

Jan-Christoph Kalo

Profile

Name Jan-Christoph Kalo
Birthday 12/05/1989
Citizenship Germany
Languages German (native), English (fluent), Dutch (fluent)

Personal Details

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Universiteit van Amsterdam
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GitHub <https://github.com/JanKalo>
Twitter <https://twitter.com/JanCKalo>
Google Scholar <https://scholar.google.de/citations?user=2EE-YUsAAAAJ>

Positions

09/2023–ongoing **Assistant Professor**, *Intelligent Data Engineering Lab, University of Amsterdam*, Research, Teaching, Supervising Students.
04/2021–08/2023 **PostDoc**, *Knowledge Representation and Reasoning Group, Vrije Universiteit Amsterdam*, Research, Teaching, Supervising Students.
10/2014–03/2021 **PhD Student**, *Institut für Informationssysteme, TU Braunschweig*, Research, Teaching, Supervising Students.
10/2013–02/2014 **Teaching Assistant**, *Institut für Informationssysteme, TU Braunschweig*, Teaching Assistant for Relational Database Lectures.

Education

Academic Education

10/2014–06/2021 **PhD Studies in Computer Science**, *TU Braunschweig*, Topic: Resolving Representation Heterogeneity in Real-World Knowledge Graphs, Prof. Dr. Wolf-Tilo Balke and Prof. Dr. Felix Naumann.
Final Grade: magna cum laude
10/2012–09/2014 **Master Studies in Computer Science**, *TU Braunschweig*, Thesis: Analyzing the Transitivity Problem in Instance Matching Tasks on Linked Data, Supervisor: Prof. Dr. Wolf-Tilo Balke.
Final Grade: 1.2
10/2008–06/2012 **Bachelor Studies in Computer Science**, *TU Braunschweig*, Thesis: Variants of the Fixed-Throw Snowblower Problem, Supervisor: Prof. Dr. Sándor Fekete.
Final Grade: 2.0

School Education

- 08/2001 – **Highschool**, *Kaiserin-Auguste Viktoria Gymnasium*, Celle, Germany.
06/2008
- 08/1995 – **Other Schools**, *Grundschule Lachendorf, Orientierungsstufe Lachendorf*.
07/2001

Other Educational Activities

- 2024 **Started BKO Teaching Certificate**.
- 2018 **Reasoning Web Summer School**, *Participation at Reasoning Web Summer School*, Esch-sur-Alzette, Luxembourg.
- 2018 **Course on Communication**, *GradTUBS program, TU Braunschweig*, 2 workshop days.
- 2017 **Course on Rhetorics**, *GradTUBS program, TU Braunschweig*, 2 workshop days.

Project Acquisition

Own Proposals

- 05/2023 **The Importance of Explicit Representations in Dialogue Systems: A Proposal for a Fully Aligned Dataset**, 1500 EUR.

Co-Writing

- 01/2023 **ZORRO: Engineering for Zero Downtime in Cyber-Physical Systems via Intelligent Diagnostics**, *Total budget: 3.6 million EUR, Our budget: 500k EUR*, (Design of the project plan and participating in writing).

Academic Activities

PhD Supervision

- 2023–now **Large Language Models and Reasoning**, *Daily Supervision*, Collaboration with VU Amsterdam.
- 2023–now **Knowledge Graph Construction from Conversational Data**, *Co-Supervision*, at University of Amsterdam.
- 2024–now **Question Answering on Statistical Knowledge Graphs**, *Daily Supervision*, Collaboration with Centraal Bureau voor de Statistiek.

Reviewing

- Conferences LWDA 2020, TheWebConf 2022, CIKM 2022, ISWC 2022, EKAU 2022, CIKM 2023, ESWC 2023, ISWC 2023, TheWebConf 2023, ACL ARR 2024, CIKM 2024, ECAI 2024, ESWC 2024, ISWC 2024, TheWebConf 2024, ESWC 2025
- Journals The Semantic Web Journal, Journal of Web Semantics (Area Editor)
- Workshops PPI 2017, NeSy-GeMs 2023, LM-KBC 2023, KALLM 2024, GenNeSy 2024, KG-NeSy 2024, LM-KBC 2024

Internal University Activities

- 04/2024–now **Study Council**, *Member*.

04/2019– **Study Council**, *Member*.

03/2021

04/2019– **Examination Council**, *Alternate Member*.

