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PERSONAL INFORMATION

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RESEARCH INTERESTS

Probability Theory & Mathematical Statistics, Fractals, Analysis

- Copulas and Dependence Modeling
- Multivariate and Nonparametric Statistics
- Dynamical Systems (in discrete time) and their interplay with number theory
- Fractals, Singular Functions and Iterated Function Systems
- Markov Operators and Kernels
- Lineability, spaceability, algebrability, latticeability

Applied Statistics & Data Science

- Probabilistic fundamentals of Machine Learning
- Forecasting and Regression Techniques
- Feature Selection
- Dependence Modeling of processes
- Automatic Reporting with R and Miktex (knitr, R-Markdown)
- Interactive Dashboards with R-shiny, interactive graphics with plotly

TEXTBOOKS: # 1

- [1] J. Fernández Sánchez, J. López-Salazar Codes, J.B. Seoane Sepúlveda, **W. Trutschnig**: *Generalized Notions of Continued Fractions: Ergodicity and Number Theoretic Applications* (1st ed.), Chapman and Hall/CRC (2023), doi:10.1201/9781003404064

PEER-REVIEWED JOURNAL PUBLICATIONS - MATHEMATICS: # 61

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ACCEPTANCE DATE)

- [61] H. Kaiser, **W. Trutschnig**: On Bertino copulas and the Markov product, *Journal of Mathematical Analysis and Applications* **561**(1), 130572 (2026), doi:10.1016/j.jmaa.2026.130572
- [60] L. Maislinger, **W. Trutschnig**: Multivariate Archimedean copulas with fractal support, *Statistics and Probability Letters* **234**, 110692 (2026), doi:10.1016/j.spl.2026.110692
- [59] N.P. Dietrich, **W. Trutschnig**: On differentiability and mass distributions of multivariate Archimedean copulas, *Journal of Mathematical Analysis and Applications* **559**(2), 130523 (2026), doi:10.1016/j.jmaa.2026.130523
- [58] J. Fernández Sánchez, **W. Trutschnig**: On bivariate Archimedean copulas with fractal support, *Dependence Modeling* **13**, 20250013 (2025), doi:10.1515/demo-2025-0013
- [57] L. Maislinger, **W. Trutschnig**: On bivariate lower semilinear copulas and the star product, *International Journal of Approximate Reasoning* **179**, 109366 (2025), doi:10.1016/j.ijar.2025.109366
- [56] J. Ansari, P.B. Langthaler, S. Fuchs, **W. Trutschnig**: Quantifying and estimating dependence via sensitivity of conditional distributions, *Bernoulli* **31**(1), 179-204 (2026), doi:10.3150/25-BEJ1854

- [55] N.P. Dietrich, **W. Trutschnig**: On differentiability and mass distributions of typical bivariate copulas, *Fuzzy Sets and Systems* **498**, 109150 (2025), doi:10.1016/j.fss.2024.109150
- [54] M. Tschimpke, M. Schreyer, **W. Trutschnig**: Revisiting the region determined by Spearman's ρ and Spearman's footrule ϕ , *Journal of Computational and Applied Mathematics* **457**, 116259 (2025), doi:10.1016/j.cam.2024.116259
- [53] J. Fernández Sánchez, **W. Trutschnig**: A link between Kendall's τ , the length measure and the surface of bivariate copulas, and a consequence to copulas with self-similar support, *Dependence Modeling* **11**, 20230105 (2023), doi:10.1515/demo-2023-0105
- [52] T. Kasper, N. Dietrich, **W. Trutschnig**: On convergence and mass distributions of multivariate Archimedean copulas and their interplay with the Williamson transform, *Journal of Mathematical Analysis and Applications* **529**(1), 127555 (2024), doi:10.1016/j.jmaa.2023.127555
- [51] T. Mroz, J. Fernández Sánchez, S. Fuchs, **W. Trutschnig**: On distributions with fixed marginals maximizing the joint or the prior default probability, estimation, and related results, *Journal of Statistical Planning and Inference* **223**, 33-52 (2023), doi:10.1016/j.jspi.2022.07.005
- [50] F. Griessenberger, **W. Trutschnig**: Maximal asymmetry of bivariate copulas and consequences to measures of dependence, *Dependence Modeling* **10**, 1-25 (2022), doi:10.1515/demo-2022-0115
- [49] L. Bernal-Gonzalez, J. Fernandez-Sanchez, J.B. Seoane-Sepúlveda, **W. Trutschnig**: On special partitions of $[0, 1]$ and lineability within families of bounded variation functions, *Journal of Convex Analysis* **30**(1), 065-080 (2023)
- [48] J. Carmona Tapia, J. Fernández Sánchez, J.B. Seoane-Sepúlveda, **W. Trutschnig**: Lineability, Spaceability, and Latticeability of subsets of $C([0, 1])$ and Sobolev Spaces, *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas* **116**, 113 (2022), doi:10.1007/s13398-022-01256-y
- [47] F. Griessenberger, R.R. Junker, **W. Trutschnig**: On a multivariate copula-based dependence measure and its estimation, *Electronic Journal of Statistics* **16**, 2206–2251 (2022), doi:10.1214/22-EJS2005
- [46] J. Fernández-Sánchez, D.L. Rodríguez-Vidanes, J.B. Seoane-Sepúlveda, **W. Trutschnig**: Lineability and K -linear discontinuous functions, *Linear Algebra and its Applications* **645**, 52-67 (2022), doi:10.1016/j.laa.2022.03.007
- [45] T. Kasper, S. Fuchs, **W. Trutschnig**: On convergence of associative copulas and related results, *Dependence Modeling* **9**, 307-326 (2021), doi:10.1515/demo-2021-0114
- [44] J. Fernández Sánchez, **W. Trutschnig**, M. Tschimpke: Markov product invariance in classes of bivariate copulas characterized by univariate functions, *Journal of Mathematical Analysis and Applications* **501**(2), 125185 (2021), doi:10.1016/j.jmaa.2021.125184
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- [41] T. Kasper, S. Fuchs, **W. Trutschnig**: On weak conditional convergence of bivariate Archimedean and Extreme Value copulas, and consequences to nonparametric estimation, *Bernoulli* **27**(4), 2217-2240 (2021), doi:10.3150/20-BEJ1306
- [40] F. Durante, J. Fernández Sánchez, **W. Trutschnig**, M. Úbeda-Flores: On the size of subclasses of quasi-copulas and their Dedekind-MacNeille completion, *Mathematics* **8**(12), 2238 (2020), doi:10.3390/math8122238
- [39] S. Fuchs, **W. Trutschnig**: On quantile-based co-risk measures and their estimation, *Dependence Modeling* **8**, 396-416 (2020), doi:10.1515/demo-2020-0021

