

Jan-Ole Koslik

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EDUCATION

Research Stay University of British Columbia, Vancouver, Canada	March-April 2025
PhD in Statistics Bielefeld University, Bielefeld, Germany	2023 – today
MSc Statistical Science Bielefeld University, Bielefeld, Germany <i>Grade: 1.0; graduated first of my class</i>	2021 – 2023
BSc Economics (intermediate studies) Bielefeld University, Bielefeld, Germany	2020 – 2021
Study Abroad Budapest Business School, Budapest, Hungary	2019
BA Business Administration Bielefeld University of Applied Sciences, Bielefeld, Germany <i>Grade: 1.4</i>	2017 – 2020

EMPLOYMENT

Research Associate Statistics and Data Analysis Group Bielefeld University, Bielefeld, Germany	2023 – today
Research Assistant Statistics and Data Analysis Group Bielefeld University, Bielefeld, Germany	2022 – 2023
Working Student Pricing Intelligence CLAAS KGaA mbH, Harsewinkel, Germany	2021 – 2022
Intern Market Intelligence CLAAS KGaA mbH, Harsewinkel, Germany	2020

PUBLICATIONS

6. **Koslik, J.-O.**, Feldmann, C.C., Mews, S., Michels, R., Langrock, R. (2025). Inference on the state process of periodically inhomogeneous hidden Markov models for animal behavior. *The Annals of Applied Statistics* 19.4 (2025): 2724-2737.
5. Mews, S., **Koslik, J.-O.**, Langrock, R. (2025). How to build your latent Markov model: The role of time and space. *Statistical Modelling*, 0(0).
4. Bachons, R., **Koslik, J.-O.**, Michels, R., Ötting, M. (2025). PEP: a tackle value measuring the prevention of expected points. *Journal of Quantitative Analysis in Sports*, (0).
3. **Koslik, J.-O.** (2025). Hidden semi-Markov models with inhomogeneous state dwell-time distributions. *Computational Statistics & Data Analysis*, 108171.
2. Dyck, J., **Koslik, J.-O.**, Sauzet, O. (2025). EgoCor: an R package to fit exponential semi-variograms to model the local spatial correlation structure of health outcomes. *Journal of Open Research Software*, 13, 1.
1. Michels, R., **Koslik, J.-O.** (2024). On the combination of data smoothing and Markov-switching models. *Journal of the Royal Statistical Society – Series C: Applied Statistics*, qlad110.

PREPRINTS

- Vienken, M. N., **Koslik, J.-O.**, Langrock, R. (2025). Inference on state occupancy in covariate-driven hidden Markov models. Preprint, arXiv:2512.17496
- Koslik, J.-O.**, Dupont, F., Auger-Méthé, M., Marcoux, M., Hussey, N., Heckman, N. (2025). Flexible unimodal density estimation in hidden Markov models. Preprint, arXiv:2511.17071

Koslik, J.-O. (2025). Tensor-product interactions in Markov-switching models. Preprint, arXiv:2507.01555

Koslik, J.-O. (2024). Efficient smoothness selection for nonparametric Markov-switching models via quasi restricted maximum likelihood. Preprint, arXiv:2411.11498

SOFTWARE

I have developed and participated in developing software packages for the R programming language:

- **LaMa**: Fast and convenient likelihood evaluation for latent Markov models like HMMs, HSMMs, SSMs and point processes. <https://cran.r-project.org/package=LaMa>
- **RTMBdist**: Distributions Compatible with Automatic Differentiation by RTMB. <https://cran.r-project.org/package=RTMBdist>
- **EgoCor**: Simple Presentation of Estimated Exponential Semi-Variograms. <https://cran.r-project.org/package=EgoCor>

TEACHING

Workshops

Hidden Markov Models for movement, acceleration and other ecological data — an introduction using moveHMM and momentuHMM in R

Three-day online workshop.

September 2024

Using hidden Markov models to uncover ecological state dynamics from biologging data

One-day workshop in Tokyo, Japan.

March 2024

Tutorials

Bielefeld University

2023 – today

- Mathematics (Bachelor level)
- Hidden Markov Models (Master level)
- Statistical Consulting (Master level)
- Generalised Linear Models (Master level)

Bielefeld University of Applied Sciences

2018 – 2020

- Statistics for Economists (Bachelor level)
- Mathematics for Economists (Bachelor level)

GRANTS AND AWARDS

German public-private scholarship (Deutschlandstipendium)

2019 – 2020 and 2022 – 2023

Mobility grant of the Bielefeld Graduate School in Theoretical Sciences (BGTS)

2024

Teaching award of the Department of Business Administration and Economics for delivering one of the courses with the best evaluations across the department (for the course “Präsenzübung Mathematik II”, jointly with K. Ammann)

2025

PRESENTATIONS

Efficient estimation of nonparametric Markov-switching models

Talk at the National Centre for Statistical Ecology Meeting, University of St Andrews, Scotland, December 2025

Fast approximate likelihood inference for indirectly observed hidden Markov models

Talk at the Center for Statistics, Bielefeld University, Germany, December 2025

Hidden semi-Markov models with inhomogeneous state dwell-time distributions

Invited talk, MIAT Seminar, INRAE, Toulouse, France, November 2025

Efficient estimation of nonparametric Markov-switching models

Talk at the Statistical Week 2025, Wiesbaden, Germany, September 2025

Latent Markov Models in Ecology: A Unifying Perspective

Invited talk at the Nordic-Baltic Biometric Conference (NBBC), Oslo, Norway, June 2025

Efficient smoothness selection for nonparametric Markov-switching models via quasi restricted maximum likelihood

Invited talk, University of St Andrews, Scotland, February 2025

Efficient smoothness selection for nonparametric Markov-switching models via quasi restricted maximum likelihood

Invited talk, University of Göttingen, Germany, September 2024

Exploring hidden dynamics: statistical inference in periodically inhomogeneous hidden Markov models for animal behaviour

Talk at the Royal Statistical Society Conference (RSS), Brighton, UK, September 2024

Inference on the state process of periodically inhomogeneous hidden Markov models for animal behaviour

Talk at the International Statistical Ecology Conference (ISEC), Swansea, Wales, July 2024

Mitigating consequences of the Markov assumption

Poster at the 18. doctoral workshop of the Bielefeld Graduate School of Economics and Management (BiGSEM), Bielefeld University, Germany, December 2023

Mitigating consequences of the Markov assumption

Talk at the Center for Statistics, Bielefeld University, Germany, October 2023

COMMUNITY INVOLVEMENT

Reviewer

- Journal of Computational and Graphical Statistics
- Journal of the Royal Statistical Society Series A
- Journal of the Royal Statistical Society Series C
- Computational Statistics and Data Analysis
- Methods in Ecology and Evolution
- Movement Ecology
- TEST

SKILLS

- **Programming:** R (including Rcpp), C++, Python
- **Tools:** LaTeX, git, SQL
- **Languages:** German, English

VOLUNTEERING

Member of the student council (Data Science & Statistical Science) Bielefeld University, Germany	2021-2023
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Representing the interests of student assistants (SHK-Rat) Bielefeld University, Germany	2022
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Voluntary service AWO nursery school Werther, Germany	2016-2017
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