03/2021

04/2019– **Faculty Council**, *Alternate Member*.

03/2021

2019 **Hiring Committee for a Professorship in Computer Vision**, *Member*.

2018 **Hiring Committee for a Professorship in Computer Vision**, *Member*.

Organization

Co-Organizer **Knowledge Base Construction from Pre-trained Language Models**, *LM-KBC 2024*, ISWC Challenge and Workshop.

Co-Organizer **Knowledge Base Construction from Pre-trained Language Models**, *LM-KBC 2023*, ISWC Challenge and Workshop.

Co-Organizer **WeMeet - Inaugural Meeting**, *28.05.2015*, Braunschweig, Germany.

Awards

2024 **Outstanding Reviewer Award**, *TheWebConf 2024*.

Teaching

Lectures, Labs and Seminars

- 2024/2025 **Modern Databases**, *Course Coordinator and Lecturer.*
- 2023/2024 **Modern Databases**, *Course Coordinator and Lecturer.*
- Winter 2022 **Intelligent Systems**, *Assistant*, Practical Assignments and creating/holding 3 lectures.
- Winter 2021 **Intelligent Systems**, *Assistant*, Practical Assignments and holding a lecture.
- Winter 2020 **Relational Databases 1**, *Assistant*, Planning and holding lectures.
- Summer 2020 **Relational Databases 2**, *Assistant*, Planning and holding lectures.
- Winter 2019 **Seminar: Building and Managing Knowledge Graphs**, *Assistant.*
- Summer 2019 **Relational Databases 1**, *Assistant*, Planning and holding lectures.
- Winter 2018 **Software Lab**, *Supervisor*, Project Planning and Management, Trumps Up: Fake News Detection.
- Summer 2018 **Knowledge-based Systems and Deductive Systems**, *Assistant*, Planning and holding lectures.
- Winter 2017 **Relational Databases 1**, *Assistant*, Planning and holding lectures.
- Summer 2017 **Software Lab**, *Supervisor*, Project Planning and Management, SQL-Alchemist.
- Winter 2016 **Relational Databases 1**, *Assistant*, Planning and holding lectures.
- Summer 2016 **Relational Databases 2**, *Assistant*, Planning and holding lectures.
- Winter 2015 **Relational Databases 1**, *Assistant*, Planning and holding lectures.
- Winter 2015 **Seminar: Linked Open Data**, *Assistant.*
- Summer 2015 **Relational Databases 2**, *Assistant*, Planning and holding lectures.
- Winter 2014 **SQL Lab**, *Supervisor*, Designing Lab Exercises.

Supervision of Master's and Bachelor's Students

- 2024 **Master Thesis**, *Cross-Lingual Bias and Multilingual Fidelity in Large Language Models: A Comparative Analysis.*
- 2024 **Master Thesis**, *Knowledge Distillation for Knowledge Base Construction from Language Models.*
- 2024 **Master Thesis**, *Information Extraction From Visually Rich Documents With Limited Training Samples.*
- 2024 **Master Thesis**, *Knowledge base construction using Large Language Models - Distilling Knowledge Using Synthetic Data for Closed Book Question Answering.*
- 2024 **Master Thesis**, *Detecting and Quantifying Social Bias in Open-Source Large Language Models for Question Answering.*
- 2024 **Master Thesis**, *Optimizing Complex Thinking in Small Language Models.*
- 2023 **Master Thesis**, *Retrieval-Augmented Language Models for Knowledge Graph Completion.*
- 2023 **Bachelor Thesis**, *Improving probing of conceptual knowledge in pre-trained language models through embeddings.*
- 2022 **Master Thesis**, *Multimodal Multilingual Entity Matching for Real-World E-commerce Product Data.*
- 2022 **Bachelor Thesis**, *Investigating Learned Stereotyping Biases Within Multilingual BERT*, (ADS Thesis Award 2022).

