

Erik Kusch

SENIOR ENGINEER · RESEARCH INFRASTRUCTURE MANAGER · MACROECOLOGIST

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Research Profile

I am a macroecologist and data scientist specialised in streamlining work-flows, integration, and analysis of big data. My research uses quantitative tools to study ecosystem resilience, vegetation dynamics, and landscape-scale biodiversity to understand past, present, and future trajectories of ecosystems. My current work includes inference and analysis of ecological networks, simulation-based frameworks for ecological network inference assessments, and software development for climate data retrieval and aggregation.

Education

PhD in Biology; Specialisation on Ecoinformatics and Biodiversity

01/2020 - 04/2023

AARHUS UNIVERSITY (AU) & OXFORD UNIVERSITY (OX)

Dissertation: A Macroecological Perspective to Ecological Networks

M.Sc. in Biology; Specialisation on Biodiversity, Ecology and Evolution

08/2017 - 08/2019

UNIVERSITY OF BERGEN (UiB) & NANSEN ENVIRONMENTAL AND REMOTE SENSING CENTER (NANSEN)

Thesis: Inferring Vegetation Memory From Remote Sensing Data And Identifying Causal Links To Plant Function

B.Sc. in Biology

10/2013 - 07/2017

TECHNICAL UNIVERSITY DRESDEN (TUD) & UNIVERSITY OF BERGEN (UiB)

Thesis: Remote Sensing And Predicting Shifts In Biome Distribution And Resilience Using NDVI Data

Specialised Training

Open, Reproducible, and Transparent Science in Ecology

Finse, Norway

UNIVERSITY OF BERGEN

14/11/2022 - 18/11/2022

7th Edition Species Distribution Modelling Course

Évora, Portugal

UNIVERSITY OF ÉVORA, SCIENCE RETREATS

26/04/2021 - 02/05/2021

An Introduction to Bayesian Statistics

Glasgow, Scotland

UNIVERSITY OF GLASGOW

06/04/2021 - 16/04/2021

Hierarchical Modelling of Species Communities with the R-package Hmsc

Helsinki, Finland

UNIVERSITY OF HELSINKI

02/11/2020 - 06/11/2020

Modelling Challenges for Mountain Ecosystems

Hamburg, Germany

UNIVERSITY OF HAMBURG

23/02/2020 - 28/02/2020

Experience

Senior Engineer / Research Infrastructure Manager

Oslo Norway

NATURAL HISTORY MUSEUM, UNIVERSITY OF OSLO

03/2023 - PRESENT

Research Fellow

Bergen, Norway

ECOLOGICAL AND ENVIRONMENTAL CHANGE RESEARCH GROUP, UNIVERSITY OF BERGEN

09/2019 - 12/2019

National Park Ranger & Environmental Education Guide

Saxony, Germany

NATIONAL PARK SAXON-BOHEMIAN SWISS

04/2016 - 06/2016

Research and Teaching Assistant

BEHAVIOURAL ECOLOGY RESEARCH GROUP, UNIVERSITY OF LEIPZIG

08/2017 - 08/2019; 03/2017 - 04/2017

PRIMATE RESEARCH CENTRE, UNIVERSITY OF KYOTO

07/2018

GERMAN CENTRE FOR MARINE BIODIVERSITY RESEARCH, SENCKENBERG GROUP

05/2017 - 07/2017

Student Assistant

BOTANICAL INSTITUTE, TECHNICAL UNIVERSITY DRESDEN (TUD)

05/2016 - 08/2016; 02/2015 - 08/2015

ZOOLOGICAL COLLECTION, TECHNICAL UNIVERSITY DRESDEN (TUD)

04/2016 - 05/2016; 11/2013 - 08/2015

Teaching & Supervision Activity

Bayesian Networks Study Group

AUTHOR & LECTURER

 [Personal Course Web Page](#)

AU Bayes Study Group

AUTHOR & LECTURER

 [Personal Course Web Page](#)

Excursions into Biostatistics

AUTHOR & LECTURER

 [Course Web Page](#)

An Introduction to Biostatistics Using R

AUTHOR & LECTURER

 [Course Web Page](#)

Biological Research in Theory and Praxis (BFTP)

AUTHOR

 [Course Web Page](#)

Teaching Assistant

APPLIED STATISTICS

[Aarhus University](#)

STATISTICAL AND GEOSPATIAL MODELLING

22/03/2021 - 14/05/2021

GEOSPATIAL INFORMATION SYSTEMS

03/09/2020 - 18/12/2020

27/10/2020 - 18/12/2020

Instructor & Advisor

ECOINFORMATICS & BIODIVERSITY MASTERS SEMINARS (EBMS), AARHUS UNIVERSITY

03/02/2021 - 05/05/2021

CENTRE OF EXCELLENCE IN BIODIVERSITY EDUCATION (BioCEED), UNIVERSITY OF BERGEN

08/2017 - 07/2018

Talks & Workshops

Climate Data with the KrigR Pipeline Workshop

AUTHOR & SPEAKER, 5TH CONFERENCE OF NORDIC SOCIETY OIKOS 2022

[Aarhus, Denmark](#)

07/07/2022

Ecological Network Inference - Pipedream or Pipeline

INVITED SPEAKER, SALGO TEAM, UNIVERSITY OF OXFORD

[Oxford, England](#)

22/05/2022

KrigR - The R Package

SPEAKER, AK KLIMA INTERIMSTREFFEN

[Hamburg, Germany](#)

