

Tatyana Krivobokova

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Current position

2020 –

Professor for Statistics with Applications in Economics

Department of Statistics and Operations Research, University of Vienna

Member of the research network *Data Science @ Uni Vienna*

Research interests

High-dimensional regression and dimension reduction

Simultaneous inference

Modelling of complex experimental data

Change-point analysis and differential privacy for dependent data

Applications in biophysics, chemistry and economics

Education

2007

PhD in Statistics, Bielefeld University, Germany

2002

MSc in Financial Mathematics, University of Kaiserslautern, Germany

1996

Diploma in Applied Mathematics, Kazakh State National University, Almaty

Appointments held

2010-2020

W2 Professor, Institute for Mathematical Statistics, University of Göttingen, Germany

2008-2010

Junior Professor, CRC “Poverty, equity and growth”, University of Göttingen, Germany

2007-2008

Postdoctoral researcher, ORSTAT, KU Leuven, Belgium

2003-2007

Research assistant, Chair of Statistics, Bielefeld University, Germany

2000-2003

Student research assistant, Fraunhofer IES, Kaiserslautern, Germany

Publications

Preprints

- 2025 Finocchio, G., Krivobokova, T. (2025) Model-free identification in ill-posed regression.
- 2025 Krivobokova, T., Morariu, R.-A., Finocchio, G., Maryasin, B. (2025) Modelling and estimation of chemical reaction yields from high-throughput experiments.
- 2025 Butucea, C., Klockmann, K., Krivobokova, T. (2025) Nonparametric spectral density estimation using interactive mechanisms under local differential privacy.
- 2025 Finocchio, G., Krivobokova, T. (2025) An extended latent factor framework for ill-posed linear regression.

Journal articles

- 2024 Klockmann, K., Krivobokova, T. (2024) On second-order statistics of the log-average periodogram. *IEEE signal processing letters*, 31, 3078-3083.
- 2024 Klockmann, K., Krivobokova, T. (2024) Efficient non-parametric estimation of Toeplitz covariance matrices. *Biometrika*, 111(3), 843-864.
- 2023 Platero-Rochart, D., Krivobokova, T., Gastegger, M., Reibnegger, G., Sanchez Murcia, P.A. (2023) Prediction of enzyme catalysis by computing reaction energy barriers via steered QM/MM Molecular Dynamics Simulations and Machine Learning. *Journal of Chemical Information and Modeling*, 63, 15, 4623-4632.
- 2023 Kramlinger, P., Schneider, U., Krivobokova, T. (2023) Uniformly valid inference based on the Lasso in linear mixed models. *Journal of Multivariate Analysis*, 198, 105230.
- 2022 Krivobokova, T., Serra, P., Rosales, F., Klockmann, K. (2022) Joint estimation of mean and autocovariances for Gaussian processes. *Computational Statistics and Data Analysis*, 173, 107519.
- 2022 Kramlinger, P., Krivobokova, T., Sperlich, S. (2022) Marginal and conditional multiple inference for linear mixed models predictors. *Journal of the American Statistical Association*, <https://doi.org/10.1080/01621459.2022.2044826>.
- 2021 Schneider, L.F., Krajina A., Krivobokova, T. (2021) Threshold selection in univariate extreme value analysis. *Extremes*. <https://doi.org/10.1007/s10687-021-00405-7>.
- 2019 Dunker, F., Klasen, S., Krivobokova, T. (2019) Asymptotic distribution and simultaneous confidence bands for ratios of quantile functions. *Electronic Journal of Statistics*, 13(2):4391-4415.
- 2018 Yoon, J., Krivobokova, T. (2018) Treatments of non-metric variables in partial least squares and principal component analysis. *Journal of Applied Statistics*, 45(6): 971-987.
- 2017 Singer, M., Krivobokova, T., Munk, A. (2017) Kernel partial least squares for stationary data. *Journal of Machine Learning Research*, 18(123):1-41.
- 2017 Serra, P., Krivobokova, T. (2017) Adaptive empirical Bayesian smoothing splines. *Bayesian Analysis*, 12(1): 219-238.
- 2016 Singer, M., Krivobokova, T., Munk, A. and de Groot, B.L. (2016) Partial least squares for dependent data. *Biometrika*, 103 (2): 351-362.
- 2016 Schwarz, K., Krivobokova, T. (2016) A unified framework for spline estimators. *Biometrika*, 103(1): 103-120.

