

Prof. Dr. Daniel Gaigall
FH Aachen - University of Applied Sciences
Campus Jülich
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Curriculum Vitae

Personal information

Name: Prof. Dr. Daniel Gaigall
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Mathematical Reviews
zbMATH
Mathematics Genealogy Project
FH Aachen - University of Applied Sciences
House of Insurance, University Hannover

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Education

- Nov 2012 - Feb 2016: Ph.D. student mathematics, Leibniz University Hannover
Feb 2016: Dr. rer. nat., grade 1.0 (or 4.0 in GPA)
- Oct 2010 - Oct 2012: Master student mathematics, Leibniz University Hannover
Oct 2012: M.Sc., grade 1.3 (or 3.7 in GPA)
- Oct 2007 - Sept 2010: Bachelor student mathematics and physics, Leibniz University Hannover
Sept 2010: B.Sc., grade 1.8 (or 3.3 in GPA)
- Aug 2004 - July 2007: High school, Hannover
June 2007: Abitur, grade 1.1 (or 4.0 in GPA)

Independently raised peer-reviewed fundings

- Nov 2012 - Feb 2016: Ph.D. funding
Hans-Böckler-Stiftung

Other fundings

- Oct 2010 - Oct 2012: M.Sc. funding
Hans-Böckler-Stiftung
- Oct 2007 - Sept 2010: B.Sc. funding
Hans-Böckler-Stiftung
- Oct 2007 - Sept 2008: B.Sc. funding
Niedersachsenstipendium

Professorships

1. Appointed as Professor in Mathematics and Applied Mathematics (tenured) at the FH Aachen - University of Applied Sciences in 2022
2. Appointed as Juniorprofessor in Mathematics with focus on Stochastics/Statistics (tenure track to Professor) at the University Koblenz in 2021

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Professional experience

- since Sept 2022: Professor (tenured) in Mathematics and Applied Mathematics
FH Aachen - University of Applied Sciences
- since Apr 2019: Associate House of Insurance
Leibniz University Hannover
- Apr 2022 - Aug 2022: J.-Prof. (tenure track to Prof.) Mathematics focus Stochastics/Statistics
Mathematical Institute, University Koblenz
- Oct 2020 - Mar 2022: Adjunct lecturer Institute of Analysis
Leibniz University Hannover
- Apr 2019 - Sept 2022: Adjunct lecturer Institute of Actuarial and Financial Mathematics
Leibniz University Hannover
- Apr 2019 - Mar 2022: Validator of the internal model, Group Risk Management
Talanx HDI Group Hannover
- Sept 2016 - Mar 2019: Research associate, Institute of Probability and Statistics
Leibniz University Hannover
- Oct 2015 - Sept 2016: Research associate, Chair of Mathematical Statistics and Probability
University of Düsseldorf
- Jan 2013 - Sept 2015: Research associate, Institute of Probability and Statistics
Leibniz University Hannover
- Oct 2012 - Dec 2012: Research assistant, Institute of Probability and Statistics
Leibniz University Hannover
- Apr 2010 - July 2012: Student assistant, Institute of Probability and Statistics
Leibniz University Hannover
- Feb 2010 - Mar 2010: Internship, banking supervision
Bundesbank Hannover

Research interests (selection)

- Statistics
 - Statistical tests
 - Confidence regions
 - Efficiencies
 - Goodness-of-fit
 - Design of experiments
 - Bootstrap procedures
 - Multivariate statistics
 - High dimensional statistics
 - Functional data
 - Machine learning
 - Tail analysis
 - Regression analysis
 - Panel analysis
 - Random effects

- Actuarial science and mathematical finance
 - Quantitative risk management
 - Monte-Carlo methods
 - Life actuarial science
 - Non-life actuarial science

Professional skills (selection)

- Areas of business
 - Risk management
 - Internal risk models
 - Internal valuation models
 - Validation
 - Modeling
 - Life insurance
 - Non-life insurance
 - Economic Scenario Generator (ESG)
 - Biometric risks
 - Statistical consulting
 - Project management
 - Library administration
 - System administration
- Computer skills
 - Statistical programming language R
 - Document preparation system LaTeX
 - Microsoft Excel
 - Microsoft Office
 - Database management system MySQL
 - Microsoft Windows
 - Programming language C++
 - Linux
 - Apache HTTP Server
 - Computer algebra system Mathematica
 - Computer algebra systems Maxima
 - Financial software MUREX
 - Library software PS-BIBLIO

