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 as well as integrating and analysing big data. I use and develop quantitative tools to study ecosystem resilience and landscape-scale biodiversity to understand ecosystems trajectories through time and space. My current work includes coordination efforts of European biodiversity data research infrastructures, software development for climate data retrieval and aggregation as well as inference, analysis, and simulation of ecological networks.

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 - Exploring the Impacts of Climate-Driven Biodiversity Change & Contrasting and Benchmarking Network Inference Approaches

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   🌐 *Personal Course Web Page*
Author & Lecturer

AU Bayes Study Group   🌐 *Personal Course Web Page*
Author & Lecturer

Excursions into Biostatistics   🌐 *Course Web Page*
Author & Lecturer

An Introduction to Biostatistics Using R   🌐 *Course Web Page*
Author & Lecturer

Biological Research in Theory and Praxis (BFTP)   🌐 *Course Web Page*
Author   *Aarhus University*

Teaching Assistant   *Aarhus University*
Applied Statistics   *22/03/2021 - 14/05/2021*
Statistical and Geospatial Modelling   *03/09/2020 - 18/12/2020*
Geospatial Information Systems   *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

Accessing and Referencing GBIF Data for Research   *Trondheim, Norway*
Author & Speaker, Living Norway Colloquium 2023   *24/05/2023*

Climate Data with the KrigR Pipeline Workshop   *Aarhus, Denmark*
Author & Speaker, 5th Conference of Nordic Society OIKOS 2022   *07/07/2022*

Ecological Network Inference - Pipedream or Pipeline   *Oxford, England*
Invited Speaker, SalGo Team, University of Oxford   *22/05/2022*

KrigR - The R Package   *Hamburg, Germany*
Speaker, AK Klima Interimstreffen   *25/03/2021*

KrigR - Downscaling State-of-the-Art Climate Data for Macroecologists   *Aarhus, Denmark*
Author & Speaker, BIOCHANGE Methods Workshops   *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   *Bergen, Norway*
Invited speaker, BIO Day, University of Bergen   *15/03/2019*

Inferring Vegetation Memory from Remote Sensing Data   *Glasgow, Scotland*
Invited speaker, Spatial Ecology Group, University of Glasgow   *09/01/2019*

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

UNIVERSITY OF OSLO NATURAL HISTORY MUSEUM DUNGEONS & DRAGONS GROUP AARHUS UNIVERSITY SECTION	*05/2023 - PRESENT*
FOR ECOINFORMATICS DUNGEONS & DRAGONS GROUP	*03/2022 - 01/2023*

Elected Member: Students Council of Biology Studies at the TUD *Dresden, Germany*

TECHNICAL UNIVERSITY OF DRESDEN *10/2013 - 10/2015*

Writing

NetworkExtinction - R Package to Simulate Extinction Propagation & Rewiring Potential in Ecological Networks

M.ISIDORA ÁVILA-THIEME*, **ERIK KUSCH***, DEREK CORCORAN*, ..., NAVARRETE, PABLO A. MARQUET (* ... JOINT FIRST-AUTHORSHIP)

🔘 *Methods in Ecology and Evolution* - *2023*

MOSAIC: A Unified Trait Database to Complement Structured Population Models

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

🔘 *Nature Scientific Data* - *2023*

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

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

🔘 *Journal of Animal Ecology* - *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*