2022

- Teaching in Higher Education (online): Ecology and Evolution using NetLogo, Moodle and Zoom
- Statistical Consultancy for Colleagues and Students
- Organizing a GitLab-Workshop

Effect Modeler and Statistician

Hirschberg, Germany

RifCon GmbH

02/2020 - 10/2021

- e.g. https://doi.org/10.1002/etc.5348

Scientist, Lecturer, and Statistical Consultant

Leipzig | Jena, Germany

iDiv Halle-Jena-Leipzig | FSU Jena

01/2015 - 01/2020

- In-House Consultancy for Statistics
- Teaching in Higher Education: Statistics in R, Rmarkdown with Github/GitLab, Computational and Theoretical Ecology
- Raising Third-Party Funding
- Managing Projects | Supervising PhD and Postdoctoral Researchers | Academic Administration | Degree Program Planning
- Guest scientist at Umeå University, 06/2019 | Host: Sebastian Diehl

Postdoc

Wageningen, The Netherlands

Netherlands Institute of Ecology (NIOO-KNAW)

04/2014 - 09/2014

- Organizing and Lecturing a Workshop on Non-Linear Statistical Modeling in R
- Literature Research on Meta-Ecosystem Ecology

Lecturer / Scientist

Göttingen, Germany

Georg-August-University Göttingen – Zoology Department

04/2010 - 12/2014

- Developing the Statistics Curriculum for Msc Biodiversity, Ecology and Evolution
- Teaching in Higher Education: Statistics in R, Theoretical and Computational Ecology, Animal Ecology, Field Studies, and Nature Conservation
- Supervising Bachelor Students, Master Students, PhD Students and Post-Doctoral Researchers
- Managing Scientific Projects | Academic Administration | Scientific Reviewer
- Raising Third-Party Funding
- Leave of Absence for an External Research Stay (04/14-09/14)

PhD-Candidate / Scientist

Darmstadt, Germany

Darmstadt University of Technology - Biology Department

04/2006 - 03/2010

- Autodidactic Learning the Statistical Programming Language R
- Statistical Consultancy for Colleagues and Students
- Organizing and Lecturing a Workshop on R-Statistics for Ecologists

Education

Darmstadt University of Technology - Biology Department *Darmstadt, Germany*

Dissertation *2006 - 2010*

- Thesis Title: Allometry, Temperature and the Stability of Food Webs

Diploma Thesis *2005 - 2006*

- Thesis Title: Temperature and Enrichment Effects on Simple Consumer Resource Pairs and Complex Food Web Models

Studying Biology *1999 - 2006*

- Majors: Animal Ecology, Animal Physiology, and Phylogeny

Skills and Expertises

Tech
Scientific Coding: R, R Markdown | Learning: Python, SQL, Shell | Basics: Matlab, Cpp, Shiny, NetLogo, LaTeX
Operating Systems: Windows, Ubuntu Linux, Linux Mint, DOS (all as user and private administrator)
Office: MS Office, Libre Office, Google Suite, Only Office
Online Cooperation: Zoom, Moodle, MS Teams, Slack, GitLab, GitHub, Overleaf, Hosting of Mailing lists
Science/Dev Software: RStudio, Git, SVN (Tortoise), Geany, Gnuplot, Zotero, Endnote, Docker (basics)
Statistical Methods: (Generalized) Linear Models, Mixed Effects Models, Structural Equation Models, Non-Linear Models, t-test, ANOVA, ANCOVA, Correlation, Time-Series analyses
Numerical Methods: Maximum Likelihood Estimators, Bayesian Statistics, Monte-Carlo Simulations, Bootstrapping, Newton Method, ODE Simulations, Agent Based Models
Selection Methods: Stepwise Regression, AIC / BIC / WAIC Selection Methods

Biology
General: Theoretical, Computational, and Animal Ecology | Animal Physiology | Animal Systematics
Taxonomic Knowledge: Lycosidae and Carabidae | Basics in any other Animal Groups from any Realm
Experiments: Design and Management | Laboratory (Ecol.) | Field Samplings | O_2 Measurements

Managing
Administration: Fundraising, Degree Program Planning, Academic Self-Governance
Supervision: Students, PhD Researchers, Postdocs and other Staff
Consultancy Statistics in R and Theoretical/Computational Ecology
Teaching: Statistics, Theoretical/Computational Ecology, Animal Ecology, Field Studies, Conservation
Organizing and Hosting: Conference Sessions, Workshops, and In-House Meetings
Languages: German (native), English (fluent)

Work Examples

Code Rall (2023): Rare Type III functional responses (Code): Version 1.0.0. https://doi.org/10.5281/zenodo.7637479 *ODE simulations*
Find here the associated study and here the associated GitHub repository

Stats Dev Rosenbaum & Rall (2018): Fitting functional responses: direct parameter estimation by simulating differential equations. Methods Ecol Evol 9: 2076-2090. https://doi.org/10.1111/2041-210X.13039 *MLE statistics* *ODE simulations*
Find the associated manual here

Study Rall et al. (2012): Universal temperature and body-mass scaling of feeding rates. Philos Trans R Soc B 367: 2923-2934. https://doi.org/10.1098/rstb.2012.0242 *Mixed Eff. Models*

Find my full publication list here.

