

Dr. Kai-Robin Lange

NLP engineer, he/they

I am a statistician specializing in the development of novel NLP methods and models. Working collaboratively across interdisciplinary teams, I apply these methods to analyze contemporary societal issues at the intersection of journalism, economics and political science.



Work and research experience

03/2026-08/2026

EBS University of
Business and Law

External Lecturer

- Lecturer for two NLP courses for the Master in Business Analytics

10/2025 - present

TU Dortmund University

Postdoctoral Researcher (Research Associate)

- Organizing lectures, exercises, and seminars
- Supervising master- and bachelor theses
- Aiding doctoral researchers
- Acquiring third-party funds
- Conducting research on
 - detecting conspiracy theories in social media
 - spatio-temporal language modeling
 - the German energy transition discourse

03/2025-07/2025

EBS University of
Business and Law

External Lecturer

- Lecturer for two NLP courses for the Master in Business Analytics

11/2021 - 09/2025

TU Dortmund University

Doctoral Researcher (Research Associate)

- Organizing exercises, seminars, and parts of lectures
- Supporting the supervision of master- and bachelor theses
- Conducted research:
 - Extracting economic narratives from texts
 - NLP-based media analysis
 - Temporal language modeling

03/2020 - 11/2021

TU Dortmund University

Research Assistant

- Collecting and curating data
- Editing lecture scripts

Education

2021-2025

TU Dortmund University

Dr. rer. nat. (Statistics)

- Grade: magna cum laude (dissertation: magna cum laude, disputation: summa cum laude)
- Dissertation: "Extracting economic narratives using natural language processing: A temporal perspective"

2019-2021	Master Statistics
TU Dortmund University	• Grade: 1.5 • Minor in Computer Science • Master thesis: “Resampling strategies for unsupervised sentiment analysis using lexicon-based text embedding methods”
2016-2019	Bachelor Statistics
TU Dortmund University	• Grade: 1.8 • Minor in Computer Science

Skills

German	English	Linux	Windows
██████████	██████████	███████████	██████████
Python	R	Java	SQL
██████████	██████████	███████████	███████████
Git	Docker	Problem-Solving	Interdisciplinarity
███████████	███████████	██████████	██████████
Communication	Adaptability	Leadership	Teamwork
██████████	██████████	███████████	███████████

Project and research group affiliations

01/2026-present	Soziale (Un-)Gerechtigkeit in der Energiewende – Vom digitalen Diskurs zur Lebenswelt <i>Bundesministeriums für Wirtschaft und Klimaschutz (BMWK) fund</i>
08/2025-present	German-Austrian Digital Media Observatory (GADMO) <i>Digital Europe Programme from the European Union</i>
01/2025-present	Reality Check: An Interdisciplinary Approach to Combating LLM Hallucinations <i>Research Center Trustworthy Data Science and Security incubator fund</i>
03/2022-present	Narrative Economics Alliance Ruhr (NEAR) <i>Mercator Research Center Ruhr (Mercur) fund</i>
11/2021-present	Dortmund Center for Data-based Media Analysis (DoCMA)
06/2024-07/2026	Digital Humanities Ruhr – Algorithmic Accountability at TU Dortmund University <i>Freiraum fund from Stiftung Innovationen in der Hochschullehre</i>
11/2021-11/2024	Digitale Daten der sozial- und wirtschaftswissenschaftlichen Forschung <i>Mercator Research Center Ruhr (Mercur) fund</i>

Publications

- Rieger, J., Muñoz, F., Grönberg, L., **Lange, K.-R.**, Ojeda-Pereira, I., Briceño, D., Nass, C., Stahl, C., Cassola, J., Rojas-Córdova, C., Keith-Norambuena, B., Lufin, M., Campos-Medina, F. and Herrera-León, S. (04/2026). **Following Socio-Environmental Conflict Narratives**

About Energy Transition in Chile: A Spatio-Temporal Analysis Using Dynamic Topic Modeling. *Proceedings of the Text2Story'26 Workshop @ ECIR 2026.* [Link](#). [Dashboard](#).