- [38] F. Durante, J. Fernández Sánchez, C. Ignazzi, **W. Trutschnig**: On extremal problems for pairs of uniformly distributed sequences and integrals with respect to copula measures, *Uniform Distribution Theory* **15**(2), 99–112 (2020), doi:10.2478/udt-2020-0013
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- [36] J. Fernández Sánchez, D.L. Rodríguez-Vidanes, J.B. Seoane-Sepúlveda, **W. Trutschnig**: Lineability, differentiable functions and special derivatives, *Banach Journal of Mathematical Analysis* **15**, 18 (2021), doi:10.1007/s43037-020-00103-9
- [35] L. Bernal-González, J. Fernández Sánchez, J.B. Seoane-Sepúlveda, **W. Trutschnig**: Highly tempering infinite matrices II: From divergence to convergence via Toeplitz-Silverman matrices, *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas* **114**, 202 (2020), doi:10.1007/s13398-020-00934-z
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- [32] N. Kamnitui, **W. Trutschnig**: On some properties of reflected maxmin copulas, *Fuzzy Sets and Systems* **393**, 53–74 (2020), doi:10.1016/j.fss.2019.07.007
- [31] J. Fernández Sánchez, **W. Trutschnig**: Nested square roots of 2 revisited, *American Mathematical Monthly* **127**(4), 344–351 (2020), doi:10.1080/00029890.2020.1707059
- [30] T. Mroz, **W. Trutschnig**: A sharp inequality for Kendall’s τ and Spearman’s ρ of Extreme-Value Copulas, *Dependence Modeling* **6**, 369–376 (2018), doi:10.1515/demo-2018-0021
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- [14] W. Senker, H. Stefanits, M. Gmeiner, **W. Trutschnig**, Ch. Radl, A. Gruber: The Influence of Smoking in Minimally Invasive Spinal Fusion Surgery, *Open Medicine* **16**(1), 198-206 (2021), doi:10.1515/med-2021-0223
- [13] M. Wagner, A.C. Bathke, S.C. Cary, T.G.A. Green; R.R. Junker, **W. Trutschnig**, U. Ruprecht: Myco- and photobiont associations in crustose lichens in the McMurdo Dry Valleys (Antarctica) reveal high differentiation along an elevational gradient, *Polar biology* **43**, 1967-1988 (2020), doi:10.1007/s00300-020-02754-8
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- [4] M. Wagner, **W. Trutschnig**, A.C. Bathke, U. Ruprecht: A first approach to calculate BIOCLIM variables and climate zones for Antarctica, *Theoretical and Applied Climatology* **131**, 1397–1415 (2018), doi:10.1007/s00704-017-2053-5
- [3] S. Pittner, B. Ehrenfellner, A. Zissler, V. Racher, **W. Trutschnig**, A.C. Bathke, A.M. Sängler, W. Stoiber, P. Steinbacher, F.C. Monticelli: First application of a protein based approach for time since death estimation, *International Journal of Legal Medicine* **131**(2), 479–483 (2017), doi:10.1007/s00414-016-1459-4
- [2] R.R. Junker, J. Kuppler, A.C. Bathke, M.L. Schreyer, **W. Trutschnig**: Dynamic range boxes - A robust non-parametric approach to quantify size and overlap of n -dimensional hypervolumes, *Methods in Ecology and Evolution* **7**(12), 1503–1513 (2016), doi:10.1111/2041-210X.12611

- [1] P. Ranacher, R. Brunauer, **W. Trutschnig**, S. Van der Spek, S. Reich: Why GPS makes distances bigger than they are, *International Journal of Geographical Information Science* **30**, 316-333 (2016), doi:10.1080/13658816.2015.1086924
(open access, 9.000 reads in the period October 2015 - January 2016)

SUBMITTED FOR
PUBLICATION -
MATHEMATICS

- [4] D. Kokol Bukovšek, N. Stopar, **W. Trutschnig**: Total versus partial independence revisited
- [3] N.P. Dietrich, J. Fernández Sánchez, **W. Trutschnig**: On d -stochastic measures with fractal support and uniform $(d - 1)$ -marginals, and related results, arxiv 2604.08505
- [2] K. Schärer, **W. Trutschnig**: Estimating Conditional Distributions via Sklar's Theorem and Empirical Checkerboard Approximations, with Consequences to Nonparametric Regression
- [1] H. Kaiser, **W. Trutschnig**: Mean and quantile regression in the copula setting: properties, sharp bounds and a note on estimation

SUBMITTED FOR
PUBLICATION -
INTERDISCIPLINARY

- [2] N. Haller, M.S. Peitl, T. Strepp, M. Huthöfer, **W. Trutschnig**, T.L. Stöggl: Don't Jump to Conclusions: Countermovement Jumps Exhibit Low Predictive Power for Neuromuscular Fatigue during a High-intensity Interval Training Shock Microcycle
- [1] V. Zieschank, **W. Trutschnig**, R.R. Junker: Response diversity increases functional but decreases compositional stability of grassland communities