- 2016 Klasen, S., Krivobokova, T., Greb, F., Lahoti, R., Pasaribu, S., Wiesenfarth, M. (2016) International poverty measurement: which way now? *Journal of Economic Inequality*, 14(2): 199-225.
- 2015 Peter, P., Weickert, J., Munk, A., Krivobokova, T., Li, H. (2015) Justifying tensor-driven diffusion from structure-adaptive statistics of natural images. *Energy Minimization Methods in Computer Vision and Pattern Recognition*, 8932, 263-277.
- 2014 Greb, F., Krivobokova, T., Munk, A., von Cramon-Taubadel, S. (2014) Regularized Bayesian estimation of generalized threshold regression models. *Bayesian Analysis*, 9(1): 171-196.
- 2013 Greb, F., von Cramon-Taubadel, S., Krivobokova, T., and Munk, A. (2013) The estimation of threshold models in price transmission analysis. *American Journal of Agricultural Economics*, 95(4): 900-916.
- 2013 Krivobokova, T. (2013) Smoothing parameter selection in two frameworks for penalized splines. *Journal of the Royal Statistical Society, Series B*, 75(4): 725-741.
- 2012 Krivobokova, T., Briones, R., Hub, J., Munk, A., de Groot, B. (2012) Partial least squares functional mode analysis: application to the membrane proteins AQP1, Aqy1 and CLC-ec1. *Biophysical Journal*, 103(4): 786-796.
- 2012 Wiesenfarth, M., Krivobokova, T., Klasen, S., Sperlich, S. (2012) Direct simultaneous inference in additive models and its application to model undernutrition. *Journal of the American Statistical Association*, 107(500): 1286-1296.
- 2011 Kauermann, G., Krivobokova, T., Semmler, W. (2011) Filtering time series with penalized splines. *Studies in Nonlinear Dynamics and Econometrics*, 15(2).
- 2010 Krivobokova, T., Kneib, T., Claeskens, G. (2010) Simultaneous confidence bands for penalized spline estimators. *Journal of the American Statistical Association*, 105(490): 852-863.
- 2009 Claeskens, G., Krivobokova, T., Opsomer, J.D. (2009) Asymptotic properties of penalized spline estimators. *Biometrika*, 96(3): 529-544.
- 2009 Kauermann, G., Krivobokova, T., Fahrmeir, L. (2009) Some asymptotic results on generalized penalized spline smoothing. *Journal of the Royal Statistical Society, Series B*, 71(2): 487-503.
- 2008 Krivobokova, T., Crainiceanu, C.M., Kauermann, G. (2008) Fast adaptive penalized splines. *Journal of Computational and Graphical Statistics*, 17(1): 1-20.
- 2007 Krivobokova, T., Kauermann, G. (2007) A note on penalized spline smo with correlated errors. *Journal of the American Statistical Association*, 102(480): 1328-1337.
- 2006 Krivobokova, T., Kauermann, G. and Archontakis, T. (2006) Estimating the term structure of interest rates with penalised splines. *Statistical Papers*, 47(3): 443-459.
- 2004 Pfahl D., Laitenberger O., Ruhe G., Dorsch J. and Krivobokova T. (2004) Evaluating the learning effectiveness of using simulations in software project management education: results from a twice replicated experiment. *Information and Software Technology*, 46(2): 127-147.

