

Sandra Wankmüller

SOCIAL SCIENTIST · WITH A PASSION FOR STATISTICS, MACHINE LEARNING, AND NATURAL LANGUAGE PROCESSING

Ludwig-Maximilians-Universität München, Faculty of Social Sciences

✉ sandra.wankmueller@gsi.lmu.de

Experience

Doctorate

Munich

LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN (LMU), FACULTY OF SOCIAL SCIENCES, GRADE: SUMMA CUM LAUDE (0,5)

06/2017 - 12/2022

- Cumulative dissertation in the field of natural language processing
- Supervisors: Prof. Dr. Paul W. Thurner (Political Science) and Prof. Dr. Christian Heumann (Statistics)
- Scholarship from the German Academic Scholarship Foundation
- Main research contribution: Extending the range of methods that social scientists use for quantitative analyses of text data
- Project 1: Introduction to the foundations of modern natural language processing (deep learning, transfer learning, transformer architecture)
- Project 2: Empirical comparison of approaches for imbalanced text classification problems
- Project 3: Development of a method that generates continuous sentiment estimates from texts based on binary training data
- Project 4: Essay on making causal inferences about performance effects in the field of natural language processing
- Further Activities: Presentation at conferences; instructor and team captain at an election study project on the 2018 Bavarian State Election; attending the EITM Europe Summer Institute 2018 on "Text as Data" (Turin, Italy)

Research Associate

Munich

LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN (LMU), CHAIR OF EMPIRICAL POLITICAL RESEARCH AND POLICY ANALYSIS

10/2016 - 03/2018

- Teaching M.A.-level methods and statistics
- Teaching a B.A.-course on social science research practices

Education

M.A. in Political Science and Public Administration

Konstanz

UNIVERSITY OF KONSTANZ (GRADE: 1,0)

10/2014 - 10/2016

- Focus: Statistics, social psychology, network analysis, web scraping, natural language processing
- Master's thesis: *Consequences of Different Levels of Internal and External Political Efficacy in Individual Responses*.
- 04/2015 - 08/2016: Student Research Assistant at the Chair of Political Methodology, Prof. Dr. Susumu Shikano
- 02/2015 - 04/2015: Participation in a research project on network analysis

B.A. in Political Science and Public Administration

Konstanz

UNIVERSITY OF KONSTANZ (GRADE: 1,1)

10/2010 - 09/2014

- Focus: Social science research methods, statistics, survey design, programming in R
- Bachelor's thesis: *Persönlichkeit und Partizipation. Eine Untersuchung der Effekte von Persönlichkeitsfaktoren auf nichtelektorale politische Partizipation anhand eines Strukturgleichungsmodells*.
- 09/2012 - 01/2013: Semester abroad at the University of Bath (UK)
- 03/2012 - 08/2012: Internship at the *Vertretung des Landes Baden-Württemberg beim Bund in Berlin*

Publications and Preprints

Wankmüller, Sandra. 2022. "Advancing Natural Language Processing in Political Science." Dissertation. *Ludwig-Maximilians-Universität München*. <https://doi.org/10.5282/edoc.31109>

Wankmüller, Sandra. 2022. "Introduction to Neural Transfer Learning with Transformers for Social Science Text Analysis." *Sociological Methods & Research*. <https://doi.org/10.1177/00491241221134527> (Preprint: <https://arxiv.org/abs/2102.02111>)

Wankmüller, Sandra. 2022. "A Comparison of Approaches for Imbalanced Classification Problems in the Context of Retrieving Relevant Documents for an Analysis." *Journal of Computational Social Science*. <https://doi.org/10.1007/s42001-022-00191-7> (Preprint: <https://arxiv.org/abs/2205.01600>)

Wankmüller, Sandra. 2022. "Drawing Causal Inferences About Performance Effects in NLP." arXiv. <https://arxiv.org/abs/2209.06790>

Wankmüller, Sandra, & Christian Heumann. 2021. "How to Estimate Continuous Sentiments from Texts Using Binary Training Data." In *Proceedings of the 17th Conference on Natural Language Processing (KONVENS 2021)*, Düsseldorf (Online). <https://aclanthology.org/2021.konvens-1.16>

Leifeld, Philip, Sandra Wankmüller, Valentin T. Z. Berger, Karin Ingold, & Christiane Steiner. 2017. "Collaboration Patterns in the German Political Science Co-Authorship Network." *PLOS ONE* 12(4): e0174671. <https://doi.org/10.1371/journal.pone.0174671>

Munich, December 2022