BOOKS AND BOOK
CHAPTERS

- [12] J. Ansari, S. Fuchs, **W. Trutschnig**, M.A. Lubiano, M.Á. Gil, P. Grzegorzewski, O. Hryniewicz (Eds): *Combining, Modelling and Analyzing Imprecision, Randomness and Dependence*, Series: Advances in Intelligent Systems and Computing, Volume 1458, pp. 208-216, (2024), Springer Nature Switzerland, doi:10.1007/978-3-031-65993-5
- [11] N. Dietrich, J. Fernández-Sánchez, **W. Trutschnig**: Convergence of Copulas Revisited: Different Notions of Convergence and Their Interrelations, in L.A. García-Escudero et al. (Eds.): *Building Bridges between Soft and Statistical Methodologies for Data Science*, Series: Advances in Soft Computing, Volume 1433, pp. 120-127 (2023), Springer Nature Switzerland, doi:10.1007/978-3-031-15509-3_16
- [10] Thimo M. Kasper, **W. Trutschnig**: A Markov Kernel Approach to Multivariate Archimedean Copulas, in L.A. García-Escudero et al. (Eds.): *Building Bridges between Soft and Statistical Methodologies for Data Science*, Series: Advances in Soft Computing, Volume 1433, pp. 224-230 (2023), Springer Nature Switzerland, doi:10.1007/978-3-031-15509-3_30
- [9] **W. Trutschnig**, F. Griessenberger: On Quantifying and Estimating Directed Dependence, in L.A. García-Escudero et al. (Eds.): *Building Bridges between Soft and Statistical Methodologies for Data Science*, Series: Advances in Soft Computing, Volume 1433, pp. 382-389 (2023), Springer Nature Switzerland, doi:10.1007/978-3-031-15509-3_50
- [8] F. Griessenberger, **W. Trutschnig**: Estimating Asymmetric Dependence via Empirical Checkerboard Copulas, in A. Pollice, N. Salvati, S. Spagnolo (Eds) *Book of Short Papers SIS 2020*, pp. 304-309 (2020), link to pdf
- [7] **W. Trutschnig**: Complete dependence everywhere?, in M. Úbeda Flores, E. de Amo Artero, F. Durante, J. Fernández Sánchez (Eds) *Copulas and Dependence Models with Applications - Contributions in Honor of Roger B. Nelsen*, pp. 225-240, Springer (2017), doi:10.1007/978-3-319-64221-5
- [6] F. Durante, J. Fernández Sánchez, **W. Trutschnig**: Singular copulas, Oberwolfach Reports, 2015(20), 40-43, doi:10.4171/OWR/2015/20
- [5] **W. Trutschnig**, J. Fernández Sánchez: Some consequences of the Markov kernel perspective of copulas, in K. Glau, M. Scherer, R. Zagst (Eds) *Innovations in Quantitative Risk Management*, Springer Proceedings in Mathematics & Statistics, Volume 99, pp. 393-409, Springer Berlin/Heidelberg (2014), doi:10.1007/978-3-319-09114-3_23

- [4] **W. Trutschnig**: Some smoothing properties of the Star Product of copulas, in: R. Kruse et al. (Eds) *Synergies of Soft Computing and Statistics for Intelligent Data Analysis*, Series: Advances in Intelligent and Soft Computing, Volume 190, Part 4, pp. 349-357, Springer Berlin/Heidelberg (2013), doi:10.1007/978-3-642-33042-1_38
- [3] **W. Trutschnig**: Idempotent copulas with fractal support, in: S. Greco et al. (Eds) *Communications in Computer and Information Science*, Series: Advances in Computational Intelligence, Volume 298, Part 3, pp. 161-170, Springer Berlin/Heidelberg (2012), doi:10.1007/978-3-642-31715-6_18
- [2] C. Borgelt, G. González-Rodríguez, **W. Trutschnig**, M.A. Lubiano, M.A. Gil, P. Grzegorzewski, O. Hryniewicz (Eds): *Combining Soft Computing and Statistical Methods in Data Analysis*, Series: Advances in Intelligent and Soft Computing, Vol. 77, Springer Berlin/Heidelberg (2010), doi:10.1007/978-3-642-14746-3
- [1] M.A. Lubiano, **W. Trutschnig**: ANOVA for fuzzy random variables Using the R-package SAFD in: C. Borgelt et al. (Eds): *Combining Soft Computing and Statistical Methods in Data Analysis*, Series: Advances in Intelligent and Soft Computing, Vol. 77, pp. 449-456, Springer Berlin/Heidelberg (2010), doi:10.1007/978-3-642-14746-3_56

SHORTLIST POSITIONS

- Full professorship ‘Statistics’ (direct call from abroad) at the University of Bozen, 1st place (05/2023), declined
- Full professorship §99 UG ‘Statistics’ at the University of Klagenfurt, 1st place (11/2019), not invited to negotiations
- Associate professorship ‘Statistics’ at the University of Bozen, 2nd place (10/2017)
- Full professorship §98 UG ‘Applied Statistics’ at the Technical University Graz, 3rd place (02/2017)

HONORS

- Gambrinus Fellowship of the Technical University of Dortmund (DE); collaboration partner: Prof. Dr. Karl Friedrich Siburg (06/2019)
- Winner of the University of Salzburg’s Kurt-Zopf-Förderpreis 2018 (for the paper [22])
- Winner of the University of Salzburg’s Excellence in Teaching Award (category: best lecture); for the course ‘Fractals and Chance’ (05/2017)
- Winner of the Austrian Statistical Association’s price for dissertations in Mathematical Statistics (2007)
- Excellence Scholarship of the Vienna University of Technology (1996-1999, 2002)

EDITORIAL WORK

- Associate Editor for *Biometrical Journal*
- Associate Editor for *Research in Statistics*
- Former Associate Editor for *Econometrics and Statistics (EcoSta)*, till 2021
- Guest Co-editor for the Dependence Modeling Special Issue for the Salzburg workshop on Dependence Models & Copulas
- Editorial Advisory Board member of Dependence Modeling (appointed for the period 2018-01-01 till 2025-12-31)
- Editorial Board member of: *Fuzzy Sets and Systems* and *Austrian Journal of Statistics*

REFEREE

Applied Mathematics Letters; Austrian Journal of Statistics; Bernoulli; Canadian Journal of Statistics; Chaos, Solitons & Fractals; Communications in Statistics; Computational Statistics and Data Analysis; Computers and Mathematics with Applications; Dependence Modeling; Econometrics; Electronic Journal of Statistics; European Actuarial Journal; European Journal of Operational Research; Extremes; Fuzzy Sets and Systems; Heliyon Mathematics; IEEE Transactions on Fuzzy Systems; Information Sciences; International Journal of Approximate Reasoning; International Journal of Geographical Information Science; International Journal of Uncertainty;

