Preface of the GenAIK–NORA 2026: Joint Workshop on Generative AI and Knowledge Graphs and KNOwledge GRaphs & Agentic Systems Interplay

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Abstract

Recent advances in Generative Artificial Intelligence (GenAI) and Large Language Models (LLMs) have transformed the AI landscape, enabling systems to generate multimodal content and perform increasingly complex reasoning and decision-making tasks. Despite these advances, generative models still face important challenges, including hallucinations, limited interpretability, and difficulties in grounding outputs in reliable domain knowledge. Knowledge Graphs (KGs) provide a principled framework for representing structured and interconnected knowledge through entities, relations, and formal ontologies. They enable interpretability, reasoning, and the integration of domain expertise, making them an important component for building reliable and trustworthy AI systems. At the same time, LLM-based agents are emerging as a powerful paradigm for building autonomous systems capable of planning, tool use, and long-term task execution, often requiring structured representations of knowledge and memory. The interaction between generative models, agentic systems, and knowledge graphs is therefore becoming an important research direction in contemporary AI. This workshop aims to bring together researchers and practitioners from AI, NLP, Knowledge Graphs, Semantic Web, and Hybrid AI to explore methods, systems, and applications that combine these paradigms. This edition represents a joint workshop, bringing together the communities of GenAIK (Generative AI and Knowledge Graphs) and NORA (Knowledge Graphs and Agentic Systems Interplay) to foster collaboration across these complementary research areas.

Webpage: https://nora-workshop.github.io/GENAIK-NORA-2026/

Keywords

Generative AI, Agentic AI, LLM, Knowledge Graphs, Workshop Series

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1. Introduction

These proceedings accompany GenAIK–NORA 2026, the Joint Workshop on Generative AI and Knowledge Graphs and Knowledge Graphs & Agentic Systems Interplay, held on 17 August 2026 at the University of Bremen, Germany, co-located with IJCAI–ECAI 2026.

Generative artificial intelligence (GenAI) and large language models (LLMs) offer new possibilities for content generation, reasoning and decision-making. However, hallucinations, limited interpretability and difficulties in grounding outputs in reliable domain knowledge remain significant challenges. Knowledge graphs (KGs) provide structured representations of entities, relations and domain knowledge that can support grounding, reasoning and explanation. Meanwhile, LLM-based agents introduce further requirements for maintaining memory, planning actions and using tools over extended interactions. These developments raise shared questions about how generative models, agentic systems and structured knowledge can be integrated and evaluated.

The first editions of both GenAIK (Generative AI and Knowledge Graphs) [13] and NORA (Knowledge Graphs and Agentic Systems Interplay) [14] started the discussions about the interaction between Generative AI and Agentic Systems, respectively, on the one side, and Knowledge Graphs, on the other side.

The second editions were combined in recognition of the substantial overlap in their research interests and communities. Both address the interaction between knowledge graphs, generative models and agents, including knowledge construction, grounded generation, reasoning and memory. The joint workshop provided a common forum for researchers and practitioners from artificial intelligence, natural language processing, knowledge graphs, the Semantic Web and hybrid AI to exchange findings, discuss shared challenges and develop collaborations.

2. Scope and Topics

The joint call for papers covered methods, systems and applications at the intersection of generative AI, agentic systems and knowledge graphs. It invited theoretical contributions, new approaches and practical solutions from academia, industry and the public sector. Its scope included both the use of knowledge graphs to support generative models and agents and the use of these technologies to construct, refine and maintain knowledge graphs.

The topics of interest were organised into eight broad areas:

- **Knowledge graph construction, completion and refinement:** multilingual and multimodal extraction using LLMs; entity resolution, cleaning and completion; fact verification and consistency checking; and human-in-the-loop curation.
- **Knowledge graph grounding for retrieval, generation, querying and dialogue:** graph-based retrieval-augmented generation (GraphRAG); natural language querying, including translation to SPARQL; hybrid question answering and dialogue; controllable generation using graph structure and constraints; and context and memory retrieval.
- **Neuro-symbolic methods, reasoning and explainability:** hybrid reasoning using rules, constraints and structured evidence; provenance-based explanations and verifiable reasoning; and cross-domain knowledge transfer.
- **Representations, embeddings and evolving knowledge graphs:** generative approaches to graph embeddings; hybrid vector–graph representations; temporal knowledge, dynamic updates and continual learning; and ontology learning, alignment and schema evolution.
- **Trustworthiness, safety and governance:** bias mitigation, hallucination reduction and robustness; uncertainty estimation and confidence calibration; and privacy, access control and policy-aware generation.
- **Agentic knowledge graphs and real-world systems:** knowledge graphs as persistent agent memory and state; episodic, semantic and procedural memory; graph-aware planning and tool use; multi-agent coordination and shared memory; and knowledge-informed context engineering.

- **Applications of generative AI, agents and knowledge graphs:** proactive and personalised assistance; multilingual and multimodal systems; personalisation and generalisation in agent memory; domain-specific applications, including scholarly knowledge, healthcare, finance and education; and architectures for dialogue, recommendation and customer service.
- **Datasets, benchmarks and evaluation:** resources for integrated GenAI, agent and knowledge graph tasks; assessment of grounding, faithfulness, factuality, reasoning and robustness; and methodological challenges involving data leakage, LLM-based evaluation, reproducibility and reporting.

3. Submissions and Reviewing

The submission deadline was 14 May 2026, with acceptance notifications issued on 10 June 2026 and camera-ready papers due on 25 June 2026.

The workshop received 27 submissions: 2 were withdrawn, 3 were desk-rejected, 12 were rejected, and 10 were accepted. We conducted the review process through OpenReview.[1] Each submission underwent single-anonymous peer review by at least three programme committee members. Disagreements were addressed through meta-review, and the chairs reached final acceptance decisions by consensus.

