

Knowledge Graphs



A collection of knowledge graph papers, codes, and reading notes.

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Survey

A Survey on Knowledge Graphs: Representation, Acquisition and Applications. IEEE TNNLS 2021. Shaoxiong Ji, Shirui Pan, Erik Cambria, Pekka Marttinen, Philip S. Yu. [[Paper](#)]

Knowledge Graphs. Preprint 2020. Aidan Hogan, Eva Blomqvist, Michael Cochez, Claudia d'Amato, Gerard de Melo, Claudio Gutierrez, José Emilio Labra Gayo, Sabrina Kirrane, Sebastian Neumaier, Axel Polleres, Roberto Navigli, Axel-Cyrille Ngonga Ngomo, Sabbir M. Rashid, Anisa Rula, Lukas Schmelzeisen, Juan Sequeda, Steffen Staab, Antoine Zimmermann. [[Paper](#)]

Knowledge Representation Learning: A Quantitative Review. Preprint 2018. Lin, Yankai and Han, Xu and Xie, Ruobing and Liu, Zhiyuan and Sun, Maosong. [[Paper](#)]

Knowledge graph embedding: A survey of approaches and applications. TKDE 2017. Wang, Quan and Mao, Zhendong and Wang, Bin and Guo, Li. [[Paper](#)]

Knowledge graph refinement: A survey of approaches and evaluation methods. Semantic Web 2017. Paulheim, Heiko. [[Paper](#)]

A review of relational machine learning for knowledge graphs. Proceedings of the IEEE 2015. Nickel, Maximilian and Murphy, Kevin and Tresp, Volker and Gabrilovich, Evgeniy. [[Paper](#)]

Papers by venues

Year	WWW	AAAI	ACL
2020	20	28	53

Papers by categories

- [Knowledge Graph Embedding](#)
- [Cross-Modal KG Embedding](#)
- Knowledge Acquisition
 - [Knowledge Graph Completion](#)
 - [Relation Extraction](#)
 - [Entity Discovery](#)
- Knowledge-aware Applications
 - [Natural Language Understanding](#)
 - [Commonsense Knowledge](#)
 - [Question Answering](#)
 - [Dialogue Systems](#)
 - [Recommendation Systems](#)
 - [Information Retrieval](#)
- [Temporal Knowledge Graph](#)
- [Knowledge Graph Reasoning](#)
- [One/few-Shot and Zero-Shot Learning](#)
- [Domain-specific Knowledge Graphs](#)
- [KG Database Systems](#)

Data

General Knowledge Graphs

- WordNet, <https://wordnet.princeton.edu>
- OpenCyc, <https://www.cyc.com/opencyc/>
- Cyc, <https://www.cyc.com>
- YAGO, <http://www.mpii.mpg.de/~suchanek/yago>
- DBpedia, <https://wiki.dbpedia.org/develop/datasets>
- Freebase, <https://developers.google.com/freebase/>
- NELL, <http://rtw.ml.cmu.edu/rtw/>
- Wikidata, <https://www.wikidata.org/wiki>
- Probase IsA, <https://concept.research.microsoft.com/Home/Download>
- Google KG, <https://developers.google.com/knowledge-graph>
- A large-scale Chinese knowledge graph from [OwnThink](#)
- GDELT (Global Database of Events, Language, and Tone) [Web](#)

Domain-specific Data

OpenKG knowledge graphs about the novel coronavirus COVID-19

- 新冠百科图谱 [\[链接\]](#) Knowledge graph from encyclopedia [\[Link\]](#)
- 新冠科研图谱 [\[链接\]](#) Knowledge graph of COVID-19 research [\[Link\]](#)
- 新冠临床图谱 [\[链接\]](#) Clinical knowledge graph [\[Link\]](#)
- 新冠英雄图谱 [\[链接\]](#) Knowledge graph of people, experts, and heroes [\[Link\]](#)
- 新冠热点事件图谱 [\[链接\]](#) Knowledge graph of public events [\[Link\]](#)

COVID*GRAPH COVID-19 virus [\[Web\]](#)

KgBase COVID-19 knowledge graph [\[Web\]](#) Academic graphs

- OAG, Open Academic Graph, <https://www.aminer.cn/open-academic-graph>

Entity Recognition

CORD-19, a comprehensive named entity annotation dataset, CORD-NER, on the COVID-19 Open Research Dataset Challenge (CORD-19) corpus [\[Data\]](#)

Other Collections

Baidu BROAD datasets [\[Web\]](#)

ASER: A Large-scale Eventuality Knowledge Graph WWW 2020. *Zhang et al.* [\[Paper\]](#)

Libraries, Softwares and Tools

KRL Libraries

[Grakn](#), Grakn Knowledge Graph Library (ML R&D) <https://grakn.ai>

[Ampligraph](#), Python library for Representation Learning on Knowledge Graphs <https://docs.ampligraph.org>

[OpenKE](#), An Open-Source Package for Knowledge Embedding (KE)

[Fast-TransX](#), An Efficient implementation of TransE and its extended models for Knowledge Representation Learning

[scikit-kge](#), Python library to compute knowledge graph embeddings

[OpenNRE](#), An Open-Source Package for Neural Relation Extraction (NRE)

Knowledge Graph Database

[akutan](#), A distributed knowledge graph store

Others

- [OpenNRE](#)

Interactive APP

Knowledge graph APP, Simple knowledge graph applications can be easily built using JSON data managed entirely via a GraphQL layer. [\[Github\]](#) [\[Website\]](#)

Courses, Tutorials and Seminars

Courses

- Stanford CS 520 Knowledge Graphs: How should AI explicitly represent knowledge? *Vinay K. Chaudhri, Naren Chittar, Michael Genesereth*. [\[Web\]](#)
- Stanford CS 224W: Machine Learning with Graphs. *Jure Leskovec*. [\[Web\]](#)
- University of Bonn: Analysis of Knowledge Graphs. *Jens Lehmann*. [\[Web\]](#) [\[GitHub\]](#)
- Knowledge Graphs. *Harald Sack, Mehwish Alam*. [\[Web\]](#)

Related Repos

A repo about knowledge graph in Chinese - [husthuke/awesome-knowledge-graph](#)

A repo about NLP, KG, Dialogue Systems in Chinese - [lihanghang/NLP-Knowledge-Graph](#)

Top-level Conference Publications on Knowledge Graph - [wds-seu/Knowledge-Graph-Publications](#)

Geospatial Knowledge Graphs - [semantic-geospatial](#)

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