Journal of Computational and Applied Mathematics; Journal of Mathematical Analysis and Applications; Journal of Multivariate Analysis; Journal of Nonparametric Statistics; Journal of Statistical Planning and Inference; Journal of the American Statistical Association; Knowledge-Based Systems; Kybernetika; Letters in Biomathematics; Mathematical Reviews; Mechanical Systems and Signal Processing; Metrika; PLOS One; Research in Statistics; Risks; Soft Computing; Statistics & Probability Letters; TEST

SCIENTIFIC
COMMITTEES

- Co-Chair of the specialized team on Dependence Models and Copulas within the ERCIM Workgroup on Computational and Methodological Statistics (together with Fabrizio Durante and Ivan Kojadinovic)
- Co-Chair of the SMPS 2024 conference, Salzburg, 2024 (together with Jonathan Ansari and Sebastian Fuchs)
- Co-Chair of the 40th Linz Seminar on Fuzzy Sets devoted to Copulas — Theory and Applications Linz, 2023 (together with Fabrizio Durante und Susanne Saminger-Platz)
- Management committee member (rep. Austria) of the ICT COST Action IC1408 CRoNoS (Computationally-intensive methods for the robust analysis of non-standard data)
- Local Co-Organizer of the 10th International Workshop on Simulation and Statistics, September 02-06 2019, Salzburg, Austria
- Chair of the Austrian Stochastic Days 2017 (as satellite meeting of the ÖMG-DMV congress 2017), September 12-13, Salzburg, Austria
- Organizer of the session *Recent advances in dependence modelling and optimization* at the Workshop on Copulas and Their Applications celebrating the 75th birthday of Roger B. Nelsen, July 03-05, 2017, Almería, Spain
- Co-Organizer of the sessions *Dependence models and copulas I-IV* at the CMStatistics 2016, December 09-11 2016, Seville, Spain (together with Fabrizio Durante)
- Chair of the Salzburg Workshop on Dependence Models and Copulas, September 19-22 2016, Salzburg, Austria
- Co-Organizer of the session *Data Analysis with Dependence Models* at the SMPS 2016, September 12-14 2016, Rome, Italy (together with Fabrizio Durante)
- Co-Organizer of the sessions *Dependence models and copulas I-III* at the CMStatistics 2015, December 12-14 2015, London, UK (together with Fabrizio Durante)
- Organizer of the session *Copulas* at the Österreichische Statistiktage 2015, October 21-23 2015, Vienna, Austria
- Co-Organizer of the sessions *Dependence models and copulas: Theory* and *Dependence models and copulas: Applications* at the ERCIM 2014, December 6-8 2014, Pisa, Italy (together with Fabrizio Durante)
- Co-Organizer of the sessions *Mathematical Aspects of Copulas I + II*, *Dependence Models in Environmental Sciences* at the ERCIM 2013, December 14-16 2013, Senate House, University of London, London, UK (together with Fabrizio Durante)
- Organizer of the sessions *Copulas I-III* at the ERCIM 2012, December 1-3 2012, Conference Centre, Oviedo, Spain
- Co-Chair of the Fifth International Conference on Soft Methods in Probability and Statistics SMPS 2010, September 28 - October 1 2010, Oviedo/Mieres, Spain
- Organizer of the session *Statistics with fuzzy or incomplete data* at the ERCIM 2009, October 29-31 2009, Grand Resort Hotel, Limassol, Cyprus

INVITED TALKS
(SINCE 2015)

- *Wild animals - copulas with (extremely) pathological and surprising properties*, Mathematical Advances in Dependence and Extremes, March 16, 2026, KIT Karlsruhe, Germany
- *Dependence modeling and feature selection*, Festkolloquium 50 Jahre Institut für Statistik an der TU Graz, November 29, 2024, Graz, Austria
- *Quantifying and estimating (directed) dependence via sensitivity of conditional distributions*, Seminar for Statistics, KU Leuven, November 09, 2023, Leuven, Belgium
- *Quantifying and estimating (multivariate) directed dependence*, at the SMPS 2022, September 15 2022, Valladolid, Spain
- *Quantifying and estimating (multivariate) directed dependence*, at the CDAM: Stochastics and Data Science, September 07 2022, Minsk, Belarus, online (*invited plenary speaker*)
- *Mathematical aspects of copulas*, at the Mathematisches Kolloquium @TU Dortmund, June 27 2022, Dortmund, Germany
- *Forecasting täglicher Verkaufszahlen in Supermärkten: mögliche Methodik, der Einfluss von Promotionen und Kannibalismus-Effekte*, at the 17th Predictive Analytics Konferenz, October 12-13 2021, Vienna, Austria
- *Stochastic (dynamical and topological) aspects of copulas*, at the Oberseminar Analysis, Mathematische Physik & Dynamische Systeme @TU Dortmund, June 29 2021, via zoom
- *Quantifying And Estimating Asymmetric Dependence*, at the 10th International Workshop on Simulation and Statistics, September 02-06 2019, Salzburg, Austria
- *Quantifying asymmetric dependence with the R-package qad*, at the Symposium: Ecology — Geomorphology — Statistics, March 28-29 2019, Salzburg, Austria (*keynote speaker*)
- *The Markov product of copulas revisited*, at the CMStatistics 2018 (ERCIM 2018), December 14-16 2018, Pisa, Italy
- *On the interrelation between Kendall's τ and Spearman's ρ* , at the International Statistics Festival Ulm, September 17-18 2018, University of Ulm, Germany
- *Stochastic, dynamical and topological aspects of copulas*, at the 7th Austrian Stochastics Days, September 13-14 2018, Vienna University of Economics and Business, Austria (*keynote speaker*)
- *Complete dependence everywhere?*, at the Workshop on Copulas and Their Applications celebrating the 75th birthday of Roger B. Nelsen, July 03-05, 2017, Almería, Spain
- *Complete dependence everywhere?*, Vienna University of Technology, May 08 2017, Vienna, Austria
- *Three copula-based optimization problems and an excursion*, at the CMStatistics 2016, December 09-11 2016, Seville, Spain
- *On sharp inequalities between Kendall's τ and Spearman's ρ* , at the CMStatistics 2015, December 12 2015, London, UK

