



Author Preprints of ISWC 2024 Papers

The following are preprints of papers accepted for the [23rd ISWC conference](#) that the authors have allowed to be shared.

Research Track Papers (26)

[AdaptLIL: A Real-Time Adaptive Linked Indented List Visualization for Ontology Mapping](#), Bo Fu and Nicholas Chow; Keywords: Adaptive Linked Indented List, Gaze-adaptive Visualization, Eye Tracking

[Advancing Robotic Perception with Perceived-Entity Linking](#), Mark Adamik, Romana Pernisch, Ilaria Tiddi and Stefan Schlobach; Keywords: Robotic Perception, Knowledge Graphs, Semantic Web

[BLINK: Blank Node Matching Using Embeddings](#), Alexander Becker, Mohamed Ahmed Sherif and Axel-Cyrille Ngonga Ngomo; Keywords: Knowledge graphs, Data Integration, Linked Data, Blank Nodes, Blank Node Matching

[Compiling SHACL into SQL](#), Maxime Jakubowski and Jan Van den Bussche

[**CRAWD: Sampling-Based Estimation of Count-Distinct SPARQL Queries**](#), Thi Hoang Thi Pham, Pascal Molli, Brice Nédelec, Hala Skaf-Molli and Julien Aimonier-Davat; Keywords: Semantic Web, Approximate Aggregation, Sampling, Count-Distinct

[**DISCIE - Discriminative Closed Information Extraction**](#), Cedric Möller and Ricardo Usbeck

[**Distilling Event Sequence Knowledge From Large Language Models**](#), Somn Wadhwa, Oktie Hassanzadeh, Debarun Bhattacharjya, Ken Barker and Jian Ni; Keywords: Knowledge Graphs, Large Language Models, Knowledge Distillation

[**Do LLMs Really Adapt to Domains? An Ontology Learning Perspective**](#), Huu Tan Mai, Cuong Xuan Chu and Heiko Paulheim; Keywords: ontology learning, LLMs, domain adaptation

[**DUNKS: Chunking and Summarizing Large and Heterogeneous Data for Dataset Search**](#), Qiaosheng Chen, Xiao Zhou, Zhiyang Zhang and Gong Cheng

[**eSPARQL: Representing and Reconciling Agnostic and Atheistic Beliefs in RDF-star knowledge graphs**](#), Xinyi Pan, Daniel Hernandez, Philipp Seifer, Ralf Lämmel and Steffen Staab; Keywords: SPARQL, RDF-star, knowledge graphs, epistemic querying

[**Expanding the Scope: Inductive Knowledge Graph Reasoning with Multi-Starting Progressive Propagation**](#), Zhoutian Shao, Yuanning Cui and Wei Hu; Keywords: Knowledge graphs, Inductive reasoning, Conditional message passing

[**Exploiting Distant Supervision to Learn Semantic Descriptions of Tables with Overlapping Data**](#), Binh Vu, Craig Knoblock, Basel Shbita and Fandel Lin; Keywords: Semantic Models, Semantic Descriptions, Data Integration, Knowledge Graphs, Semantic Web

[**Finally understanding SPARQL queries, are we there already? – Multilingual Natural-Language Representations of SPARQL queries via LLMs**](#), Aleksandr Perevalov, Aleksandr Gashkov, Maria Eltsova and Andreas Both; Keywords: Natural Language Generation, Large Language Models, SPARQL2NL, Multilinguality, RDF2NL

[**Finetuning Generative Large Language Models with Discrimination Instructions for Knowledge Graph Completion**](#), Yang Liu, Xiaobin Tian, Zequn Sun and Wei Hu; Keywords: Knowledge graph completion, Large language model, Instruction tuning

[**Knowledge Graph Structure as Prompt: Improving Small Language Models Capabilities for Knowledge-based Causal Discovery**](#), Yuni Susanti and Michael Färber; Keywords: causal relation, language model, knowledge graph