- 2022 **Bachelor Thesis**, *Using Active Learning for Relation Extraction*.
 2022 **Bachelor Thesis**, *Language models for identification of errors in knowledge graphs*.
 2021 **Project Thesis**, *Analyzing Knowledge in Language Models*.
 2021 **Project Thesis**, *Open Knowledge Graph Embeddings for Relation Classification*.
 2020 **Bachelor Thesis**, *Exploring Ontological Knowledge in Language Models*.
 2020 **Master Thesis**, *Association Rule Mining on Knowledge Graphs with Literals*.
 2020 **Master Thesis**, *Detection of Hypernym Relations in Knowledge Graphs*.
 2020 **Master Thesis**, *Extracting Schemas from Knowledge Graphs*, .
 2019 **Bachelor Thesis**, *Developing a Hybrid Systems of a Knowledge Base and Language Model*, Best bachelor thesis in AI award in Lower Saxony, Germany (KI Talent Niedersachsen).
 2019 **Project Thesis**, *Synonym Detection with Graph-based Methods*.
 2019 **Bachelor Thesis**, *Identification of Obligatory Attributes Using the Wikidata Version History*.
 2019 **Master Thesis**, *Query expansion of SPARQL Queries using Association Rule Mining*, .
 2019 **Bachelor Thesis**, *Detection of Vandalism on Open Knowledge Bases through Relational Learning*, .
 2018 **Bachelor Thesis**, *Analysis of Wikidata Property Constraints*, .
 2018 **Bachelor Thesis**, *Determining Obligatory Attributes with Knowledge Embeddings*, .
 2018 **Bachelor Thesis**, *Answering SPARQL Queries on Knowledge Embeddings*, .
 2018 **Bachelor Thesis**, *Comparing Knowledge Embeddings and Association Rule Mining for Knowledge Base Completion*, .
 2018 **Bachelor Thesis**, *Synonym Detection with Knowledge Embeddings*, .
 2017 **Bachelor Thesis**, *Integrating a Causal Knowledge Base into Linked Open Data*, .
 2017 **Bachelor Thesis**, *Analyzing Medical Citations in Wikipedia*, .
 2017 **Bachelor Thesis**, *Word Embeddings for Triple Classification*, .
 2017 **Bachelor Thesis**, *An SPARQL Approach for Exemplar Queries*, .
 2016 **Master Thesis**, *Similarity of Types and Attributes in the Semantic Web*, .
 2016 **Project Thesis**, *Causality Extraction from Natural Language Texts with Artificial Neural Networks*, .
 2015 **Master Thesis**, *Analyzing Latent Anxiety in Texts*, .
 2015 **Bachelor Thesis**, *Generalizing Causal Relations Extracted from News Articles*, .

Publications

Google Scholar Profile: <https://scholar.google.de/citations?user=2EE-YUsAAAAJ>

Papers in Conference Proceedings

- [1] Silviu Homoceanu, **Jan-Christoph Kalo**, and Wolf-Tilo Balke. Putting instance matching to the test. Is instance matching ready for reliable data linking? In *21st International Symposium on Methodologies for Intelligent Systems (ISMIS)*, Roskilde, Denmark, 2014.
- [2] **Jan-Christoph Kalo**, Silviu Homoceanu, Jewgeni Rose, and Wolf-Tilo Balke. Avoiding chinese whispers: Controlling end-to-end join quality in linked open data stores. In *ACM Web Science 2015 (WebScience)*, Oxford, United Kingdom, 2015.
- [3] Stephan Mennicke, **Jan-Christoph Kalo**, and Wolf-Tilo Balke. Querying graph databases: What do graph patterns mean? In *The 36th International Conference on Conceptual Modeling (ER)*, Valencia, Spain, 2017.
- [4] Stephan Mennicke, **Jan-Christoph Kalo**, Denis Nagel, Hermann Kroll, and Wolf-Tilo Balke. Fast dual simulation processing of graph database queries. In *IEEE 35th International Conference on Data Engineering (ICDE)*, Macau, China, 04/2019 2019.
- [5] **Jan-Christoph Kalo**, Philipp Ehler, and Wolf-Tilo Balke. Knowledge graph consolidation by unifying synonymous relationships. In *International Semantic Web Conference (ISWC)*, pages 276–292, 2019.
- [6] Hermann Kroll, **Jan-Christoph Kalo**, Denis Nagel, Stephan Mennicke, and Wolf-Tilo Balke. Context-compatible information fusion for scientific knowledge graphs. In *International Conference on Theory and Practice of Digital Libraries (TPDL)*, pages 33–47, 2020.
- [7] **Jan-Christoph Kalo**, Leandra Fichtel, Philipp Ehler, and Wolf-Tilo Balke. Knowlybert - hybrid query answering over language models and knowledge graphs. In *International Semantic Web Conference (ISWC)*, pages 294–310, 2020.
- [8] **Jan-Christoph Kalo**, Stephan Mennicke, Philipp Ehler, and Wolf-Tilo Balke. Detecting synonymous properties by shared data-driven definitions. In *Extended Semantic Web Conference (ESWC)*, pages 360–375, 2020.
- [9] Leandra Fichtel, **Jan-Christoph Kalo**, and Wolf-Tilo Balke. Prompt tuning or fine-tuning-investigating relational knowledge in pre-trained language models. In *3rd Conference on Automated Knowledge Base Construction*, 2021.
- [10] Nitisha Jain, **Jan-Christoph Kalo**, Wolf-Tilo Balke, and Ralf Krestel. Do embeddings actually capture knowledge graph semantics? In *European Semantic Web Conference (ESWC)*, pages 143–159, 2021.
- [11] Hermann Kroll, Jan Pirklbauer, **Jan-Christoph Kalo**, Morris Kunz, Johannes Ruthmann, and Wolf-Tilo Balke. Narrative query graphs for entity-interaction-aware document retrieval. In *International Conference on Asian Digital Libraries*, pages 80–95. Springer, Cham, 2021.