TEACHING
EXPERIENCE

University of Salzburg, Salzburg, Austria

Full/Associate/Assistant Professor

since 10/2013

- (Mathematical) Statistics (Lecture and Exercise for Bachelor Students in Mathematics, 2+1h, 5th Semester), 7 times
- Fractals and Chance (Lecture for Bachelor/Master Students of Mathematics, 2h), 3 times
- Applied (mathematical) Statistics (Lecture and exercise for Bachelor Students in Mathematics, 2h, 6th semester), 5 times
- PhD Seminar Statistics (for PhD Students in Mathematics, 1h), together with Arne Bathke, 14 times
- (Elementary) Regression Methods & Computational Statistics (Lecture for Master Students in Data Science, 2h), 3 times
- Dependence Modelling (Lecture and Exercise for Master and PhD Students in Mathematics, 3h), 3 times
- Markov Processes in discrete time (Lecture for Master Students in Mathematics, 2h)

- Introduction to Ergodic Theory (Lecture for Bachelor/Master Students of Mathematics, 2h)
- Research Seminar Stochastics (Seminar for Master and PhD Students in Mathematics, 1-2h)
- Statistics, Visualization and More Using R (Seminar/Computer Lab for Master- and PhD Students in Psychology and Master Students in Data Science, 2h), 4 times
- Introductory statistics for earth scientists (Lecture and exercise for Bachelor Students in Geology, 2h), 2 times
- Interpreting and Presenting Statistical Analyses (Seminar for Master Students in Data Science, 2h), together with Arne Bathke, 2 times
- Case Studies (Seminar for Master Students in Data Science, 2h), together with Nikolaus Augsten, Arne Bathke and Roland Kwitt, 2 times
- R Introduction via Applied Statistics (Seminar/Computer Lab for PhD Students in Psychology, 2h), together with Walter Gruber, 3 times
- Scientific Computing with Matlab and R (Lecture/Exercise for Bachelor Students in Mathematics, 3h), together with Lothar Banz, 3 times
- Introduction to Data Science (Lecture/exercise for Master Students Data Science, 1h), together with Nikolaus Augsten, Arne Bathke, Christian Borgelt, and Roland Kwitt, 2 times
- R for advanced users (Seminar/Computer Lab for PhD Students in Psychology, 2h), together with Walter Gruber, 2 times
- Mathematical Software R/Matlab/Mathematica (Lecture for Bachelor Students in Mathematics, 3h), together with Lothar Banz and Andreas Schröder, 2 times
- Automatic reporting with knitR (training and further education for employees of University Salzburg, 1h)
- (Basic) Mathematics for Neuroscientists (for PhD students of the DK Imaging the Mind, 1h)
- Refresher course Applied Statistics (training and further education for employees of University Salzburg, 1h)
- Stochastic modeling (Exercise for Students of Mathematics, 4th Semester, 2h), 2 times
- Mathematics I and Mathematics II (Exercise for Students of Material Sciences, 2h)

European Centre for Soft Computing, Mieres, Spain

Lecturer

2010 - 2012

- Introduction to R (Seminar/Lecture)
- R Computer Lab

Vienna University of Technology, Vienna, Austria

Teaching assistant

1999 - 2008

- Measure and Probability Theory (Exercise), 3 times
- Applied Statistics for Mathematicians (Exercise), 3 times
- Introduction to Probability Theory and Statistics (Exercise), 3 times
- Mathematics 1-3 for Electrical Engineers (Exercise), 3 times
- Introduction to Probability Theory and Statistics for Computer Scientists (Exercise), 3 times

SUPERVISION
(PHD)

University of Salzburg, Salzburg, Austria

- Kai Schärer (PhD student in Mathematics), since 10/2025
- Lea Maislinger (PhD student in Mathematics), since 03/2024
- José García García (PhD student in Mathematics, University of Oviedo, co-supervision), since 01/2024
- Nicolas Dietrich: *Advances in special families of (multivariate) copulas: convergence, mass distributions and analytical properties*, finished 06/2025
- Marco Tschimpke: *New results in copula theory: Studying novel dependence properties and measures of concordance*, finished 09/2024
- Thomas Mroz: *Copula-based Optimization and related problems*, finished 09/2023
- Thimo Kasper: *New results for special classes of (multivariate) copulas and some consequences to estimating dependence*, finished 12/2022
- Florian Griessenberger: *A new (multivariate) copula-based measure of dependence and some additional results in dependence modeling*, finished 06/2022

- Julian von Schleinitz (PhD student in Data Science, co-supervision): *Machine Learning based Data Analysis at the Limit of Driving Dynamics*, finished 02/2022
- Noppadon Kamnitui: *Special Classes of Copulas and their Properties*, finished 10/2019
- Manuela Schreyer: *Some new results in copula theory*, finished 10/2018

SUPERVISION
(MASTER)