25/03/2021

KrigR - Downscaling State-of-the-Art Climate Data for Macroecologists

AUTHOR & SPEAKER, BIOCHANGE METHODS WORKSHOPS

[Aarhus, Denmark](#)

12/11/2020

KrigR - Climate Data For Your Spatial Study

INVITED SPEAKER, SALGO TEAM, UNIVERSITY OF OXFORD

18/06/2020

SPEAKER, INTERNATIONAL STATISTICAL ECOLOGY CONFERENCE 2020

25/06/2020

Identifying Ecological-Memory Patterns in Drylands using Remote Sensing

INVITED SPEAKER, ECOSYSTEM RESEARCH GROUP, UNIVERSITY OF OXFORD

15/10/2019

SPEAKER, INTERNATIONAL SOCIETY FOR ECOLOGICAL MODELLING CONFERENCE 2019

04/10/2019

INVITED SPEAKER, ECOINFORMATICS AND BIODIVERSITY RESEARCH GROUP, UNIVERSITY OF AARHUS

06/09/2019

Spatial Patterns of Plant Performance

INVITED SPEAKER, BIO DAY, UNIVERSITY OF BERGEN

[Bergen, Norway](#)

15/03/2019

Inferring Vegetation Memory from Remote Sensing Data

INVITED SPEAKER, SPATIAL ECOLOGY GROUP, UNIVERSITY OF GLASGOW

[Glasgow, Scotland](#)

09/01/2019

Posters

KrigR — Downloading and Statistically Downscaling Climate Reanalysis Data

POSTER AUTHOR AND PRESENTER, BES CLIMATE SCIENCE FOR ECOLOGICAL FORECASTING SYMPOSIUM 2022

[London, England](#)

11/05/2022

Intrinsic vegetation memory as a proxy of engineering resilience may be an oversimplification

POSTER AUTHOR AND PRESENTER, INTERNATIONAL STATISTICAL ECOLOGY CONFERENCE 2020

25/06/2020

POSTER AUTHOR AND PRESENTER, INTERNATIONAL SOCIETY FOR ECOLOGICAL MODELLING CONFERENCE 2019

03/10/2019

POSTER AUTHOR AND PRESENTER, BJERKNES CENTRE FOR CLIMATE RESEARCH ANNUAL MEETING 2019

16/09/2019

Extracurricular Activity

Group Member

STATISTICS JOURNAL CLUB, UNIVERSITY OF GLASGOW

03/2021 - 03/2023

SPATIAL SHARED-INTEREST GROUP, UNIVERSITY OF GLASGOW

03/2021 - 03/2023

BAYES STUDY GROUP, UNIVERSITY OF BERGEN

09/2018 - 12/2019

EECRG READING GROUP, UNIVERSITY OF BERGEN

10/2017 - 12/2019

Leader & Dungeon Master

AARHUS UNIVERSITY SECTION FOR ECOINFORMATICS DUNGEONS & DRAGONS GROUP

Aarhus, Denmark

03/2022 - 01/2023

Elected Member: Students Council of Biology Studies at the TUD

TECHNICAL UNIVERSITY OF DRESDEN

Dresden, Germany

10/2013 - 10/2015

Writing

NetworkExtinction - an R package to simulate extinction's propagation and rewiring potential in ecological networks

M.ISIDORA ÁVILA-THIEME*, **ERIK KUSCH***, DEREK CORCORAN*, ..., NAVARRETE, PABLO A. MARQUET

* ... joint first-authorship; *Rx Preprint* - 2023

A novel trophic cascade between cougars and feral donkeys shapes desert wetlands

ERIK LUNDGREN, DANIEL RAMP, OWEN MIDDLETON, EAMONN WOOSTER, **ERIK KUSCH**, [...], ARIAN WALLACH

 *Journal of Animal Ecology* - 2022

MOSAIC: A Unified Trait Database to Complement Structured Population Models

CONNOR BERNARD, GABRIEL SILVA SANTOS, [...], **ERIK KUSCH**, [...], ROBERTO SALGUERO-GÓMEZ

Rx Preprint - 2022

Vegetation memory effects and their association with vegetation resilience in global drylands

ERIK KUSCH, RICHARD DAVY, ALISTAIR SEDDON

 *Journal of Ecology* - 2022

KrigR - A Tool for Downloading and Statistically Downscaling Climate Reanalysis Data

ERIK KUSCH, RICHARD DAVY

 *Environmental Research Letters* - 2022

Reconciling high resolution climate datasets using KrigR

RICHARD DAVY, **ERIK KUSCH**

 *Environmental Research Letters* - 2021

Honours & Grants & Awards

SCHOLARSHIPS & GRANTS

10/2020 **Scholarship for Academically Excellent Students**, Frands Christian Frantsen's Scholarship

Aarhus, Denmark

03/2019 **Funding for Particularly Talented Students**, Lina Asbjørnsens Stipendiefond

Bergen, Norway

02/2019 **Fast-Track-Initiative Funding**, FTI, Bjerknessenteret

Bergen, Norway

03/2018 **Project Grant**, L. Meltzers Høyskolefond

Bergen, Norway

2018/19 **Scholarship**, German Academic Scholarship Foundation (Studienstiftung des deutschen Volkes)

Bonn, Germany

AWARDS

10/2019 **Best Poster: Student and Early Career Researcher**, International Society for Ecological Modelling

Salzburg, Austria

10/2019 **Modeller's Choice Poster Award**, International Society for Ecological Modelling

Salzburg, Austria