Peer-reviewed journal publications

1. Gaigall, D. (2023). On the applicability of several tests to models with not identically distributed random effects. *Statistics*.
2. Gaigall, D., Gerstenberg, J. (2023). Cramér-von-Mises tests for the distribution of the excess over a confidence level. *Journal of Nonparametric Statistics*.
3. Baringhaus, L., Gaigall, D. (2023). A goodness-of-fit test for the compound Poisson exponential model. *Journal of Multivariate Analysis* 125.
4. Gaigall, D. (2023). Allocating and forecasting changes in risk. *Journal of Risk* 25, 1–24.
5. Ditzhaus, M., Gaigall, D. (2022). Testing marginal homogeneity in Hilbert spaces with applications to stock market returns. *TEST* 31, 749–770.
6. Gaigall, D., Gerstenberg, J., Trinh, T.T.H. (2022). Empirical process of concomitants for partly categorical data and applications in statistics. *Bernoulli* 28, 803–829.
7. Gaigall, D. (2021). Test for changes in the modeled solvency capital requirement of an internal risk model. *ASTIN Bulletin* 51, 813–837.
8. Gaigall, D. (2020). Hoeffding-Blum-Kiefer-Rosenblatt independence test statistic on partly not identically distributed data. *Communications in Statistics - Theory and Methods*, 1–23.
9. Gaigall, D. (2020). Testing marginal homogeneity of a continuous bivariate distribution with possibly incomplete paired data. *Metrika* 83, 437–465.
10. Gaigall, D. (2020). Rothman-Woodroffe symmetry test statistic revisited. *Computational Statistics & Data Analysis* 142, 1–12.
11. Baringhaus, L., Gaigall, D. (2019). On an asymptotic relative efficiency concept based on expected volumes of confidence regions. *Statistics* 53, 1396–1436.
12. Gaigall, D. (2019). On a new approach to the multi-sample goodness-of-fit problem. *Communications in Statistics - Simulation and Computation* 50, 2971–2989.
13. Ditzhaus, M., Gaigall, D. (2018). A consistent goodness-of-fit test for huge dimensional and functional data. *Journal of Nonparametric Statistics* 30, 834–859.
14. Baringhaus, L., Gaigall, D., Thiele, J.P. (2018). Statistical inference for L^2 -distances to uniformity. *Computational Statistics & Data Analysis* 33, 1863–1896.

15. Baringhaus, L., Gaigall, D. (2018). Efficiency comparison of the Wilcoxon tests in paired and independent survey samples. *Metrika* 81, 891–930.
16. Baringhaus, L., Gaigall, D. (2017). On Hotelling's T^2 test in a special paired sample case. *Communications in Statistics - Theory and Methods* 48, 1–11.
17. Baringhaus, L., Gaigall, D. (2017). Hotelling's T^2 tests in paired and independent survey samples - an efficiency comparison. *Journal of Multivariate Analysis* 144, 177–198.
18. Baringhaus, L., Gaigall, D. (2015). On an independence test approach to the goodness-of-fit problem. *Journal of Multivariate Analysis* 140, 193–208.

Published conference paper

- Gaigall, D. (2022). On Consistent Hypothesis Testing In General Hilbert Spaces. *Proceedings of the 4 th International Conference on Statistics: Theory and Applications (ICSTA '22) Prague, Czech Republic – July 28- 30, 2022 Paper No. 157.*

Published theses

- Gaigall, D. (2016). Vergleich von statistischen Tests im verbundenen und unabhängigen Stichprobenfall. *Dissertation. Gottfried Wilhelm Leibniz Universität Hannover.*

Further theses

- Gaigall, D. (2012). Bootstrap- und Monte-Carlo-Verfahren für nichtparametrische Anpassungstests. *Master thesis. Gottfried Wilhelm Leibniz Universität Hannover.*
- Gaigall, D. (2010). Poisson-Approximation für ein Besetzungsproblem mit Kollisionen. *Bachelor thesis. Gottfried Wilhelm Leibniz Universität Hannover.*

