DR. CORNELIUS FRITZ

Post Doc
corneliusfritz.com
Ludwigstraße. 33 ⋄ 80539 Munich, Germany

EDUCATION

LMU Munich 2019 - 2022
Ph.D. in Statistics

LMU Munich 2016 - 2018
M.Sc. in Statistics

Universidad Complutense de Madrid, Madrid 2018
M.Sc. in Statistics, Visiting Student

LMU Munich 2013 - 2016
B.S. in Statistics with a minor in Sociology

WORK EXPERIENCE

Department of Statistics, LMU Munich 2022 - today
Interim Professor for Data Science *Munich, Germany*

- The Elite Network of Bavaria funds the interim professorship for Data Science.
- I am teaching in the Data Science masters program, supervising Master theses as well as coordinating practical projects for Bachelor students of Statistics and Data Science.
- My research carried out in this context mainly revolves around the study of large networks.

Department of Statistics, LMU Munich 2019 - 2022
Research Assistant *Munich, Germany*

- My research mainly revolves around analyzing dynamic networks to answer questions posed within substantive sciences, such as Political Science and Sociology, through novel data analysis techniques that combine statistical and machine learning thinking.
- I am also an active member of the CODAG (COVID-19 Data Analysis Group), where I am researching the interplay of mobility patterns and COVID-19 infections as well as supporting other projects.
- As part of a larger group in the statistics department, I helped organize workshops and conferences such as the DAGSTAT 2019, COSTNET 2020, and COSTNET COVID-19 Conference.
- My position is partially funded by the DFG project DFG Project "International Arms Trade: A Network Approach" and the Munich Center for Machine Learning (MCML).

Department of Statistics, LMU Munich 2018 - 2019
Tutor *Munich, Germany*

- I worked as a tutor for the bachelor class on *"generalized regression models"* in the winter semesters in 2018 and 2019

Department of Statistics, LMU Munich 2016 - 2018
Graduate Assistant *Munich, Germany*

- I worked as a graduate assistant for Dr. Constanze H. Schmaling for the Data Science masters program supported by the Elite Network of Bavaria.
- In particular, I helped in planning and carrying out a scientific workshop in collaboration with the Center of Advanced Studies named *"What's New in Networks?"*
- I planned and programmed the website of the department of statistics in its current form (www.en.statistik.uni-muenchen.de) as well as most web-pages for the separate chairs and research groups.

Department of Statistics, LMU Munich 2015 - 2016
Undergraduate Assistant *Munich, Germany*

- My job was to program Shiny applications in R to provide interactive tools that should be used in different bachelor courses (such as descriptive statistics, linear models, and generalized regression models)

TEACHING EXPERIENCE

Courses

- *Sampling Theory* for bachelor students (2022, Lecturer)
- *Applied Statistical Projects* for bachelor students (2022, Lecturer and Supervisor)
- *Statistical Inference 2* for graduate students (2020 and 2021, Teaching Assistant)
- *Statistical Inference 1* for graduate students (2019 and 2020, Teaching Assistant)
- *Introduction to statistical software* for bachelor students (2019, Lecturer)
- *Generalized Regression Models* for bachelor students (2018 and 2019, Tutor)

Seminars

- Modeling under Dependence (2022, graduate level)
- Statistical Modeling of Political Networks (2022, graduate level)
- Statistical Analysis of Social Networks (2021, graduate level)
- Complex Networks (2020, graduate level)

HONORS AND AWARDS

Best Poster Award - DAGSTAT 2022
Awarded for the poster *"Modelling large and dynamically growing bipartite networks - A case study in patent data"* presented at the DAGSTAT conference, March 28-Apr 1, 2022, Hamburg, Germany

Core-member - CAS Focus Group on Policies for the Prevention of Conflict
Lead by Paul W. Thurner und Uwe Sunde, this focus group from the Center of Advanced Studies at the LMU organizes workshops and fosters interdisciplinary research to study conflict data.

Member - LMU Mentoring Program
The mentoring program supports young scientists (doctoral students and postdocs) on their way to an academic career. Funds acquired through this program allowed me to visit collaborators in the United States and visit international conferences.

Best Master Thesis Award - Department of Statistics, LMU 2022
Awarded for my master thesis *"Dynamic Social Network Models for Time-Stamped Data"* written under the supervision of Prof. Dr. Göran Kauermann.

LANGUAGE SKILS

German	Native
English	Fluent
Spanish	Intermediate

RESEARCH

General Research Interests

- Dynamic and Static Social Network Analysis
- Optimization and its statistical Properties
- General Statistical Modeling

Publications under Review

[13] Fritz, C., Mehrl, M., Thurner, P. W., & Kauermann, G. (2022a). Exponential random graph models for dynamic signed networks: An application to international relations. *arXiv*.

[12] Fritz, C., De Nicola, G., Kevorg, S., Harhoff, D., & Kauermann, G. (2022). Modelling the large and dynamically growing bipartite network of german patents and inventors. *arXiv*.

Peer-reviewed Publications

[11] Rügamer, D., Kolb, C., Fritz, C., Pfisterer, F., Bischl, B., Shen, R., Bukas, C., de Andrade e Sousa, L. B., Thalmeier, D., Baumann, P., Klein, N., & Müller, C. L. (2022+). Deepregression: A flexible neural network framework for semi-structured deep distributional regression. *Journal of Statistical Software*, *(to appear)*.