University of Salzburg, Salzburg, Austria

- Marie-Sophie Peitl (Master student in Data Science): Measuring neuromuscular fatigue with countermovement jumps in a high-intensity interval training shock microcycle (HIIT-SM), finished 01/2026
- Lea Maislinger (Master student in Mathematics): *Shuffles of Copulas, Double Shuffles of Copulas and their Interrelations with the Star Product*, finished 02/2024
- Magdalena Tovilo (Master student in Data Science): *Regions between pairs of measures of association based on bivariate copulas*, finished 02/2024
- Anna-Lena Graf (Master student in Mathematics): *Checkerboard Copula Estimator - Properties and Applications*, finished 11/2023
- Melanie Löckinger (Master student in Data Science): *An Analysis of Phenological Data of Butterflies in Salzburg*, finished 11/2023
- Anna-Lena Graf (Master student in Data Science): *Modern methods for unsupervised and supervised feature selection applied to the automotive industry*, finished 09/2023
- Mohamed Mbaye (AIMS Senegal Master student): *The copula based dependence measure ζ_1 and its estimator*, finished 07/2023
- Nina Marie Schmitzberger (Master student in Mathematics, in collaboration with BMW group): *Dependence Modelling and Association Rule Mining for Dynamic Error Classification in the Automotive Industry*, finished 04/2021
- Marco Tschimpke (Master student in Mathematics): *Markov product invariance in classes of bivariate copulas characterized by univariate functions*, finished 12/2020
- Lukas Klaffenböck (Master student in Mathematics): *The consistency of the CART-Algorithm and a special case of random forests*, finished 12/2020
- Alexander Roßmann (Master student in Mathematics): *On weak conditional convergence of copulas and related concepts*, finished 10/2020
- Iris Rammelmüller (Master student in Mathematics, in collaboration with Noemi Castelletti from HelmholtzZentrum münchen): *Biological-Based Models of Carcinogenesis in the Lung from Radiation in the Eldorado cohort*, finished 09/2020
- Klemens Kurtz (Master student in Data Science, in collaboration with KTM Innovation GmbH): *Sensor failure prediction on MotoGP motorcycles*, finished 09/2020
- Simone Müller (Master student in Data Science): *Nightclub detection with image classification using convolutional neural networks*, finished 09/2019
- Marcel Steger (Master student in Data Science, in collaboration with Porsche Informatik): *Methods for Feature Selection*, finished 08/2019
- Florian Griessenberger (Master student in Mathematics): *Measure-theoretic properties of copulas & Quantification of dependence*, finished 10/2018
- Guido Friesacher (Master student in Mathematics): *Analyzing log-returns using Copulas*, finished 10/2016
- Eva Andrea Eder (student teacher in Mathematics/Biology): *Fraktale - Von der Natur inspiriert und durch die Mathematik in die heutige Zeit integriert*, finished 05/2016

European Centre for Soft Computing, Mieres, Spain

- Julia Lastra: *Teoría de Cópulas - Cópulas con soporte fractal*, within the Master in Advanced Mathematics (University of Almería), finished 09/2013, together with Enrique de Amo Artero
- Héctor Fernández Martínez: *Product demand prediction*, within the Master in Soft Computing and Intelligent Data Analysis, finished 07/2010, together with Ana Colubi

SUPERVISION
(BACHELOR)

University of Salzburg, Salzburg, Austria

- Jonathan Faust (Bachelor student in Mathematics), *Copulabasierter Schätzer für Regressionsfunktionen zweidimensionaler, stetiger Zufallsvektoren*, finished 02/2026
- Michael Entfellner (Bachelor student in Mathematics), *Über die Abhängigkeit von log returns*, finished 09/2024
- Lea Maislinger (Bachelor student in Mathematics), *Prognosemodelle für Zeitreihen aus dem Automobilssektor*, finished 10/2021
- Stefanie Schmerbauch (Bachelor student in Mathematics): *Knowing X, knowing Y? Über asymmetrische Abhängigkeit von Zufallsvariablen*, finished 09/2021
- Martin Geroldinger (Bachelor student in Mathematics): *Zeitreihenanalysen und Prognosen: Theorie und Anwendung*, finished 09/2020
- Wanda Lauth (Bachelor student in Mathematics): *Gemischte Lineare Modelle: Theorie und Anwendung zur Beschreibung der Arbeitsmoral*, finished 01/2020
- Selina Miller (Bachelor student in Mathematics): *Regression: eine Anwendung zu 'Time Since Death Estimation' und mathematische Resultate zur Kernel-Regression*, finished 09/2019
- Florian Günther (Bachelor student in Mathematics): *Spieltheorie und Nash-Gleichgewicht*, finished 08/2019
- Nina Marie Schmitzberger (Bachelor student in Mathematics): *Visualisieren von Daten in R mit ggplot2, lineare und nichtparametrische Regression und deren Anwendung in der 'Carotisstudie'*: finished 08/2018
- Jakob Schmollgruber (Bachelor student in Mathematics): *Markov Ketten und Random Walk*, finished 01/2017
- Philipp Schwartenbeck (Bachelor student in Mathematics): *Frequentist and Bayesian parameter estimation*, finished 12/2016
- Gianna Liehr (Bachelor student in Mathematics): *Julia Mengen*, finished 11/2016
- Victoria Racher (Bachelor student in Mathematics): *Eine Anwendung multipler linearer Regression und Grundzüge der Bayes Statistik auf 'Time Since Death Estimation'*, finished 09/2016
- Lukas Helminger (Bachelor student in Mathematics): *Maximierung der Masse des Graphen/Endographen einer nicht fallenden Transformation innerhalb der Klasse der Copulae*, finished 08/2016
- Florian Griessenberger (Bachelor student in Mathematics): *Parametrische und nichtparametrische Regression und ihre Anwendung*, finished 07/2016
- Sebastian Heintze (Bachelor student in Mathematics): *Periodische Punkte und chaotische Eigenschaften von Funktionen*, finished 06/2016

SERVICE TO THE
UNIVERSITY

- Deputy head of the department for Artificial Intelligence & Human Interaction (AIHI), 2022-2024
- Workgroup leader of the Data Science, Statistics and Stochastics group, department for AIHI, 2022-2024
- Chairman of the habilitation committee of Dr. Sebastian Fuchs, 2022
- Member of the working group on quality development in teaching (AG QE Studium und Lehre), University of Salzburg, 2018-2019
- Member of the Curricularkommission for Bachelor AI, University of Salzburg, since 2022
- Member of the Curricularkommission for Mathematics, University of Salzburg, 2016 - 2019
- Member of the Curricularkommission for Data Science, University of Salzburg, 2016 - 2021
- Deputy-chairman of the appointment committee for the §99 full professorship (Stiftungsprofessur) for Data Science at the University Salzburg, 2017/2018
- Jury member for the University of Salzburg's Excellence in Teaching Award (2018)
- Referee for the Marie Andessner Preise für Diplom- und Masterarbeiten 2017
- Coaching for female students (Bachelor Mathematics), together with Bettina Sereinig
- Active member of the Math2School-Team
- Core faculty member of the Data Science Salzburg initiative

SOFTWARE

R-packages:

- **qmd**: A multivariate copula-based dependence measure (together with Florian Griessenberger and Robert R. Junker)
- **qad**: A copula-based measure for quantifying asymmetry in dependence and associations (together with Florian Griessenberger and Robert R. Junker)
- **Chaos game**: Plot fractal words in dimension two and three (together with Manuela Schreyer)
- **dynRB**: Calculate niche size and overlap using dynamic range boxes (together with Manuela Schreyer, Robert R. Junker, Jonas Kuppler, Arne Bathke)

THIRD-PARTY
FUNDING
≥ € 6.3 MIO.
AS PI

Data Science PhD II, University of Salzburg, Salzburg, Austria*Project leader*

2026 -

- Supervision of 1 PhD student in Data Science/Statistics (for 3 years)
- Funded by [Red Bull](#)

KRONOS - Kontinuierliche ROL Prozess-Optimierung zur Nachhaltigen US-Ausschuss-Reduktion, University of Salzburg, Salzburg, Austria*Project leader*

2025 -

- Development of statistical/machine learning methods for process optimization
- Supervision of 1 PhD student in Data Science/Statistics (for 3 years)
- Funded by [AMAG](#)

MUT - Muster im Tourismus 1-3, University of Salzburg, Salzburg, Austria*Project leader*

2024 -

- Forecasting daily overnight stay figures for various tourism regions
- Funded by [Feratel](#)

Data Science PhD, University of Salzburg, Salzburg, Austria*Project leader*

2022 -

- Supervision of 1 PhD student in Data Science/Statistics (for 3 years)
- Funded by [Red Bull](#)

ProSA - Prozessanalyse Ultraschallanzeigen, University of Salzburg, Salzburg, Austria*Project leader*

2021 -

- Development of statistical/machine learning methods for process optimization
- Supervision of 1 PhD student in Data Science/Statistics (for 3.5 years)
- Funded by [AMAG](#)

Chaos Game (Talente: Praktika für Schülerinnen und Schüler 2020), University of Salzburg, Salzburg, Austria*Supervisor*

2020

- Improving the R-package [ChaosGame](#)
- Funded by [Österreichische Forschungsförderungsgesellschaft mbH](#)

IDA Lab Salzburg (Lab for Intelligent Data Analytics), University of Salzburg, Salzburg, Austria*Director*

2020 -

- Establishment of a research center with several research teams (lead by 6 postdocs, for 5 years)
- Funded by [Land Salzburg \(within the WISS 2025\)](#)
- Applied research in statistics and machine learning

Sensor failure prediction on MotoGP motorcycles, University of Salzburg, Salzburg, Austria*Project leader*

2019 - 2020

- Predictive Maintenance MotoGP sensors
- Funded by [KTM Innovation GmbH](#)

- Wohnbaudatenbank (Analyse und GUI)**, University of Salzburg, Salzburg, Austria
Project leader (together with Arne Bathke) 2019 - 2020
- Data analytics Wohnbaudaten
 - Funded by the province of Salzburg (im Rahmen der Wohnbauforschungsmittel)
- KFZ**, University of Salzburg, Salzburg, Austria
Project leader (together with Roland Kwitt) 2019 - 2022
- Basic research in statistics and machine learning
 - Supervision of 2 fulltime PhD students in Data Science (for 3 years)
 - Funded by Porsche Informatik and Land Salzburg (within the WISS 2025)
- Successional Generation of Functional Multidiversity**, University of Salzburg, Salzburg, Austria
Cooperation partner of START price winner Robert R. Junker 2018 -
- Responsible for the development of statistical methods for the quantification of asymmetric dependence and the supervision of 1 PhD student (for 3 years)
 - Der Standard article on the project (in German)
- Data Analytics in Industrial Environments**, University of Salzburg, Salzburg, Austria
Project leader (together with Roland Kwitt) 2018
- Data Science: Production of the Future, Smart Sales and Customer Analytics
 - For Siemens Austria, Vienna, Austria
- Forecasting material requirements**, University of Salzburg, Salzburg, Austria
Project leader 2018
- Forecasting techniques, merging of different data sources
 - For HAI - Hammerer Aluminium Industries, Ranshofen, Austria
- Data Science Endowed Professorship**, University of Salzburg, Salzburg, Austria
Co-applicant (together with Arne Bathke) 2018 - 2023
- Data Science Endowed Professorship (5 years) at the University of Salzburg, funded by the province of Salzburg, the City of Salzburg and the Federation of Austrian Industries
- NIRS Analysis**, University of Salzburg, Salzburg, Austria
Project leader 2017
- Analysis Near Infrared Spectroscopy (NIRS) data
 - For Universitätsklinik für Anästhesiologie, perioperative Medizin und allgemeine Intensivmedizin, Salzburg, Austria
- Analysis questionnaire data Diacerin for EBS**, University of Salzburg, Salzburg, Austria
Project leader 2016
- Statistical testing for positive treatment effects
 - For Prof. Dr. Johann Bauer/EB-Haus Austria
- Prozessdatenanalyse Walzenproduktion**, University of Salzburg, Salzburg, Austria
Assistant project leader 2015
- Detection of possible factors relevant for product quality
 - Development of an R-shiny app to simplify data analysis for experts
 - For Eisenwerk Sulzau-Werfen
- SIMOP II project**, European Centre for Soft Computing, Mieres, Spain
Project leader 2012 - 2013
- In collaboration with a regional Spanish supermarket chain
 - Analysis/quantification of the effect of product offers to sales numbers of related products