Recent invited talks

- 2024 Machine learning and statistical methods for high-throughput experimental data. Invited talk, *IMS International Conference on Statistics and Data Science, Nice*
- 2024 Iterative regularisation methods for ill-posed generalised linear models. Seminar, *University of Linz*

- 2024 Iterative regularisation methods for ill-posed generalised linear models. Plenary talk, *26th International Conference on Computational Statistics*
- 2024 Machine learning and statistical methods for high-throughput experimental data. Invited talk, *International Symposium on Nonparametric Statistics 2024*
- 2024 Iterative regularisation methods for ill-posed generalised linear models. Seminar, *Wirtschaftsuniversität Wien*
- 2024 Iterative regularisation methods for ill-posed generalised linear models. Invited talk, *Joint Fudan-Vienna Workshop on Applied Mathematics and Data Science*
- 2023 Iterative regularisation methods for ill-posed generalised linear models. Invited talk, *IMS International Conference on Statistics and Data Science, Lisbon*
- 2023 Uniformly valid inference based on the Lasso in linear mixed models. Invited talk, *64th ISI World Statistics Congress*
- 2023 Iterative regularisation methods for ill-posed generalised linear models. Seminar, *Université catholique de Louvain*
- 2023 Iterative regularisation methods for ill-posed generalised linear models. Seminar, *Katholieke Universiteit Leuven*
- 2023 Iterative regularisation methods for ill-posed generalised linear models. Seminar, *ESSEC Business School, Paris*
- 2023 Iterative regularisation methods for ill-posed generalised linear models. Seminar, *University of Bonn*
- 2022 Efficient nonparametric estimation of Toeplitz covariance matrices. Invited talk, *15th International Conference of ERCIM, London*
- 2022 Joint estimation of mean and autocovariances for Gaussian processes. Invited talk, *International symposium on nonparametric statistics, Paphos*
- 2022 Efficient non-parametric estimation of Toeplitz covariance matrices. Seminar, *University of Poitiers*
- 2022 Statistical challenges in protein dynamics modelling. Seminar, *DASHH Data Science Colloquium, Hamburg*
- 2021 Factor analysis for data with heterogenous blocks. Invited talk, *14th International Conference of ERCIM, London*
- 2019 Adaptive estimation and testing in regression with dependent errors. Invited talk, *Annual conference of the Royal Statistical Society of Belgium*
- 2018 Adaptive estimation and testing in regression with dependent errors. Gumbel Lecture, *Statistische Woche 2018*
- 2018 Partial least squares for dependent data. Seminar, *University of Cambridge*
- 2017 Partial least squares for dependent data. Seminar, *Tsinghua University, Beijing*
- 2017 Kernel Partial least squares for stationary data. Van Dantzig Seminar, *University of Delft*

Organised workshops and sessions

- 2022 Invited session at ERCIM 2022 “Topics in dimension reduction”
- 2021 Session “Nonparametric and asymptotic statistics” at German Probability & Statistics Days 2021 (together with Ursula Müller)
- 2017 Invited session at ERCIM 2017 “Nonparametric modelling of dependent data”
- 2016 Invited session at ERCIM 2016 “Advances in model specification tests in regression”

2013 Workshop "Dependent functional data", University of Göttingen
 2010 Workshop "Econometric aspects of price transmission analysis", University of Göttingen.

Principal investigator in third-party funding projects

2024-2025 OeAD Scientific & Technological Cooperation Austria, France "Detection of change-points in mean of Gaussian processes"
 2015-2019 Research Project "Reducing Poverty Risk in Developing Countries", Ministry of Science and Culture of Lower Saxony
 2015-2020 RTG 2088 "Discovering Structure in Complex Data", DFG
 2012-2020 RTG 1723 "Globalisation and Development", DFG
 2011-2019 SFB 755 "Nanoscale Photonic Imaging", DFG
 2011-2015 Swiss-German FOR 916 "Statistical Regularization and Qualitative Constraints", DFG
 2010-2019 RTG 1644 "Scaling Problems in Statistics", DFG
 2008-2011 RTG 1023 "Identification in Mathematical Models – Synergy of Stochastic and Numerical Methods", DFG