[10] Fritz, C., De Nicola, G., Rave, M., Weigert, M., Berger, U., Küchenhoff, H., & Kauermann, G. (2022). Statistical modelling of covid-19 data: Putting generalised additive models to work. *Statistical Modelling*, *(OnlineFirst)*. https://doi.org/10.1177/1471082X221124628

[9] Fritz, C., Mehrl, M., Thurner, P. W., & Kauermann, G. (2022b). All that glitters is not gold: Relational events models with spurious events. *Network Science*, *(OnlineFirst)*. https://doi.org/10.1017/nws.2022.22

[8] Fritz, C., De Nicola, G., Günther, F., Rügamer, D., Rave, M., Schneble, M., Bender, A., Weigert, M., Brinks, R., Hoyer, A., Berger, U., Küchenhoff, H., & Kauermann, G. (2022). Challenges in interpreting epidemiological surveillance data - experiences from germany. *Journal of Computational and Graphical Statistics*, *(OnlineFirst)*. https://doi.org/10.1080/10618600.2022.2126482

[7] Fritz, C., Dorigatti, E., & Rügamer, D. (2022). Combining graph neural networks and spatio-temporal disease models to predict covid-19 cases in germany. *Scientific Reports*, *3930*(12), 1–18. https://doi.org/10.1038/s41598-022-07757-5

[6] Berger, U., Fritz, C., & Kauermann, G. (2022). Reihentestungen an schulen können die dunkelziffer von covid-19 infektionen unter schülern signifikant senken. *Das Gesundheitswesen*, *84*(6), 495–502. https://doi.org/10.1055/a-1813-9778

[5] Fritz, C., & Kauermann, G. (2022). On the interplay of regional mobility, social connectedness, and the spread of covid-19 in germany. *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, *185*(1). https://doi.org/10.1111/rssa.12753

[4] Fritz, C., Mehrl, M., Thurner, P. W., & Kauermann, G. (2021). The role of governmental weapons procurements in forecasting monthly fatalities in intrastate conflicts: A semiparametric hierarchical hurdle model. *International Interactions*, ((Online First)). https://doi.org/10.1080/03050629.2022.1993210

[3] Fritz, C., Thurner, P. W., & Kauermann, G. (2021). Separable and Semiparametric Network-based Counting Processes applied to the International Combat Aircraft Trades. *Network Science*, *9*(3), 291–311. https://doi.org/10.1017/nws.2021.9

[2] Baumann, S. A., Fritz, C., & Mueller, R. S. (2020). Food antigen-specific IgE in dogs with suspected food hypersensitivity. *Tierarztliche Praxis. Ausgabe K, Kleintiere/Heimtiere*, *48*(6), 395–402. https://doi.org/10.1055/A-1274-9210/ID/R12749210-0044

[1] Fritz, C., Lebacher, M., & Kauermann, G. (2020). Tempus Volat, Hora Fugit: A survey of Tie-oriented Dynamic Network Models in Discrete and Continuous Time. *Statistica Neerlandica*, *74*(3), 275–299. https://doi.org/10.1111/stan.12198

Talks

- **27.09.2022 (Leipzig, DE)**: Statistical Approaches to Dynamic Networks: From Discrete to Continuous Observations **(Invited Talk)**. *Workshop Statistical Methods on Networks*
- **21.09.2022 (Münster, DE)**: Exponential Random Graph Models for Dynamic Signed Networks/ An Application to International Relations. *Statistische Woche*
- **19.09.2022 (Münster, DE)**: Statistical Approaches to Dynamic Networks: From Discrete to Continuous Observations. *DStatG Nachwuchsworkshop*
- **15.09.2022 (London, UK)**: Exponential Random Graph Models for Dynamic Signed Networks/ An Application to International Relations. *EUSN2022 - Europen Conference on Social Networks*
- **10.06.2022 (Zurich, CH)**: Statistical Approaches to Dynamic Networks: From Discrete to Continuous Observations. *Seminar at the Social Networks Lab at ETH Zurich*
- **06.06.2022 (Lugano, CH)**: Statistical Approaches to Dynamic Networks: From Discrete to Continuous Observations. *CI Seminar USI Lugano*
- **29.03.2022 (Hamburg, DE)**: All that Glitters is not Gold: Relational Events Models with Spurious Events. *DAGSTAT 2022*
- **26.11.2021 (Online)**: Networks $\neq$ Networks **(Invited Talk)**. *Center for Advanced Studies LMU: AI and Uncertainty*
- **8.10.2020 (Online)**: The Role of Governmental Weapons Procurements in Forecasting Monthly Fatalities in Intrastate Conflicts: A Semiparametric Hierarchical Hurdle Model. *ViEWS Workshop*
- **24.-25.9.2020 (Online)**: Tempus Volat, Hora Fugit - A Survey of Tie-Oriented Dynamic Network Models in Discrete and Continuous Time. *COSTNET 2020*

- **10.6.2020 (Online)**: Regional Mobility, Social Connectedness,and the Spread of COVID-19 in Germany. *COSTNET COVID-19 Conference*
- **13.-17.9.2020 (Online)**: A Counting Processes-based Model for the Analysis of the International Arms Trade Network from 1950 to 2017. *Sunbelt Virtual Conference*
- **9.-11.10.2019 (Bilbao, ES)**: A Counting Processes-based Model for the Analysis of the International Arms Trade Network from 1950 to 2017. *COSTNET19 Conference*
- **9.-11.9.2019 (Zurich, CH)**: A Counting Processes-based Model for the Analysis of the International Arms Trade Network from 1950 to 2017. *EUSN2019 - Europen Conference on Social Networks*
- **6.-7.9.2019 (Zurich, CH)**: Tempus Volat, Hora Fugit - A Survey of Tie-Oriented Dynamic Network Models in Discrete and Continuous Time. *Satellite meeting on Relational Event Model: EUSN2019 - Europen Conference on Social Networks*

Last updated: October 8, 2022