- [12] **Jan-Christoph Kalo** and Leandra Fichtel. Kamel: Knowledge analysis with multitoken entities in language models. In *4th Conference on Automated Knowledge Base Construction*, 2022.
- [13] **Jan-Christoph Kalo***, Benno Kruit*, and Stefan (*equal contribution) Schlobach. Understanding distantly supervised relation extraction through semantic error analysis. In *4th Conference on Automated Knowledge Base Construction*, 2022.
- [14] Blerta Veseli, Simon Razniewski, **Jan-Christoph Kalo**, and Gerhard Weikum. Evaluating the knowledge base completion potential of GPT. In Houda Bouamor, Juan Pino, and Kalika Bali, editors, *Findings of the Association for Computational Linguistics: EMNLP 2023*, 2023.
- [15] Valentin Buchner, Lele Cao, **Jan-Christoph Kalo**, and Vilhelm Von Ehrenheim. Prompt tuned embedding classification for industry sector allocation. In *Proceedings of the 2024 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (Volume 6: Industry Track)*, 2024.
- [16] Lea Krause, Selene Baez Santamaria, and **Jan-Christoph Kalo**. Graph representations for machine translation in dialogue settings. In *Proceedings of the Ninth Conference on Machine Translation*, pages 1038–1046, Miami, Florida, USA, November 2024. Association for Computational Linguistics.
- [17] Benno Kruit, Yiming Xu, and **Jan-Christoph Kalo**. Retrieval-based question answering with passage expansion using a knowledge graph. In *Proceedings of the 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING 2024)*, 2024.
- [18] Fabian Hoppe, Filip Ilievski, and Jan-Christoph Kalo. Investigating the robustness of deductive reasoning with large language models. *arXiv preprint arXiv:2502.04352*, 2025.
- [19] Duygu Sezen Islakoglu and Jan-Christoph Kalo. Chronosense: Exploring temporal understanding in large language models with time intervals of events. In *Proceedings of the 63rd Annual Meeting of the Association for Computational Linguistics*, 2025.

Papers in Workshop Proceedings

- [20] Christiane Schmidt, **Jan-Christoph Kalo***, and Sandor Fekete. Variants of the snowblower problem. In *Young Researchers Forum (CG:YRF)*, CG-Week, 2012.
- [21] Stephan Mennicke, Denis Nagel, **Jan-Christoph Kalo**, Niklas Aumann, and Wolf-Tilo Balke. Reconstructing graph pattern matches using sparql. In *15th Lernen Wissen Daten Analysen (LWDA), DB Workshop*, Rostock, Germany, 09 2017.
- [22] **Jan-Christoph Kalo**, Christoph Lofi, René Pascal Maseli, and Wolf-Tilo Balke. Semantic query processing: Estimating relational purity. In *15th Lernen Wissen Daten Analysen (LWDA), DB Workshop*, 09 2017.
- [23] Dimitrios Alivanistos, Selene Báez Santamaría, Michael Cochez, **Jan-Christoph Kalo***, Emile van Krieken, and Thiviyan Thanapalasingam. Prompting as

probing: Using language models for knowledge base construction. In *Knowledge Base Construction from Pre-trained Language Models Challenge (LM-KBC) at 21st International Semantic Web Conference (ISWC)*, 2022.

