LUKAS TROTTNER

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EMPLOYMENT

Assistant Professor, School of Mathematics, University of Birmingham	since Sep. 2024
Postdoc, Department of Mathematics, Aarhus University	Sep. 2021 – Sep. 2024
Education	
University of Mannheim	
PhD in Mathematics (Dr. rer. nat.)	2018 - 2021
Thesis: Implications of Markov stability theory for nonparametric statistics, Markov additive fluctuations and	
data-driven stochastic control, Advisor: Prof. Dr. Leif Döring, grade: summa cum laude	
MSc in Mathematics in Business and Economics	2016 - 2018
Thesis: Lamperti transformation for self-similar Markov processes, first class honors (1.0)	
BSc in Mathematics in Business and Economics	2012 - 2016
Thesis: Verzweigungsprozesse: Aussterben einer Population, first class honors (1.1)	
California State University Fullerton	
Semester abroad	2014

RESEARCH INTERESTS

Statistics for stochastic processes, concentration of measure, transfer learning, MCMC, generative models, data-driven stochastic optimal control, high-dimensional statistical inference, Lévy processes and Markov additive processes

Publications

Peer-reviewed

Data-driven rules for multidimensional reflection problems (with Sören Christensen and Asbjørn Holk Thomsen) appears in SIAM/ASA Journal on Uncertainty Quantification, arXiv:2311.06639

Markov additive friendships (with Leif Döring and Alex Watson)

Transactions of the American Mathematical Society 377 (2024), no. 11, pp. 7699-7752, DOI:10.1090/tran/9266

The uniqueness of the Wiener-Hopf factorisation of Lévy processes and random walks

(with Leif Döring, Mladen Savov and Alex Watson)

Bulletin of the London Mathematical Society 56 (2024), no. 9, pp. 2951–2968, DOI:10.1112/blms.13112

Covariate shift in nonparametric regression with Markovian design

Information and Inference 13 (2024), no. 2, paper no. iaae011. DOI: 10.1093/imaiai/iaae011

Learning to reflect: A unifying approach for data-driven stochastic control strategies (with S. Christensen and C. Strauch)

Bernoulli 30 (2024), no. 3, pp. 2074-2101. DOI: 10.3150/23-BEJ1665

Stability of overshoots of Markov additive processes (with Leif Döring)

Annals of Applied Probability 33 (2023), no. 6B, pp. 5413-5458. DOI: 10.1214/23-AAP1951

Concentration analysis of multivariate elliptic diffusions (with Cathrine Aeckerle-Willems and Claudia Strauch)

Journal of Machine Learning Research 24 (2023), paper no. 106, pp. 1–38. ISSN: 1532-4435.

Adaptive invariant density estimation for continuous-time mixing Markov processes under sup-norm risk (with Niklas Dexheimer and Claudia Strauch)

Annales de l'Institut Henri Poincaré B (Probab. et Stat.) 58 (2022), no. 4, pp. 2029-2064. DOI: 10.1214/21-aihp1235

Preprints

Multivariate change estimation for a stochastic heat equation from local measurements (2024) with Anton Tiepner, arXiv:2409.15059

Change point estimation for a stochastic heat equation (2023)

with Markus Reiß and Claudia Strauch, arXiv:2307.10960

Awards and Fellowships

Award for best master's thesis in Mathematics, University of Mannheim Award for best bachelor's degree in Mathematics, University of Mannheim Deutschlandstipendium, scholarship, University of Mannheim Catchring Bayesin Statistics and Computation Foundations of Statistical Inference Foundations of PhD student Assignm Holk Thomsen (with Claudia Strauch) Foundations of PhD student Assignm Holk Thomsen (with Claudia Strauch) Foundations of PhD student Assignm Holk Thomsen (with Claudia Strauch) Foundations of PhD student Assignm Holk Thomsen (with Claudia Strauch) Foundations of PhD student Assignm Holk Thomsen (with Claudia Strauch) Foundations of PhD student Assignm Assistical Statistics Foundations of PhD student Assignm Holk Thomsen (with Claudia Strauch) Foundations of PhD student Assignm Assistical Statistics Foundations of PhD student Assistical Inference Foundations of PhD student Assistical I	AWARDS AND FELLOWSHIPS	
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	Stochastics Seminar, Aarhus University, <i>invited talk</i>	June 202 April 202

German Probability and Statistics Days 2023, Essen	March 2023
SIAM Conference on Computational Science and Engineering 2023, Amsterdam, <i>invited talk</i>	March 2023
Seminar Department of Mathematics, Kiel University, invited talk	Nov. 2022
Workshop on Statistics for Stochastic Processes, Luxembourg, invited talk	Sep. 2022
10 th International Conference on Lévy processes, Mannheim, invited talk	July 2022
International Symposium on Nonparametric Statistics, Paphos, invited talk	June 2022
Stochastics Seminar, Aarhus University, invited talk	Nov. 2021
German Probability and Statistics Days 2021, Mannheim	Sep. 2021
IRTG "Stochastic Analysis in Interaction", Berlin Mathematical School, invited talk	June 2021
Seminar Department of Mathematics, Kiel University, invited talk	Dec. 2020
Fifth Conference on Ambit Fields and Related Topics, Aarhus University, invited talk	Aug. 2020 (canceled)
Bernoulli-IMS One World Symposium 2020	Aug. 2020
German Probability and Statistics Days 2020, Dresden	March 2020 (canceled)
Mannheim meets Konstanz: Workshop in Statistics, University of Konstanz	Dec. 2019
GWOT '19: Stochastic Modeling of Complex Systems, University of Heidelberg/Mannheim	April 2019
Stochastics Seminar, University of Heidelberg/Mannheim	March 2019
Research visits	
University College London, host: Alex Watson	March 2023
Kiel University, host: Sören Christensen	Nov. 2022
Humboldt-Universität zu Berlin, host: Markus Reiß	Oct. 2022
Humboldt-Universität zu Berlin, host: Markus Reiß	Aug. 2022
Organization of scientific events	
Dynstoch Satellite Summer School, Kiel	May 2024
Contributed session "High-dimensional statistics for stochastic processes" at SPA 2023, Lisbon	July 2023
The Midsummer Lectures 2023	June 2023
Aarhus-Copenhagen Data Science Meeting 2022	Dec. 2022
Summer/Spring/Fall Schools	
SFB1294 Spring School on Data Assimilation, Döllnsee	March 2022
RTG1953 Fall School on Causal Inference and Stein's method, Mannheim	Nov. 2019
Satellite Summer School to the 9th International Conference on Lévy Processes, Athens	July 2019

Refereeing

Annals of Statistics, Annales de l'Institut Henri Poincaré (Probab. et Stat.), Electronic Journal of Probability, Electronic Journal of Statistics, Electronic Communications in Probability, Annales Henri Lebesgue, Stochastic Processes and their Applications, Annals of the Institute of Statistical Mathematics, Statistics, NeurIPS

Vita Date: 24 September 2024.