The Third Workshop on Knowledge Graphs and Neurosymbolic AI

Preface

Knowledge Graphs (KGs) provide structured and machine-interpretable knowledge that supports integration, reasoning, and explainability. Their combination with machine learning has become increasingly important within Neurosymbolic AI, which seeks to integrate data-driven learning with knowledge representation and reasoning.

The KG-NeSy workshop (https://kg-nesy.github.io/) focuses on the interplay between Knowledge Graphs and Neurosymbolic AI and on how the two areas can mutually benefit each other. In particular, the workshop addresses three complementary directions: the use of KGs within Neurosymbolic AI systems, Neurosymbolic AI methods for supporting KG engineering, and KG-based approaches for understanding and systematizing Neurosymbolic AI. These directions range from hybrid reasoning, explainability, and trustworthy Neurosymbolic AI to ontology learning and knowledge extraction, as well as formal representations, design patterns, and taxonomies of neurosymbolic architectures.

The 2026 edition is the third iteration of KG-NeSy, following KG-NeSy 2024, co-located with the AIRoV symposium, and KG-NeSy 2025, co-located with SEMANTiCS. This year, KG-NeSy is co-located with the International Semantic Web Conference (ISWC 2026) in Bari, Italy, providing a natural setting for exchange between the Knowledge Graph, Semantic Web, and Neurosymbolic AI communities.

For KG-NeSy 2026, we received **25 submissions**. Each submission underwent a single-blind review process and was evaluated according to its significance, originality, technical content, clarity, and relevance to the workshop. Following the review and discussion process, **12 papers were accepted**, resulting in an acceptance rate of **48%**. The accepted contributions comprise nine full papers, two short papers, and one extended abstract.

The accepted papers reflect the breadth of the workshop themes. Several contributions investigate the interaction between symbolic structure and learned representations, including ontology and Knowledge Graph embeddings, structured sampling and constraints, and the effects of compression and aggregation on embedding models. Other works explore the use of large language models together with Knowledge Graphs and Semantic Web technologies, addressing biomedical text alignment, question answering over Wikidata, affordance retrieval from LLM-constructed Knowledge Graphs, and access to semi-structured data using RML and LLMs. The programme further includes contributions on semantic representations of neurosymbolic architectures, ontology-mediated constraint acquisition, ontology-guided reinforcement learning, and automated AI transparency in MLOps.

Third Workshop on Knowledge Graphs and Neurosymbolic AI (KG-NeSy 2026), in ISWC 2026 Workshops Joint Proceedings, October 25–26, 2026, Bari, Italy

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The programme also features an invited keynote by **Alessandro Oltramari** from the Bosch Center for Artificial Intelligence and the Carnegie Bosch Institute entitled *"Physical AI and Reasoning"*, as well an invited talk from DORSET (https://dorset-project.org/) research project entitled *"Decoding hOw Knowledge Graph chaRacteristics Shape Embedding sTrategies"*.

We thank all authors for submitting their work to KG-NeSy 2026 and for contributing to the continued development of the workshop. We are equally grateful to the members of the Program Committee for their careful reviews and constructive feedback. Finally, we thank our keynote, invited speaker, and all workshop participants.

Sincerely yours,

KG-NeSy 2026 Workshop Co-organizers (alphabetically listed)
- *Shqiponja Ahmetaj (TU Wien, Austria)*
- *Fajar J. Ekaputra (WU Vienna and TU Wien, Austria)*
- *Andreas Ekelhart (SBA Research and University of Vienna, Austria)*
- *Sebastian Neumaier (St. Pölten University of Applied Sciences, Austria)*
- *Cogan Shimizu (Wright State University, Austria)*

List of Accepted Papers

- Artem Bisliouk, Elizaveta Nosova, Heiko Paulheim, Andreea Iana and Rita T. Sousa. *Aligning Biomedical Texts and Knowledge Graphs: A Systematic Comparison of Lightweight Alignment Strategies.*

- Naman Singh, Ernesto Jimenez-Ruiz and Tillman Weyde. *ELK-Em: Closure-Aware Embeddings for $\mathscr{E}\mathscr{L}_{\perp}^{+}$ Ontologies.*

- Verdiana Schena, Ricardo Carvalho, Catia Pesquita, Simona Colucci and Floriano Scioscia. *Guiding Knowledge Graph Embeddings with Information Content: An Exploratory Study of Symbolic–Subsymbolic Alignment*

- Fabian Kovac, Dimitrios Christodoulou, Tobias Dam and Sebastian Neumaier. *Automated AI Transparency: Dynamic Ontology Instantiation for MLOps.*

- Medina Andresel, Jakob Hurst and Sven Schlarb. *A Wikidata-based Benchmark for Evaluating LLM-based Question Answering.*

- Shunsuke Liu, Katsuma Marumo, Kazuma Arii and Satoshi Kurihara. *TRACE-Afford: Context-Sensitive Affordance Retrieval from an LLM-Constructed Typed Knowledge Graph.*

- Yashrajsinh Chudasama, Disha Purohit, Enrique Iglesias, Mahsa Forghani and Maria-Esther Vidal. *Neuro-Symbolic Design Patterns: A Semantic Representation of Neuro-Symbolic Architectures.*

- Antrea Christou, David Castro and Cogan Shimizu. *Investigating Latent Representations under Structured Sampling and Constraints.*

- Nader Sobhi, Unmesh Joshi, Jacopo Urbani and Katja Hose. *On the impact of Compression and Aggregation on Knowledge Graph Embeddings*

- Maham Fatima and Boris Tolg. *A Triage Ontology-Guided Knowledge Graph for Constraining Reinforcement Learning Decisions in Mass Casualty Incidents.* (**Short Paper**)

- Stefan Bischof, Juliana Kainz and Danilo Valerio. *Ontology-Mediated Neurosymbolic Constraint Acquisition from Multiple Stakeholders.* (**Short Paper**)

- Shikhat Karkee, Elena Botoeva, Sam Coombes, Anna Jordanous, Özgür Kafali and Davide Lanti. *Accessing Semi-structured Data with RML and LLMs.* (**Extended Abstract**)

Program Committee Members

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