Karolina Klockmann, PhD

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Research Interests

Nonparametric regression, time series analysis, covariance matrix estimation, differential privacy, Bayesian statistics.

Experience

since 2023	**Postdoctoral Researcher**, *University of Vienna*, Statistical Methods
2020–2023	**Research Assistant**, *University of Vienna*, Statistical Methods
2019–2020	**Research Assistant**, *University of Göttingen*, Statistical Methods
2018–2019	**Student Assistant**, *Fraunhofer IAIS*, Knowledge Discovery, Sankt Augustin
7–9/2017	**Intern in Risk Management**, *Deutsche Bank*, Risk Methodologies, Frankfurt
2016–2017	**Student Assistant**, *Fraunhofer ITWM*, Financial Mathematics, Kaiserslautern
2015–2016	**Student Assistant**, *vwd group*, Interface Development, Kaiserslautern

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Education

2019-2023	**Doctor of Philosophy (PhD)** in Statistics, *University of Vienna (2020-2023) and University of Göttingen (2019-2020)*, Supervisor: Prof. Dr. Tatyana Krivobokova
2016-2019	**Master of Science** in Financial Mathematics, *University of Kaiserslautern*
2017-2018	Semester abroad, *Sorbonne University*, Paris
2013-2016	**Bachelor of Science** in Mathematics, *University of Kaiserslautern*
2015-2016	Semester abroad, *Chalmers University of Technology*, Gothenburg

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Dissertation

Title	On Periodograms and Efficient Nonparametric Toeplitz Covariance Matrix Estimators
Supervisor	Prof. Dr. Tatyana Krivobokova
Description	Two novel data-driven nonparametric methods for estimating Toeplitz covariance matrices in different scenarios are proposed. Their theoretical properties and practical applications are discussed.

Publications

Klockmann and Krivobokova (2024): Efficient nonparametric estimation of Toeplitz covariance matrices, *Biometrika*, DOI: 10.1093/biomet/asae002

Klockmann (2023): On periodograms and efficient nonparametric Toeplitz covariance matrix estimators, *PhD thesis*, utheses.univie.ac.at

Klockmann and Krivobokova (2023): On second-order statistics of the log-average periodogram, *in revision for IEEE Signal Processing Letters*, arXiv:2306.10920

Krivobokova, Serra, Rosales and Klockmann (2022): Joint non-parametric estimation of mean and auto-covariances for Gaussian processes, *Computational Statistics & Data Analysis*, DOI: 10.1016/j.csda.2022.107519

Software

R package   vstdct - Nonparametric estimation of Toeplitz covariance matrices (CRAN)

Reviewing Activities

since 2023   Peer Reviewer for Journal TEST, Spanish Society of Statistics and Operations Research

Talks

7/2023	**Contributed**, *European Meeting of Statisticians*, Warsaw
12/2022	**Invited**, *16th Intl. Conference on Computational and Financial Econometrics*, London
6/2022	**Contributed**, *Intl. Symposium on Nonparametric Statistics*, Paphos
9/2021	**Contributed**, *German Probability and Statistics Days*, Mannheim
9/2021	**Contributed**, *Royal Statistical Society 2021 Intl. Conference*, Manchester

Research Stays

11/2022	**CREST ENSAE**, *Paris*, group of Prof. Cristina Butucea, one month
9/2022	**Summer School**, *Klagenfurt*, Modern Topics in Time Series Analysis

Teaching

2024	**Exercise Class**, *Analysis*, undergraduate level, German, University of Vienna
2023-2024	**Exercise Class**, *Probability Theory*, undergraduate level, German, University of Vienna
2023	**Repetitorium**, *Statistics 1*, undergraduate level, German, University of Vienna
2021-2023	**Exercise Class**, *Statistics 1*, undergraduate level, German, University of Vienna
2017	**Exercise Class**, *Analysis*, undergraduate level, German, University of Kaiserslautern

Scholarships & Awards

2023	**Award of Excellence**, *Austrian Federal Ministry Republic for Education, Science and Research*, National Award for the Top 40 dissertations in Austria in 2022/23
2022	**Small Research Grant**, *University of Vienna*, for junior faculty projects
2018	**DAAD Go East**, *DAAD*, Participation at Lviv Data Science Summer School, Ukraine
2014-2016	**Deutschlandstipendium**, *University of Kaiserslautern*, undergraduate studies

Skills

Languages	German (native language), English (fluent), French (fluent)
Programming	R, Python, Latex, Matlab, SAS, Mathematica, git