- Weinert, H., Eckardt, L.-M., Elmer, C., Goldschmidtboeing, L., Ickstadt, K. and Lange, K.-R. (03/2026). **Can code be responsible? - How to study and communicate algorithmic accountability.** *Proceedings of the IASE 2025 Satellite Conference.* [DOI](#).
- Kolli, I., Lange, K.-R., Rieger, J. & Jentsch, C. (01/2026). **Word-Centered Semantic Graphs for Interpretable Diachronic Sense Tracking.** *arXiv.* [Link](#).
- Lange, K.-R. (09/2025). **Extracting Economic Narratives using Natural Language Processing: A temporal perspective.** *Dissertation.* [Link](#).
- Schmidt, T., Lange, K.-R., Reccius, M., Müller, H., Roos, M., & Jentsch, C. (06/2025). **Identifying economic narratives in large text corpora - An integrated approach using Large Language Models.** *Ruhr Economic Papers #1163.* [Link](#).
- Lange, K.-R., Reccius, M., Schmidt, T., Müller, H., Roos, M., & Jentsch, C. (04/2025). **Narrative Shift detection: A hybrid approach of Dynamic Topic Models and Large Language Models.** *Proceedings of the Text2Story'25 Workshop @ ECIR 2025.* Best Paper Award (Runner Up). [Link](#).
- Lange, K.-R., Benner, N., Grönberg, L., Hachcham, A., Kolli, I., Rieger, J. & Jentsch, C. (02/2025). **ttta: Tools for Temporal Text Analysis.** *arXiv.* [Link](#).
- Lange, K.-R., Rieger, J. & Jentsch, C. (09/2024). **Lex2Sent: A bagging approach to unsupervised sentiment analysis.** *Proceedings of the 20th Conference on Natural Language Processing.* [Link](#).
- Lange, K.-R. & Jentsch, C. (09/2023). **SpeakGer: A meta-data enriched speech corpus of German state and federal parliaments.** *Proceedings of the 3rd Workshop on Computational Linguistics for Political Text Analysis.* [Link](#).
- Lange, K.-R., Rieger, J., Benner, N. & Jentsch, C. (09/2022). **Zeitenwenden: Detecting changes in the German political discourse.** *Proceedings of the 2nd Workshop on Computational Linguistics for Political Text Analysis.* [Link](#).
- Lange, K.-R., Reccius, M., Schmidt, T., Müller, H., Roos, M., & Jentsch, C. (08/2022), **Towards extracting collective economic narratives from texts.** *Ruhr Economic Papers #963.* [Link](#).
- Benner, N., Lange, K.-R., & Jentsch, C. (08/2022). **Named Entity Narratives.** *Ruhr Economic Papers #962.* [Link](#).
- Rieger, J., Lange, K.-R., Flossdorf, J. & Jentsch, C. (04/2022). **Dynamic change detection in topics based on rolling LDAs.** *Proceedings of the Text2Story'22 Workshop @ ECIR 2022.* [Link](#).

Talks

- “Identifying economic narratives in large text corpora”, *Strathclyde Text Analytics Group* . Invited Talk. Glasgow, Scotland (01/27, upcoming).
- “Mining a rabbit hole: leveraging language models to traverse conspiracy theory narratives in telegram channels”, *CMStatistics 2026*. Invited Talk. Berlin, Germany (12/26, upcoming).
- “Identifying economic narratives in large text corpora”, *Statistische Woche 2026*. Essen, Germany (09/26, upcoming).
- “Narrative Shift Detection: A Hybrid Approach of Dynamic Topic Models and Large Language Models”, *CMStatistics 2025*. Invited Talk. London, United Kingdom (12/25).
- “Webscraping für Datenjournalist:innen: Hands-on workshop zum Extrahieren von

Daten aus dem Internet”, *SciCAR 2025*. Dortmund, Germany (09/25).