Invited research stays

2018 Isaac Newton Institute, University of Cambridge, UK
 2017 Tsinghua University, Beijing, China
 2015 University of Poitiers, France

Associate editor

2024- Journal of the Computational and Graphical Statistics
 2022- Metrika
 2019-2023 Journal of the American Statistical Association
 2014-2021 Scandinavian Journal of Statistics
 2017-2018 Computational Statistics and Data analysis
 2012-2016 Sankhya B, the Indian Journal of Statistics

Service

2022- Member of the International Advisory Panel of DASHH, Hamburg
 2022-2024 Vice-Dean for Research and International Affairs, University of Vienna
 2020-2023 Member of the IMS Committee: Equality and Diversity
 2018-2020 Managing director, Institute for Mathematical Stochastics, University of Göttingen
 2016-2020 Elected member of the European Regional Committee (ERC) of the Bernoulli Society
 2012-2020 Member of the steering committee of the Center for Statistics, University of Göttingen
 2015-2017 Member of the steering committee of the DFG-AIMS initiative

PhD students

2024-	Razvan-Andrei Morariu
2022-	Ilaria Nadine
2019-2023	Karolina Klockmann, <i>On periodograms and efficient nonparametric Toeplitz covariance matrix estimators</i>
2018-2023	Richard Haarbuerger, <i>Essays in quantitative economics: Improvements in measurements and macroeconomic analysis</i>
2016-2020	Peter Kramlinger, <i>Essays on inference in linear mixed models</i>
2016-2019	Laura Fee Nern (née Schneider), <i>Discrete parameter estimation for rare events: From binomial to extreme value distributions</i> , co-advised with Andrea Krajina
2013-2016	Marco Singer, <i>Partial least squares for serially dependent data</i>
2011-2016	Francisco Rosales, <i>Empirical Bayesian smoothing splines for signals with correlated errors: methods and applications</i>
2012-2015	Jisu Yoon, <i>Partial least squares and principal component analysis with non-metric variables for composite indices</i>
2008-2013	Katsiaryna Schwarz, <i>A unified framework for spline estimators</i>
2008-2012	Manuel Wiesenfarth, <i>Estimation and inference in special nonparametric models with applications to topics in development Economics</i>
2009-2012	Friederike Greb, <i>Improved estimation in threshold regression with application to price transmission modeling</i>

Postdoctoral students

2023-	Dr. Karolina Klockmann
2021-	Dr. Gianluca Finocchio
2020-2022	Dr. Peter Kramlinger
2016-2019	Dr. Marco Singer
2015-2017	Dr. Fabian Dunker
2013-2015	Dr. Paulo Serra

Teaching

2021, 2024	Asymptotic statistics (in English), University of Vienna
2020-2025	Generalised linear models (in German), University of Vienna
2020-2025	Linear multivariate statistics (in German), University of Vienna
2020-2023	Applied statistics (in German), University of Vienna
2020-2024	Complex statistical methods (in English), University of Vienna
2020-2024	Selected topics in Statistics (in English), University of Vienna
2016-2018	Statistical modelling and inference I - IV (in English), University of Göttingen
2017	Statistics for Geoscientists (in German), University of Göttingen
2015	Foundations of stochastics (in German), University of Göttingen
2015, 2016	Applied statistics (in German), University of Göttingen
2008-2014	Smoothing methods in statistics (in English), University of Göttingen

2012-2014 Discrete Stochastics (in German), University of Göttingen
2010-2020 Practical course in R (in English), University of Göttingen
2004-2006 Estimation and hypothesis testing (in German), Bielefeld University
2004-2007 Generalized linear models (in German), Bielefeld University

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