[**Knowledge Graphs for Enhancing Large Language Models in Entity Disambiguation**](#), Gerard Pons, Besim Bilalli and Anna Queralt; Keywords: Knowledge Graphs, Entity Disambiguation, Large Language Models

[**Multi-view Transformer-based Network for Prerequisite Learning in Concept Graphs**](#), Zhichun Wang, Yifeng Shao, Boci Peng, Bangqi Li, Yun Li, Qianren Wang and Nijun Li; Keywords: prerequisite learning, concept embedding, concept graph

[**Numerical Literals in Link Prediction: A Critical Examination of Models and Datasets**](#), Moritz Blum, Basil Ell, Hannes Ill, and Philipp Cimiano; Keywords: Link Prediction, Numerical Literals, Evaluation

[**PathFinder: Returning Paths in Graph Queries**](#), Benjamin Farias, Wim Martens, Carlos Rojas and Domagoj Vrgoc

[**PreAdapter: Pre-training Language Models on Knowledge Graphs**](#), Janna Omelinyanenko, Andreas Hotho and Daniel Schlör; Keywords: knowledge graph, language model, knowledge integration, question answering, adapters

[**PRONTO: Prompt-based Detection of Semantic Containment Patterns in MLMs**](#), Alessandro De Bellis, Vito Walter Anelli, Tommaso Di Noia and Eugenio Di Sciascio; Keywords: Masked Language Models, Prompt Learning, Ontologies

[**Relationships are Complicated! An Analysis of Relationships Between Datasets on the Web**](#), Kate Lin, Tarfah Alrashed and Natasha Noy; Keywords: Web datasets, dataset relationships, semantic markup

[**Repairing Networks of \$\text{EL} \perp\$ Ontologies using Weakening and Completing**](#), Ying Li and Patrick Lambrix

[**SnapE – Training Snapshot Ensembles of Link Prediction Models**](#), Ali Shaban and Heiko Paulheim; Keywords: Link Prediction, Knowledge Graphs, Snapshot Ensembles

[Supervised Relational Learning with Selective Neighbor Entities for Few-Shot, Knowledge Graph Completion](#), Jiewen Hou, Tianxing Wu, Jingting Wang, Shuang Wang and Guilin Qi

[Unaligned Federated Knowledge Graph Embedding](#), Deyu Chen, Hong Zhu, Jinguang Gu, Rusi Chen and Meiyi Xie; Keywords: Knowledge graph embedding, Federated learning, Heterogeneous data

In Use Track Papers (8)

[Developing Application Profiles for Enhancing Data and Workflows in Cultural Heritage Digitisation Processes](#), Sebastian Barzaghi, Ivan Heibi, Arianna Moretti, and Silvio Peroni; Keywords: OWL, ontology development, 3D digitisation, cultural heritage, FAIR principles, application profiles

[Increasing the Accuracy of LLM Question-Answering Systems on SQL Databases with Ontologies](#), Dean Allemang and Juan F. Sequeda

[Integrating Large Language Models and Knowledge Graphs for Extraction and Validation of Textual Test Data](#), Antonio De Santis, Marco Balduini, Federico De Santis, Andrea Proia, Arsenio Leo, Marco Brambilla and Emanuele Della Valle; Keywords: Knowledge Graphs, Large Language Models, Data Extraction, Space Industry

[Intelligent Urban Traffic Management via Semantic Interoperability across Multiple Heterogeneous Mobility Data Sources](#), Mario Scrocca, Marco Comerio, Valentina Anita Carriero, Tiago Delgado Dias, Ana Vieira Da Silva, and Irene Celino; Keywords: Mobility, Semantic interoperability, Data Integration

[Leveraging Knowledge Graphs for Earth System Dataset Discovery](#), Vincent Armant, Felipe Vargas-Rojas, Victoria Agazzi, Jean-Christophe Desconnets, Isabelle Mougnot, Valentina Beretta, Stephane Debard, Danai Symeonidou, Amira Mouakher, Joris Guérin, Thibault Catry and Emmanuel Roux; Keywords: Open Discovery, Knowledge Graph, Earth System

