Tatyana Krivobokova

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Current position

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 statistics and dimension reduction
Covariance matrix estimation
Nonparametric regression
Simultaneous inference
Bayesian modelling and inference

Education

2007	*PhD in Statistics*, Bielefeld University, Germany
2002	*MSc in Financial Mathematics*, University of Kaiserlautern, 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 IESE, Kaiserslautern, Germany

Publications

Preprints

2023   Klockmann, K., Krivobokova, T. (2023) Efficient non-parametric estimation of Toeplitz covariance matrices.

2023   Finocchio, G., Krivobokova, T. (2023) An extended latent factor framework for ill-posed linear regression.

2023   Klockmann, K., Krivobokova, T. (2023) On second-order statistics of the log-average periodogram

2023   Krivobokova, T., Finocchio, G., Maryasin, B. (2023) Factorizing Yields in Buchwald-Hartwig Amination

Journal articles

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

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*
2016	Partial least squares for dependent data. Seminar, *Katholieke Universiteit Leuven*
2016	Partial least squares for dependent data. Seminar, *Vienna University of Technology*
2016	Partial least squares for dependent data. Seminar, *École Polytechnique Fédérale de Lausanne*

Organised workshops and sessions

2022	Invited session at ERCIM 2022 "Topics in dimension reduction"
2021	Session "Nonparametric and asymptotc 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 Contraints", 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

2022-	Metrika
2019-	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

2022-2024	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

2022-	Ilaria Nadine
2019-2023	Karolina Klockmann, *On periodograms and efficient nonparametric Toeplitz covariance matrix estimators*
2018-2023	Richard Haarburger, *Essays in quantitative economics: Improvements in measurements and macroeconomic analysis*
2016-2020	Peter Kramlinger, *Essays on inference in linear mixed models*
2013-2016	Marco Singer, *Partial least squares for serially dependent data*
2011-2016	Francisco Rosales, *Empirical Bayesian smoothing splines for signals with correlated errors: methods and applications*

2012-2015	Jisu Yoon, *Partial least squares and principal component analysis with non-metric variables for composite indices*
2008-2013	Katsiaryna Schwarz, *A unified framework for spline estimators*
2008-2012	Manuel Wiesenfarth, *Estimation and inference in special nonparametric models with applications to topics in development Economics*
2009-2012	Friederike Greb, *Improved estimation in threshold regression with application to price transmission modeling*

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	Asymptotic statistics (in English), University of Vienna
2020-2023	Generalised linear models (in German), University of Vienna
2020-2023	Linear multivariate statistics (in German), University of Vienna
2020-2023	Applied statistics (in German), University of Vienna
2020-2023	Complex statistical methods (in English), University of Vienna
2020-2023	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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