STATEMENT OF ACCOMPLISHMENT

#489,535

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

Data Scientist in R

LENGTH

27 HOURS

COMPLETED ON

JUL 04, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#488,494

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

Associate Data Scientist in R

LENGTH

88 HOURS

COMPLETED ON

JUL 02, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#486,589

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

Statistics Fundamentals with R

LENGTH

20 HOURS

COMPLETED ON

JUN 27, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#486,200

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

Data Analyst with R

LENGTH

36 HOURS

COMPLETED ON

JUN 26, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#483,154

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

R Programming Fundamentals

LENGTH

22 HOURS

COMPLETED ON

JUN 18, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#482,164

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

Tidyverse Fundamentals with R

LENGTH

20 HOURS

COMPLETED ON

JUN 15, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#481,397

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

Importing & Cleaning Data with R

LENGTH

14 HOURS

COMPLETED ON

JUN 13, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#481,504

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

Data Manipulation with R

LENGTH

16 HOURS

COMPLETED ON

JUN 13, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#480,305

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

Data Visualization with R

LENGTH

12 HOURS

COMPLETED ON

JUN 10, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#479,065

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

ChatGPT Fundamentals

LENGTH

2 HOURS

COMPLETED ON

JUN 05, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

STATEMENT OF ACCOMPLISHMENT

#468,246

HAS BEEN AWARDED TO

Björn C. Rall

FOR SUCCESSFULLY COMPLETING

Understanding Data Topics

LENGTH

10 HOURS

COMPLETED ON

MAY 02, 2024

datacamp

Jonathan Cornelissen
CEO, DataCamp

yDiv graduate school of iDiv

CERTIFICATE

Björn Rall

has successfully participated in the yDiv course

Introduction to Bayesian statistics using R and Stan for ecologists

on 21 – 23 October 2019 and gained 1 Credit Point.

Course leader: **Dr Benjamin Rosenbaum**
Department for Theory in Biodiversity Science
German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig

Contents:

- Introduction to the concepts of Bayesian statistics (priors, likelihood, posterior distribution, MCMC)
- Discussion and coding of ecological models from basic ANOVA or linear regression to nonlinear models

Didactic elements:

- Lectures, discussions, hands-on sessions

Leipzig, 23 October 2019

Dr Nicole Sachmerda-Schulz
yDiv coordinator

iDiv German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig

iDiv is a central facility of Leipzig University within the meaning of Section 92 (1) of the Act on Academic Freedom in Higher Education in Saxony (Sächsisches Hochschulfreiheitsgesetz, SächsHSFG). It is run together with the Martin Luther University Halle-Wittenberg and the Friedrich Schiller University Jena, as well as in cooperation with the Helmholtz Centre for Environmental Research – UFZ.
The following non-university research institutions are involved as cooperation partners: the Helmholtz Centre for Environmental Research – UFZ, the Max Planck Institute for Biogeochemistry (MPI BGC), the Max Planck Institute for Chemical Ecology (MPI CE), the Max Planck Institute for Evolutionary Anthropology (MPI EVA), the Leibniz Institute DSMZ–German Collection of Microorganisms and Cell Cultures, the Leibniz Institute of Plant Biochemistry (IPB), the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) and the Leibniz Institute Senckenberg Museum of Natural History Görlitz (SMNG).

iDiv is a research centre of the
DFG Deutsche Forschungsgemeinschaft

Albert-Ludwigs-Universität Freiburg, Biometry and Environmental System Analysis
Tennenbacherstr. 4, 79098 Freiburg

Björn Rall

UNI FREIBURG

Albert-Ludwigs-Universität Freiburg

Faculty of Environment and Natural Resources

Biometry and Environmental System Analysis

Dr. Florian Hartig

Tennenbacher Str. 4
79098 Freiburg

Tel. +49-(0)761/203-3747
Fax +49-(0)761/203-3751

florian.hartig@biom.uni-freiburg.de

Certificate of participation

To whom it may concern,

this is to certify that Björn Rall has successfully participated in the international summer school "An Introduction to Bayesian Modeling for Ecologists" held 28th July to 2nd August 2013 at the University of Freiburg, Germany.

The content of this a one-week full-time statistical training included

- Introduction to Bayesian statistics (Priors, Likelihoods, etc.)
- Theory of Markov Chain Monte Carlo algorithms
- Implementation of Bayesian models in the BUGS language
  - The JAGS sampler
  - Bayesian species distribution models
  - Hierarchical Bayesian models
  - State space models
- Bayesian model selection
- Approximate Bayesian Computation (ABC) and similar simulation-based methods

Sincerely,

Dr. Florian Hartig	Dr. Jörn Pagel	Dr. Joseph Chipperfield
Uni Freiburg	Uni Potsdam / Montpellier	Uni Trier