

Marcel KLATT

Ph.D Mathematical Science

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PROFILE

I am a doctor in mathematical science focused on statistics and stochastics. During the last five years, I have been involved in projects centered on the theory of optimal transport and its potential applications as a new tool for statistical data science. I have contributed to a new era of statistical data analysis via optimal transport-based methods with several scientific publications. Currently, I am a postdoctoral researcher at the University of Göttingen. I seek to apply my mathematical knowledge to perform data analysis that contributes to face the challenges of the ever changing planet.

PROFESSIONAL EXPERIENCE

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|-----------------|---|
| 04/2022-Today | Postdoctoral Researcher, INSTITUTE FOR MATHEMATICAL STOCHASTICS, University of Göttingen <ul style="list-style-type: none">➤ Identification and further development of statistical research questions and scientific topics➤ Preparation of scientific publications and presentations➤ Participation in international conferences and workshops➤ Supervision of student research projects and theses➤ Review scientific papers for statistical journals (<i>Annals of Statistics</i>, <i>Electronic Journal of Statistics</i>) |
| 03/2018-02/2022 | Research Assistant, RESEARCH TRAINING GROUP 2088, University of Göttingen <ul style="list-style-type: none">➤ Guided and independent research with the goal to develop an own research profile➤ Participation in research seminars, international conferences and workshops➤ Communicating achieved scientific results (articles, oral presentations, posters)➤ Preparation of a Ph.D-thesis |
| 04/2016-02/2018 | Research Student Assistant, INSTITUTE FOR MATHEMATICAL STOCHASTICS, University of Göttingen <ul style="list-style-type: none">➤ Gain first insight into developing own research questions➤ Support in research related programming tasks➤ Development and implementation of R-packages  CRAN➤ Contributing with own presentations to the research seminar |
| 2012-2016 | Teaching Student Assistant, MATHEMATICAL INSTITUTE, University of Göttingen <ul style="list-style-type: none">➤ Prepare and give exercise classes for the mathematical institute➤ Prepare and correct exercise sheets/exams of undergraduate students➤ Classes covered: Calculus I/II, Algebra, Measure and Probability Theory, Stochastics, Statistics |
| 2009-2010 | Civil Service, MEDIAN SALZE KLINIK, Bad Salzdetfurth <ul style="list-style-type: none">➤ Health-care service in a hospital➤ Assisting nurses and doctors |

EDUCATION

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| 03/2018-02/2022 | Ph.D Candidate, INSTITUTE FOR MATHEMATICAL STOCHASTICS, University of Göttingen <p>MAJOR FIELD OF STUDY: Mathematical Statistics/Stochastics
PH.D THESIS: <i>Limit Laws for Empirical Optimal Transport</i>  Online
SUPERVISOR: Prof. Dr. Axel Munk
OVERALL GRADE: Magna cum Laude</p> |
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10/2015-02/2018	Master of Science MSc, MATHEMATICS, University of Göttingen STUDY FOCUS: Mathematical Stochastics (Grade of Study Focus: 1,0) MASTER THESIS: <i>Limit Distributions for Regularized Wasserstein Distances on Finite Spaces</i> OVERALL GRADE: 1,1 (very good), Master's degree is awarded with distinction
10/2013-09/2015	Bachelor of Science B.Sc, MATHEMATICS, University of Göttingen BACHELOR THESIS: <i>Gaps between the Values of Binary Quadratic Forms</i> OVERALL GRADE: 1,7 (good)
10/2010-09/2013	Bachelor of Arts B.A., MATHEMATICS & BIOLOGY, University of Göttingen BACHELOR THESIS: <i>Gaps between the Values of Binary Quadratic Forms</i> OVERALL GRADE: 1,4 (very good)

CONFERENCES & TALKS

- 2022 **INVITED TALK, ENSCHEDE UNIVERSITY (NL)**  Program  Presentation
 DAMUT Colloquium for internationally well-known speakers.
 TALK: *A Guided Tour through Optimal Transport.*
- 2020 **CONFERENCE AND TALK, OHIO UNIVERSITY (US)**  Program  Presentation
Optimal Transport, Topological Data Analysis and Applications to Shape and Machine Learning.
 TALK: *Empirical (Regularized) Optimal Transport: Statistical Theory and Applications.*
- 2019 **CONFERENCE AND TALK, MUNICH UNIVERSITY (DE)**  Program  Presentation
DAGStat: Statistics under one Umbrella.
 TALK: *Empirical Regularized Optimal Transport: Statistical Theory and Applications.*
- 2019 **SUMMER SCHOOL, HAUSDORFF CENTER FOR MATHEMATICS BONN (DE)**  Program
 Summer school *Optimal Transport meets Economic Theory.*
- 2018 **CONFERENCE AND TALK, VALLADOLID UNIVERSITY (ES)**  Program  Presentation
Mass Transportation Theory: Opening perspectives in Statistics, Probability and Computer Science.
 TALK: *Distributional Limits for Optimal Transport on Finite Spaces.*
- 2017 **CONFERENCE, GÖTTINGEN UNIVERSITY (DE)**  Program
Statistics meets Friends: From Biophysics to Inverse Problems and back.

PUBLICATIONS, PREPRINTS & SOFTWARE

- 2022 M. Klatt, A. Munk and Y. Zemel, Limit Laws for Empirical Optimal Solutions in Stochastic Linear Programs, *Annals of Operations Research*  Online
- 2022 S. Hundrieser, M. Klatt, T. Staudt and A. Munk, A Unifying Approach to Distributional Limits for Empirical Optimal Transport, Preprint arXiv:2202.12790  Online
- 2021 F. Heinemann, M. Klatt and A. Munk, Kantorovich-Rubinstein distance and barycenter for finitely supported measures: Foundations and Algorithms, Preprint arXiv:2112.03581  Online
- 2021 S. Hundrieser, M. Klatt and A. Munk, The Statistics of Circular Optimal Transport, *Directional Statistics for Innovative Applications*, Springer (2021)  Online
- 2021 S. Hundrieser, M. Klatt and A. Munk, Limit Distributions and Sensitivity Analysis for Entropic Optimal Transport on Countable Spaces, Preprint arXiv:2105.00049 (2021)  Online
- 2020 M. Klatt, C. Tameling and A. Munk, Empirical Regularized Optimal Transport: Statistical Theory and Applications, *SIAM Journal on Mathematics of Data Science* (2020)  Online
- 2019 R package: Barycenter: Regularized Wasserstein Distances and Barycenters.  CRAN

R ● ● ● ● ●
L^AT_EX, OverLeaf ● ● ● ● ●
Git/GitHub ● ● ● ○ ○

C/C++ ● ● ● ● ○
Matlab/Python ● ● ● ○ ○

 LANGUAGES

German ● ● ● ● ●
English ● ● ● ● ○

 PERSONAL SKILLS & COMPETENCES

- › Problem Solving
- › Self-Motivation
- › Critical Thinking
- › Verbal Communication Skills
- › Co-Operation

 MISCELLANEOUS

- › Private Coach in Mathematics for Pupils and Students
- › Private Coach in Latin American Dances
- › Driver License B