[Quality in Color: Using Knowledge Graphs for Enhanced Quality Control in an Automotive Paintshop](#), Bram Steenwinckel, Colin Soete, Pieter Moens, Joris Mussche, Sofie Van Hoecke, and Femke Ongenae; Keywords: Automotive paintshop, Knowledge Graph, Semantic reasoning, Machine learning, Dashboard visualization, Industry 4.0

[Semantic and technically interoperable data exchange in the Flanders Smart Data Space](#), Dwight Van Lancker, Steven Logghe, Julian Andres Rojas, Annelies De Craene, Ziggy Vanlshout and Pieter Colpaert; Keywords: Semantics, Data Spaces, Interoperability, Linked Data

[UFEL: a By-design Understandable and Frugal Entity Linking System for French Microposts](#), Vivien Leonard, Béatrice Markhoff and Jean-Yves Antoine; Keywords: Microposts, Entity Linking, Open Knowledge Graphs

Resource Track Papers (10)

[AutoRDF2GML: Facilitating RDF Integration in Graph Machine Learning](#), Michael Färber, David Lamprecht and Yuni Susanti

[CimpleKG: A Continuously Updated Knowledge Graph on Misinformation, Factors and Fact-Checks](#), Gregoire Burel, Martino Mensio, Youri Peskine, Raphaël Troncy, Paolo Papotti and Harith Alani; Keywords: ClaimReview, Misinformation, Factcheck, Knowledge Graph

[Data Privacy Vocabulary - Version 2](#), Harshvardhan J. Pandit, Beatriz Esteves, Georg P. Krog, Paul Ryan, Delaram Golpayegani and Julian Flake; Keywords: privacy, data protection, data governance, compliance

[Diachronical geometry without polygons: the extended HHT ontology for heterogeneous geometrical representations](#), William Charles, Nathalie Aussenac-Gilles and Nathalie Hernandez; Keywords: Territory Ontology, Geometry Representation, Change Detection Algorithm, Digital Humanities

[InstructIE: A Bilingual Instruction-based Information Extraction Dataset](#), Gui Honghao, Qiao Shuofei, Ye Hongbin, Sun Mengshu, Liang Lei, Jeff Z. Pan, Chen

Huajun and Zhang Ningyu; Keywords: Knowledge Graph, Knowledge Graph Construction, Information Extraction, Dataset, Large Language Models

[**KGHeartBeat: a Knowledge Graph Quality Assessment Tool**](#), Maria Angela Pellegrino, Anisa Rula and Gabriele Tuozzo; Keywords: Quality assessment, Comparison, Software, Knowledge Graph, Web-interface, Automatic, Open source, Evaluation framework

[**KROWN: A Benchmark for RDF Graph Materialisation**](#), Dylan Van Assche, David Chaves-Fraga and Anastasia Dimou; Keywords: RML, Benchmark, Framework

[**SciHyp: A Fine-grained Dataset Describing Hypotheses and Their Components from Scientific Articles**](#), Rosni Vasu, Cristina Sarasua, and Abraham Bernstein; Keywords: Scientific Hypotheses, Hypotheses Annotation, Large Language Models, Information Extraction, Knowledge Graph, Scientific Knowledge Management

[**SparkKG-ML: A Library to Facilitate end-to-end Large-scale Machine Learning over Knowledge Graphs in Python**](#), Bedirhan Gergin and Charalampos Chelmiss; Keywords: Community-shared software framework, Distributed Computing, RDF, PySpark

[**The ICS-SEC KG: An Integrated Cybersecurity Resource for Industrial Control Systems**](#), Kabul Kurniawan, Elmar Kiesling, Dietmar Winkler and Andreas Ekelhart; Keywords: Knowledge graph, Cybersecurity, Threat Intelligence, Industrial Control System, Cyber-physical Production System, Industry 5.0