	SIMOP I project , European Centre for Soft Computing, Mieres, Spain	
	<i>Project leader</i>	2011 - 2012
	<ul style="list-style-type: none"> • In collaboration with a regional Spanish supermarket chain • Optimization of the delivery system of an Asturian supermarket chain based on the forecasting of daily sales numbers of products during offer and non-offer periods 	
	Cajacash-project , European Centre for Soft Computing, Mieres, Spain	
	<i>Operating project member</i>	2010
	<ul style="list-style-type: none"> • In collaboration with cajastur (Asturian savings bank) • Forecasting daily withdrawn amounts at cash machines (ATMs) to improve the cash delivery system 	
	MICINN-project , European Centre for Soft Computing, Mieres, Spain	
	<i>Project leader</i> (since 2011)	2010 - 2012
	<ul style="list-style-type: none"> • Project of the Spanish ministry for research and innovation • Basic research on flexible (linear) regression models for imprecise data 	
CORRELATE.AT PROJECTS (INCOMPLETE LIST)	Grafikprogrammierung	
	For IQS	2021 -
	<ul style="list-style-type: none"> • Coding of specific non-trivial automatable R-graphics 	
	IPTV pattern detection	
	For A1	2019
	<ul style="list-style-type: none"> • Pattern detection in and classification of IPTV data • Graphical illustration of the main results 	
	HR-Analytics	
	For ÖBB	2018
	<ul style="list-style-type: none"> • Statistical data analysis concerning ten predefined hypotheses • Graphical illustration of the main results 	
	Statistical Data Analysis in Medicine	
	For Landeskrankenhaus Amstetten	2016 - 2017
	<ul style="list-style-type: none"> • Statistical data analysis concerning MAST in obese patients 	
	Confirmed by customer	
	For T-Mobile Austria	2015
	<ul style="list-style-type: none"> • Hexagonal binning and aggregation of speed measurements by customers • Illustration of the results 	
	Breitbandanalyse Bundesland Salzburg (together with SBR-net Consulting AG)	
	For the province of Salzburg, Austria	2015
	<ul style="list-style-type: none"> • Analysis of the status quo • Collection, cleaning and aggregation of all relevant data sources on a 100 × 100 meter grid 	
	Analysis CTU Data	
	For Specure (as subcontractor in their project with Czech Telecommunication Office)	2015
	<ul style="list-style-type: none"> • Plausibility checking, heavy user filtering, data aggregation and visualization • Implementation in R and SQL 	
	Opening Hours Illustration	
	For Stadtgemeinde Baden, Austria	2015
	<ul style="list-style-type: none"> • Analysis of the collected data and summarization of the most important findings in pretty and easy to interpret graphics • Publication of the results in the Baden Passion magazine 	

CONSULTING & FREELANCE EXPERIENCE (INCOMPLETE LIST)	<p>A1 Telekom Austria, Vienna, Austria 2008 - 2012</p> <ul style="list-style-type: none"> • Assistance and support in the development of automated reports for ticket flows • Data mining radius data • Simulation and Backtesting Voice/mobile broadband with selectable geographical parameters, Implementation in R • Development of a Q-Voice sampling plan for Austria based on the geographical distribution of the population, Implementation in R • Data mining Scanner-data • Assistance and support in the development of automated mag backbone reports via Sweave • Assistance and support in the development of automated TEMS reports for all mag countries <p>Allianz Insurance Austria, Vienna, Austria 2006 - 2010</p> <ul style="list-style-type: none"> • Development of a forecasting model for losses caused by hail based on POH grid-data from ZAMG Austria, Implementation in R • Geographical (meteorological) risk-zoning of Austria concerning natural hazards, Implementation in R • Development of a stochastic model for flood damages given right-censored historical data, Implementation in SAS and R • Analysis of the interrelation of empirical flood damages and the Austrian HORA project (HOchwasser Risikozonierung Austria)
EDUCATION	<p>University of Salzburg & Vienna University of Technology</p> <p>PD, Habilitation in Mathematics, May 2018</p> <ul style="list-style-type: none"> • Thesis title: <i>New perspectives and recent results in dependence modeling and copulas</i> <p>PhD, Mathematics, April 2006 (with distinction)</p> <ul style="list-style-type: none"> • Thesis title: <i>Fuzzy Probability Distributions</i> • Adviser: Prof. Dr. R. Viertl <p>MSc, Mathematics, September 2001 (summa cum laude)</p> <ul style="list-style-type: none"> • Thesis title: <i>Iterated Function Systems and Chaos Game</i> • Adviser: Prof. Dr. M. Blümlinger
APPOINTMENTS	<p>University of Salzburg, Salzburg, Austria</p> <p><i>Full Professor</i> since 12/2020</p> <ul style="list-style-type: none"> • Department of Mathematics • Basic research, applied projects and teaching in the field of probability theory and statistics <p><i>Associate Professor</i> 07/2018 - 11/2020</p> <ul style="list-style-type: none"> • Department of Mathematics • Basic research, applied projects and teaching in the field of probability theory and statistics <p><i>Assistant Professor (with qualification agreement)</i> 10/2014 - 06/2018</p> <ul style="list-style-type: none"> • Department of Mathematics • Basic research, applied projects and teaching in the field of probability theory and statistics <p><i>Univ.Ass. Postdoc</i> 10/2013 - 09/2014</p> <ul style="list-style-type: none"> • Department of Mathematics • Basic research and teaching in the field of probability theory and statistics

European Centre for Soft Computing, Mieres, Spain

Associate Researcher 01/2011 - 07/2013

- Research Unit for Intelligent Data Analysis
- Basic research in the field of probability theory and statistics: copulas, dependence measures and statistics with imprecise data
- Applied research in statistics/data mining: applied projects with local companies, with emphasis on forecasting problems

Postdoc Researcher 07/2008 - 12/2010

- Research Unit for Intelligent Data Analysis
- Basic research in the field of probability theory and statistics: copulas, dependence measures and statistics with imprecise data
- Applied research in statistics/data mining: applied projects with local companies, with emphasis on forecasting problems

Vienna University of Technology, Vienna, Austria

Postdoc Research Assistant 01/2006 - 06/2008

- Institute for Statistics and Probability Theory
- Research project: Decision-making based on imprecise information, supported by the National Bank of Austria

National Bank of Austria, Vienna, Austria

Employee (part-time, 28 hours/week) 02/2004 - 12/2005

- Balance of Payments Division, Department of Statistics
- Financial Statistics Quality Control

Hutchison H3G 'Drei', Vienna, Austria

Employee (part-time, 20 hours/week) 09/2003 - 01/2004

- Department for Regulatory Affairs
- Invoicing and Reporting

University of Vienna, Vienna, Austria

Research Assistant (partially part-time) 11/2001 - 08/2003

- Institute for Mathematics
- Research in Ergodic Theory

LANGUAGE SKILLS Fluent in German and English
Intermediate in Spanish
School level in Latin