

Jan-Ole Fischer (formerly Koslik)

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EDUCATION

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

EMPLOYMENT

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

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

- Michels, R., Bajons, R., **Fischer, J.-O.** (2026). Integrating Unsupervised and Supervised Learning for the Prediction of Defensive Schemes in American football. Preprint, arXiv:2602.10784
- Ammann, K., Adam, T., **Koslik, J.-O.** (2026). Non-Homogeneous Markov-Switching Generalized Additive Models for Location, Scale, and Shape. Preprint, arXiv:2601.03760

- 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
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 J. Dyck)	2024
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 I and 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)

2021-2023

Bielefeld University, Germany

Representing the interests of student assistants (SHK-Rat)

2022

Bielefeld University, Germany

Voluntary service

2016-2017

AWO nursery school Werther, Germany