

GITTE KREMLING

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EDUCATION

Ph.D. in Mathematics

Aug 2024

UNIVERSITY OF WISCONSIN-MILWAUKEE, USA

Thesis: Bootstrap-based goodness-of-fit test for parametric families of conditional distributions

Supervised by: Gerhard Dikta and Richard Stockbridge

M.Sc. in Applied Mathematics & Computer Science (formerly Technomathematics)

Aug 2019

FH AACHEN UNIVERSITY OF APPLIED SCIENCES, GERMANY

B.Sc. in Applied Mathematics & Computer Science (formerly Scientific Programming)

Aug 2017

FH AACHEN UNIVERSITY OF APPLIED SCIENCES, GERMANY

CURRENT POSITION

Research Associate

Sep 2022 – now

FH AACHEN UNIVERSITY OF APPLIED SCIENCES, GERMANY

Department of Medical Engineering and Technomathematics

- Establishing further theoretical results for the goodness-of-fit test considered in the dissertation such as a rigorous analysis of the variance of the involved process
- Enhancing the R-package *gofreg* (see “Published Software”) to streamline the application of various bootstrap-based goodness-of-fit tests for regression models
- Engaging with foundational literature in deep learning theory to broaden research expertise and identify potential areas for future collaboration and study
- Collaborating on interdisciplinary research with the Institute of Climate and Energy Systems at Forschungszentrum Jülich, applying stochastic optimal control theory to model optimal strategies for energy transition
- Instructing and mentoring by teaching classes, leading discussion sessions, and supervising graduate students in advanced topics

ACADEMIC EXPERIENCE

Teaching Assistant

Jan 2020 – Jul 2022

UNIVERSITY OF WISCONSIN-MILWAUKEE, USA

Department of Mathematical Sciences

Research Associate

Sep 2017 - Dec 2019

FORSCHUNGSZENTRUM JÜLICH GMBH, GERMANY

Jülich Supercomputing Center, Division Mathematics and Education

Professional Trainee (Mathematical-Technical Software Developer)

Sep 2014 - Aug 2017

FORSCHUNGSZENTRUM JÜLICH GMBH, GERMANY

Jülich Supercomputing Center, Division Communication Systems

HONORS AND AWARDS

- Badge of Honor (M.Sc.)** Aug 2019
FH AACHEN UNIVERSITY OF APPLIED SCIENCES, GERMANY
Awarded to the best 5% of graduates
- Deutschlandstipendium** Sep 2018 - Aug 2019
FH AACHEN UNIVERSITY OF APPLIED SCIENCES, GERMANY
Provides financial and non-material support to high-achieving and committed students
- Badge of Honor (B.Sc.)** Aug 2017
FH AACHEN UNIVERSITY OF APPLIED SCIENCES, GERMANY
Awarded to the best 5% of graduates

PUBLICATIONS AND PREPRINTS

- Kremling, G.** and Dikta, G. (2024, under review). Bootstrap-based goodness-of-fit test for parametric families of conditional distributions. Submitted to *Econometrica: Journal of the Econometric Society*. [arXiv:2409.20262](https://arxiv.org/abs/2409.20262)
- Kremling, G.** and Speck, R. (2021). Convergence of multilevel spectral deferred corrections. *Communications in Applied Mathematics and Computational Science*, 16(2), 227-265, [doi:10.2140/camcos.2021.16.227](https://doi.org/10.2140/camcos.2021.16.227)

PUBLISHED SOFTWARE

- Kremling, G.** (2024). *gofreg: Bootstrap-Based Goodness-of-Fit Tests for Parametric Regression*, R package version 1.0.0. <https://CRAN.R-project.org/package=gofreg>.

PRESENTATIONS

- Talk at Joint Statistical Meetings**, Portland, OR, USA Aug 2024
“Bootstrap-based goodness-of-fit test for parametric regression based on conditional distribution families”
- Talk at European Meeting of Statisticians**, Warsaw, Poland Jul 2023
“Bootstrap-based goodness-of-fit test for parametric generalized linear models under random censorship”
- Poster at German Probability and Statistics Days**, Essen, Germany Mar 2023
“Simulation study of a MLE and bootstrap-based goodness-of-fit test for parametric generalized linear models under random censorship”
- Talks at Graduate Student Colloquium**, Department of Mathematical Sciences, University of Wisconsin-Milwaukee, USA
“An Introduction to the Bootstrap Method” Apr 2022
“Deep neural networks as kernel machines: An approach to explain the mysteriously superb performance of ANNs” Dec 2021
- Talk at International Conference on Scientific Computing and Differential Equations**, Innsbruck, Austria Jul 2019
“Convergence of multilevel spectral deferred corrections”

TEACHING EXPERIENCE

As Instructor

Statistical Modeling (graduate course), FH Aachen	Fall 2024
Algebra (Upward Bound Math & Science program), UW-Milwaukee	Summer 2022
Precalculus (Upward Bound Math & Science program), UW-Milwaukee	Summer 2022
Calculus and Analytic Geometry I (undergraduate course), UW-Milwaukee	Spring 2022
Algebraic Literacy I and II (undergraduate course), UW-Milwaukee	Fall 2021
Precalculus (undergraduate course), UW-Milwaukee	Spring 2021
Introduction to College Algebra (undergraduate course), UW-Milwaukee	Fall 2020

As Teaching Assistant

Functional Analysis (graduate course), FH Aachen	Fall 2024
Numerical Methods in Machine Learning(graduate course), FH Aachen	Fall 2024
Bootstrap Methods in Statistics(graduate course), FH Aachen	Spring 2024
Statistical Modeling(graduate course), FH Aachen	Fall 2023
Time Series Analysis and Prognosis(graduate course), FH Aachen	Fall 2023
Numerical Analysis (undergraduate course), FH Aachen	Spring 2019, 2023
Probability Theory (undergraduate course), FH Aachen	Fall 2019

WORKSHOPS AND TRAINING

Mathematical Problems in Industry Workshop, Worcester, MA, USA Jun 2022

Collaborated with a team to develop innovative approaches for regression analysis of sparse and noisy data

Graduate Student Mathematical Modeling Camp, Newark, DE, USA Jun 2022

Contributed to the development of a model for the dynamics of a snowflake in a cloud microphysics framework

PROFESSIONAL MEMBERSHIPS

American Statistical Association

Caucus for Women in Statistics and Data Science

DMV Fachgruppe Stochastik

Econometric Society

Institute of Mathematical Statistics

REFERENCES

Gerhard Dikta, Professor

FH AACHEN UNIVERSITY OF APPLIED SCIENCES, GERMANY

PhD Co-Advisor

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Richard Stockbridge, Distinguished Professor

UNIVERSITY OF WISCONSIN-MILWAUKEE, USA

PhD Co-Advisor

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David Spade, Associate Professor
UNIVERSITY OF WISCONSIN-MILWAUKEE, USA
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spade@uwm.edu

Hayley Nathan, Course Coordinator
UNIVERSITY OF WISCONSIN-MILWAUKEE, USA
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Robert Speck, Deputy Director
FORSCHUNGSZENTRUM JÜLICH, GERMANY
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