- “MATILDA: A Meta-data Aware and Temporally Induced Latent Dirichlet Allocation”, *DAGStat 2025*. Berlin, Germany (03/25).
- “Algorithmic Accountability: Wie messen und vermitteln wir, ob Algorithmen zuverlässig und fair arbeiten?”, *SciCAR 2024*. Dortmund, Germany (09/24).
- “Tools for Temporal Text Analysis: A Python code collection for diachronic NLP tasks“, *CPSS Workshop*. Vienna, Austria (09/24).
- “Lex2Sent: A bagging approach to unsupervised sentiment analysis”, *KONVENS 2024*. Vienna, Austria (09/24).
- “Identifying economic narratives in large text corpora”, *COMPTExT 2024*. Amsterdam, Netherlands (05/24).
- “SpeakGer: A meta-data enriched speech corpus of German state and federal parliaments”, *CPSS Workshop*. Potsdam, Germany (09/23).
- “Roll2Vec: updating diachronic embeddings with a rolling window”, *Statistische Woche 2023*. Dortmund, Germany (09/23).
- “Zeitenwenden: Detecting changes in the German political discourse”, *CPSS Workshop*. Potsdam, Germany (09/22).

Teaching

Winter 26/27	Fallstudien I. <i>TU Dortmund University</i> . Project management.
Spring 25, 26	Natural Language Processing. <i>EBS University of Business and Law</i> . Lecture & tutorial.
Winter 23/24, 24/25, 25/26	Natural Language Processing. <i>TU Dortmund University</i> . Tutorial & parts of lecture.
Spring 25, 26	Text Mining. <i>EBS University of Business and Law</i> . Lecture & tutorial.
Winter 24/25, 25/26	Kann Code Verantwortung? Wie man Algorithmic Accountability untersucht und vermittelt. <i>TU Dortmund University</i> . Seminar.
Summer 25	Introduction to Python. <i>University Alliance Ruhr</i> . Open educational resource.
Winter 22/23, Summer 24	Advanced Text Mining Methods. <i>TU Dortmund University</i> . Seminar.
Winter 22/23	Text as Data. <i>TU Dortmund University</i> . Tutorial & parts of lecture.
Winter 21/22, 22/23	Asymptotic Theory. <i>TU Dortmund University</i> . Tutorial.
Summer 23	Entscheidungstheorie. <i>TU Dortmund University</i> . Tutorial.

Thesis supervision

- “Unsupervised text style transfer for political and news documents”, Sahel Keyvan, 2026 (ongoing), Master, Official Supervisor.
- “Lexicon-based text clustering using document embeddings”, Jan Plotzki, 2026, Bachelor, Official Supervisor.
- “Multimodal Time-LLM: Integrating visual and temporal data for time series forecasting using large language models”. Yat Chun Fung, 2026, Master, Supported the supervision.
- “Parameter optimization for RollingLDA”. Nishat Tasnim Ahmed Meem, 2026, Master, Supported the supervision.
- “Diachronic Sense Modelling with Hierarchical Word Embeddings”. Aymane Hachcham, 2024, Master, Supported the supervision.
- “Semantic shift modelling using graph neural networks”. Imene Kolli, 2024, Master,

Supported the supervision.

- **“Comparison of Active Learning techniques for the benefit of data set generation in the field of text mining ”.** Jannik Bloß, 2023, Bachelor, Supported the supervision.

Published Software

- **ttta: Tools for Temporal Text Analysis.** 09/2024. Python Library. [GitHub](#). [PyPi](#).
- **SpeakGer Corpus.** 09/2023. Text data corpus. [GitHub](#). [Download](#).
- **Lex2Sent.** 03/2023. Python Library. [GitHub](#). [PyPi](#).

Further contributions to the research community

- **Program Committee member and reviewer for the “Climate NLP Workshop” at EMNLP.** Since 2026.
- **Reviewing for the “Policy Studies” journal.** Since 2026.
- **Reviewing for the “Thinking Skills and Creativity” journal.** Since 2025.
- **Participated in organizing the NEAR Conference 2024 and Statistische Woche 2023.**
- **Deputy for the representative of the research associates in the department board of the Department of Statistics.** TU Dortmund University, since 2024.
- **Member of the examination board for bachelor and master statistics.** TU Dortmund University, since 2022.
- **Co-Organizer of the “Natural Language in Economics” online seminar series.** 2023-2025.

Awards and Grants

- **2026: Grant awarded for the research project “Do Investors' Mental Models Transfer Across Markets?”**, joint with Paul Grass. Connex Fund, Hans-Riegel Stiftung. Total Sum: 6500€.
- **Best paper award (runner up) at the 11th Text2Story Workshop for the paper “Narrative Shift detection: A hybrid approach of Dynamic Topic Models and Large Language Models”.**