



Information Retrieval Journal

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Call for Papers

Special Issue on Knowledge Graphs and Semantics in Text Analysis and Retrieval

Overview

Knowledge graphs store semantics of human knowledge in a structured format for computer systems to use. Recently, diverse communities of researchers developed scalable knowledge acquisition techniques to build large-scale knowledge graphs. The result is the emergence over the past decade of large publicly available knowledge graphs (KGs) such as DBpedia (Lehmann et al. 2014), Freebase (Bollacker et al. 2008), and others. To utilize knowledge graphs for text analysis, alignment techniques that associate pieces of unstructured text with entries in the knowledge graph have been built, with as prime example entity linking (Carmel et al. 2014; P.N. Mendes et al. 2011; Blanco, Ottaviano, and Meij 2015). Advances in knowledge acquisition and alignment enable effective approaches based on the utilization of knowledge graphs in text retrieval and analysis tasks. A wide range of approaches combining query-document representations and machine learning repeatedly demonstrate significant improvements across diverse domains (Dalton, Dietz, and Allan 2014; Liu and Fang 2015; Hasibi, Balog, and Bratsberg 2015; Xiong and Callan 2015; Raviv, Kurland, and Carmel 2016; Ensan and Bagheri 2017; Xiong, Callan, and Tie-Yan 2017).

The goal of this special issue is to bring together the recent progress of research and practice in constructing, grounding, and utilizing knowledge graphs and similar semantic resources for information retrieval applications. The scope includes acquisition, alignment, and utilization of knowledge graphs and other semantic resources for the purpose of optimizing end-to-end performance of information retrieval systems.

Topics of Interest

This special issue focuses on the development and use of knowledge graphs and semantics in text retrieval and related tasks, along the following dimensions:

- Acquisition:
 - Construction of domain/task-specific knowledge graphs
 - Knowledge representation for optimal retrieval performance
 - Query-time knowledge graph augmentation
 - Relation extraction
- Alignment:
 - Information integration
 - Ontology matching for IR
 - Adhoc entity retrieval
 - Entity linking
 - Query-focused knowledge graph sub-selection
- Utilization:
 - Knowledge-centric dialogue systems
 - Adhoc document retrieval
 - Event tracking
 - Retrieval of complex answers
 - Question answering and factoid search
 - Expert Search
 - Vertical search in specialized domains (legal, health, and others)

Special Issue Guest Editors

Prof. Dr. Laura Dietz is an Assistant Professor at University of New Hampshire. Before that she was a research scientist at Mannheim University and University of Massachusetts after graduating from the Max Planck Institute for Informatics. Her research focuses on information retrieval on knowledge-centric information needs. Her scientific contributions span from query expansion with entities to the prediction of influences in citation graphs. She coordinates the TREC Complex Answer Retrieval track.

Chenyan Xiong is a final-year Ph.D. student at the Language Technologies Institute, Carnegie Mellon University. His research focuses on using knowledge graphs and semantics to improve text understanding in search engines. He has published many KG4IR papers in top venues SIGIR, CIKM, ICTIR, and WWW.

Dr. Jeff Dalton is Lecturer in Information Retrieval at the University of Glasgow. Previously, he was a Software Engineer Google, where projects included the Google Assistant Natural Language Understanding and automatic knowledge graph construction. He completed his Ph.D. at the University of Massachusetts Amherst with James Allan in the Center for Intelligent Information Retrieval. His research focuses on the intersection of Information Retrieval and Natural Language Processing. He published papers on using knowledge graphs for IR at leading conferences including SIGIR, CIKM, and others.

Dr. Edgar Meij is a senior scientist at Bloomberg. Before this, he was a research scientist at Yahoo Labs and a postdoc at the University of Amsterdam, where he also obtained his Ph.D. He has published 60+ peer-reviewed papers at top international venues such as SIGIR, WSDM, ISWC, and CIKM on all applications and aspects of knowledge graphs, entity linking, and semantic search.

Important Dates

Initial submission due: May 1st, 2018
Initial reviewer feedback: June 15th, 2018
Revised submission due: July 15th, 2018
Final decision: September 1st, 2018

Paper Submission

Papers submitted to this special issue for possible publication must be original and must not be under consideration for publication in any other journal or conference. Previously published or accepted conference papers must contain at least 30% new material to be considered for the special issue.

All papers are to be submitted by referring to <http://www.springer.com/10791> (submit online). At the beginning of the submission process in Editorial Manager, under “Article Type”, please select the appropriate special issue.

All manuscripts must be prepared according to the journal publication guidelines which can also be found on the website provided above. Papers will be evaluated following the journal's standard review process.

For inquiries on the process, appropriateness, or other, please contact **Laura Dietz** at dietz@cs.unh.edu.

References

- Blanco, Roi, Giuseppe Ottaviano, and Edgar Meij. 2015. “Fast and Space-Efficient Entity Linking for Queries.” In *Proceedings of the Eighth Acm International Conference on Web Search and Data Mining*, 179–88. ACM.
- Bollacker, Kurt, Colin Evans, Praveen Paritosh, Tim Sturge, and Jamie Taylor. 2008. “Freebase: A Collaboratively Created Graph Database for Structuring Human Knowledge.” In *Proceedings of Sigmod 2008*, 1247–50. ACM.
- Carmel, David, Ming-Wei Chang, Evgeniy Gabrilovich, Bo-June (Paul) Hsu, and Kuansan Wang. 2014. “ERD’14: Entity Recognition and Disambiguation Challenge.” In *Proceedings of Sigir 2014*. ACM.
- Dalton, Jeffrey, Laura Dietz, and James Allan. 2014. “Entity Query Feature Expansion Using Knowledge Base Links.” In *Proceedings Sigir 2014*, 365–74. ACM.
- Ensan, Faezeh, and Ebrahim Bagheri. 2017. “Document Retrieval Model Through Semantic Linking.” In *Proceedings of Wsdm 2017*, 181–90. ACM.
- Hasibi, Faegheh, Krisztian Balog, and Svein Erik Bratsberg. 2015. “Entity Linking in Queries: Tasks and Evaluation.” In *Proceedings of Ictir 2015*, 171–80. ACM.
- Lehmann, Jens, Robert Isele, Max Jakob, Anja Jentzsch, Dimitris Kontokostas, Pablo N. Mendes, Sebastian Hellmann, et al. 2014. “DBpedia - A Large-Scale, Multilingual Knowledge Base Extracted from Wikipedia.” *Semantic Web Journal*.
- Liu, Xitong, and Hui Fang. 2015. “Latent Entity Space: A Novel Retrieval Approach for Entity-Bearing Queries.” *Information Retrieval Journal* 18 (6). Springer: 473–503.
- Mendes, Pablo N, Max Jakob, Andrés García-Silva, and Christian Bizer. 2011. “DBpedia Spotlight: Shedding Light on the Web of Documents.” In *Proceedings of the 7th International Conference on Semantic Systems*, 1–8. ACM.
- Raviv, Hadas, Oren Kurland, and David Carmel. 2016. “Document Retrieval Using Entity-Based Language Models.” In *Proceedings of Sigir 2016*, 65–74. ACM.
- Xiong, Chenyan, and Jamie Callan. 2015. “EsdRank: Connecting Query and Documents Through External Semi-Structured Data.” In *Proceedings of Cikm 2015*, 951–60. ACM.
- Xiong, Chenyan, Jamie Callan, and Liu Tie-Yan. 2017. “Word-Entity Duet Representations for Document Ranking.” In *Proceedings of Sigir 2017*, ACM.



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