Journal Articles

- [24] Stephan Mennicke, **Jan-Christoph Kalo**, and Wolf-Tilo Balke. Using queries as schema-templates for graph databases. In *Datenbank-Spektrum*, 2018.
- [25] Jeff Pan Z., Simon Razniewski, **Jan-Christoph Kalo**, Sneha Singhania, Jiaoyan Chen, Stefan Dietze, Hajira Jabeen, Janna Omeljanenko, Wen Zhang, Matteo Lissandrini, Russa Biswas, de Gerard Melo, Angela Bonifati, Edlira Vakaj, Mauro Dragoni, and Damien Graux. Large Language Models and Knowledge Graphs: Opportunities and Challenges. *Transactions on Graph Data and Knowledge*, 1(1):2:1–2:38, 2023.
- [26] Hermann Kroll, Jan Pirklbauer, Jan-Christoph Kalo, Morris Kunz, Johannes Ruthmann, and Wolf-Tilo Balke. A discovery system for narrative query graphs: entity-interaction-aware document retrieval. *International Journal on Digital Libraries*, 25(1):3–24, 2024.

Preprints

- [27] BigScience Workshop, Teven Le Scao, Angela Fan, Christopher Akiki, Ellie Pavlick, Suzana Ilić, Daniel Hesslow, Roman Castagné, Alexandra Sasha Lucioni, François Yvon, and et al. Matthias Gallé. Bloom: A 176b-parameter open-access multilingual language model, 2023.

Theses

- [28] **Jan-Christoph Kalo**. Variants of the fixed-throw snowblower problem. In *Bachelor Thesis*, 2012.
- [29] **Jan-Christoph Kalo**. Analyzing the transitivity problem in instance matching tasks on linked data. In *Master Thesis*, 2014.
- [30] **Jan-Christoph Kalo**. Resolving representation heterogeneity in real-world knowledge graphs. In *PhD Thesis*, 2021.

Talks and Presentations

- 06/2025 **Knowledge Graphs & Large Language Models - A promising symbiosis**, *International Semantic Web Summerschool*, Bertinoro, Italy.
- 02/2025 **Knowledge Graphs & Large Language Models - A promising symbiosis**, *GOBLIN Cost Action*, Prague, Czech Republic.
- 11/2024 **What do Language Models Know About the World?**, *Keynote Talk*, X-TAIL 2024 Workshop at EKAW 2024, Amsterdam, The Netherlands.
- 06/2024 **Knowledge Graphs & Large Language Models - A promising symbiosis**, *International Semantic Web Summerschool*, Bertinoro, Italy.
- 06/2023 **Knowledge Graph Construction with Large Language Models**, *FoMo Lectures*, University of Amsterdam, Amsterdam, The Netherlands.
- 10/2022 **Prompting as probing: Using language models for knowledge base construction**, *LM-KBC@ISWC 2022*, Challenge Presentation, online.
- 11/2020 **KnowlyBert - Hybrid Query Answering over Language Models and Knowledge Graphs**, *ISWC 2020*, Conference Presentation, online.

- 06/2020 **Detecting Synonymous Properties by Shared Data-driven Definitions**, *ESWC 2020*, Conference Presentation, online.
- 10/2019 **Knowledge Graph Consolidation by Unifying Synonymous relationships**, *ISWC 2019*, Conference Presentation, Auckland, New Zealand.
- 07/2019 **Identifying Synonyms in Knowledge Graphs**, *Research Visit at National Institute for Informatics*, Tokyo, Japan.
- 09/2017 **Semantic Query Processing: Estimating Relational Purity**, *LWDA 2017*, Conference Presentation, Rostock, Germany.
- 06/2015 **Avoiding Chinese Whispers: Controlling end-to-end Join Quality in Linked Open Data Stores**, *WebSci 2015*, Conference Presentation, Oxford, UK.
- 06/2014 **Putting Instance Matching to the Test. Is Instance Matching Ready for Reliable Data Linking?**, *ISMIS 2014*, Conference Presentation, Roskilde, Denmark.

Other

- 01/2021 **Teaching Support Grant**, *AI Camp*, 8000 EUR to support founding an AI student lab at TU Braunschweig.
- 07/2020 **Research Stay at NII, Tokyo**, 2 week research visit at the Aizawa Lab (Prof. Dr. Akiko Aizawa).
- 06/2018 **Teaching Support Grant**, *Deep Learning Student Server*, 6000 to buy hardware for students.