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Presentations as invited speaker

1. CMStatistics 2022, London, *Session: Model assessment*
2. CMStatistics 2021, London, *Session: Model assessment*
3. CMStatistics 2020, virtual, *Session: Model specification tests*
4. CMStatistics 2019, London, *Session: Model specification tests*
5. 4th conference of the International Society for Nonparametric Statistics 2018, Salerno, *Session: New developments in multivariate inference*
6. Seminar at the Otto-von-Guericke University Magdeburg in 2022, Magdeburg
7. Seminar at the Karlsruhe Institute of Technology in 2018, Karlsruhe

Further presentations

1. 4th International Conference on Statistics: Theory and Applications, Prague
2. CMStatistics 2018, Pisa
3. CMStatistics 2016, Sevilla.
4. 12th German Probability and Statistics Days, Bochum
5. CMStatistics 2015, London
6. Ph.D. student meeting of the German Mathematical Society, Berlin
7. Ph.D. student meeting of the German Mathematical Society, Halle
8. 11th German Probability and Statistics Days, Ulm
9. Ph.D. student meeting of the German Mathematical Society, Göttingen

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Activities as a reviewer for peer-reviewed journals

1. Journal of Statistical Planning and Inference, Elsevier
2. Journal of Multivariate Analysis, Elsevier
3. Journal of Statistical Computation and Simulation, Taylor & Francis
4. Metrika, Springer
5. TEST, Springer
6. Annals of Actuarial Science, Cambridge University Press
7. Statistics, Taylor & Francis
8. Communications in Statistics - Simulation and Computation, Taylor & Francis
9. Journal of Nonparametric Statistics, Taylor & Francis
10. Statistics and Probability Letters, Elsevier
11. Conference Proceedings of the International Society of Nonparametric Statistics
12. Hacettepe Journal of Mathematics and Statistics, Hacettepe University Faculty of Science

Further activities as a reviewer

1. Mathematical Reviews, American Mathematical Society
2. National Science Foundation, Economics Program, United States government
3. Czech Science Foundation, Czech Republic

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Read lectures and seminars

1. Lecture stochastics I. *FH Aachen.*
2. Lecture statistical computing. *FH Aachen.*
3. Lecture combinatorial procedures in stochastics. *Leibniz University Hannover.*
4. Lecture statistical modeling. *University Koblenz.*
5. Lecture stochastic simulation. *Leibniz University Hannover.*
6. Lecture linear models in statistics. *Leibniz University Hannover.*
7. Lecture nonparametric testing procedures. *Leibniz University Hannover.*
8. Lecture actuarial mathematics I. *Leibniz University Hannover.*
9. Lecture actuarial mathematics II. *Leibniz University Hannover.*
10. Lecture probability and statistics A. *Leibniz University Hannover.*
11. Lecture probability and statistics B. *Leibniz University Hannover.*
12. Lecture probability and statistics for student teachers. *Leibniz University Hannover.*
13. Seminar advanced probability and statistics. *Leibniz University Hannover.*
14. Seminar Markov chains. *Leibniz University Hannover.*
15. Lecture combinatorial procedures in statistics. *Leibniz University Hannover.*

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Supervised Ph.D, bachelor's and master's theses

1. Model specification on Hilbert spaces. *Ph.D. thesis, FH Aachen.*
2. A test for Gaussianity in Hilbert spaces. *Master's thesis, Leibniz University Hannover.*
3. Modellierung von Exzessen mithilfe der verallgemeinerten Pareto-Verteilung. *Master's thesis, Leibniz University Hannover.*
4. Asymptotische Normalität von Support Vector Machines. *Master's thesis, Leibniz University Hannover.*
5. Konsistenz von Random Forests. *Master's thesis, Leibniz University Hannover.*
6. Unabhängigkeitstests bei teils diskreter und stetiger Merkmalsausprägung. *Master's thesis, Leibniz University Hannover.*
7. Konfidenzbänder für Verteilungsfunktionen. *Bachelor's thesis, Leibniz University Hannover.*
8. Testing for two states in a hidden Markov model. *Bachelor's thesis, Leibniz University Hannover.*