All accepted submissions have been presented both orally and as posters.

This volume contains four *Long Research Papers* [1, 2, 3, 4], two *Short Research Papers* [5, 6], one *Position Paper* [7], and three *Demo Papers* [8, 9, 10].

Four *Best Paper Awards* were selected: one *Regular* [4, 10] and one *Student* [2, 9] awards for each of the *Research* and *Position & Demo* tracks.

4. Workshop Programme

The programme combined contributed presentations, posters, and demonstrations with two keynote talks that connected the workshop's themes to robotics and enterprise applications. Michael Beetz (University of Bremen) delivered a keynote entitled "Knowledge Graphs for Robots that Act: Grounding Generative AI in the Physical World" [11]. Felix Sasaki (SAP) presented "From API Metadata to Agent-Ready Ontologies: An Industry Research Agenda for Semantic Layering in Enterprise Knowledge Graphs" [12].

The programme also featured a panel discussion entitled "The Role of Knowledge Graphs in the Era of Generative AI and Agentic Systems—and Vice Versa," with Felix Sasaki (SAP), Michael Beetz (University of Bremen), Makbule Gulcin Ozsoy (Neo4j), Ralph Bergmann (University of Trier & DFKI), and Diego Collarana Vargas (Fraunhofer FIT). The discussion examined both how knowledge graphs can support generative AI and agentic systems and how these technologies can contribute to the construction, maintenance and use of knowledge graphs.

5. Organization

5.1. Oragnizng Committee

5.1.1. GenAIK Team

- **Genet Asefa Gesese**, FIZ Karlsruhe, KIT, Germany
- **Angelo Salatino**, The Open University, UK.
- **Blerina Spahiu**, University of Milano-Bicocca, Italy
- **Shenghui Wang**, University of Twente, The Netherlands
- **Heiko Paulheim**, University of Mannheim, Germany

[1] https://openreview.net/group?id=ijcai.org/IJCAI-ECAI/2026/Workshop/GENAIK-NORA

5.1.2. NORA Team

- **Btissam Er-Rahmadi**, Independent Researcher, UK
- **Sébastien Montella**, Huawei Technologies R&D UK Ltd, UK
- **Damien Graux**, EcoVadis, UK
- **André Melo**, Huawei Technologies R&D UK Ltd, UK
- **Hajira Jabeen**, University Hospital Cologne, Germany

5.2. Programme Committee (Alphabetical)

Abdulaziz Alhamadani (Florida Polytechnic University), Ali Pesaranghader (LG Electronics), Alsu Sagirova (DeepPavlov), Aman Mehta (Snowflake), Ankit Arun (Facebook), Arun LN (University of Pittsburgh), Aswarth Abhilash Dara (Carnegie Mellon University), Baban Gain (Indian Institute of Technology, Patna), Bin Dong (Ricoh Software Research Center Beijing Co., Ltd.), Bonaventura Coppola (SAP Security Research), Brian Ulicny (RTX BBN Technologies), Cassia Trojahn (Université Grenoble Alpes), Chong Li (Nanyang Technological University), Daniel Benniah John (Netflix), Daniel Dickinson (American Family Insurance), Daryna Dementieva (Technische Universität München), David Elson (Anthropic), Davide Buscaldi (École polytechnique), Debmalya Biswas (UBS Group AG), Deborah Dahl (LF AI & Data Foundation), Derrick Higgins (Illinois Institute of Technology), Dong Zhou (Guangdong University of Foreign Studies), Duygu Altinok (Independent Researcher), Emir Munoz (Genesys Cloud Services Inc.), Enrico Daga (Open University), Ethan Selfridge (LivePerson), Femke Ongenae (Ghent University), Finn Nielsen (Technical University of Denmark), Georgios Alexandridis (University of Athens), Gilbert Lim (EyRIS), Giorgos Stoilos (Huawei Technologies Ltd.), Giuliano Tortoreto (University of Trento), Hai Wang (Amazon), Haïfa Zargayouna (Université Sorbonne Paris Nord), Hanna Abi Akl (INRIA), Hemant Misra (Simpl), Hideya Mino (NHK), Hyun-Je Song (Chonbuk National University), Ian Stewart (Pacific Northwest National Laboratory), Jiahe Huang (University of California, San Diego), Jiaying Gong (eBay Inc.), Jiyue Jiang (The Chinese University of Hong Kong), John Hudzina (Thomson Reuters), Kaige Xie (Georgia Institute of Technology), Kemal Kurniawan (University of Melbourne), Kushagr Arora (Bloomberg), Lawrence Moss (Indiana University at Bloomington), Leslie Barrett (Bloomberg, LP), Lori Moon (MoonWorks, Inc.), Lucas Pavanelli (aiXplain), Maeda Hanafi (International Business Machines), Manabu Torii (Kaiser Permanente), Marcin Namysl (Ringler Informatik AG), Marek Kubis (Adam Mickiewicz University of Poznan), Mark Steedman (University of Edinburgh), Masaaki Tsuchida (Tokyo University of Science), Matthew Dunn (New York University), Matthew Mulholland (Lattice), Mihaela Bornea (Oracle), Minoru Sasaki (Ibaraki University), Mithun Balakrishna (Morgan Stanley), Munira Syed (The Procter & Gamble Company), Nadjet Bouayad-Agha (Biorce), Naoki Otani (Megagon Labs), Oleg Okun (Writer and translator), Paul Groth (University of Amsterdam), Pengyu Hong (Brandeis University), Pierre-Henri Paris (Université Paris-Saclay), Pradyot Prakash (Meta), Rafael Anchiêta (Federal Institute of Maranhão), Ryan Wang (University of Illinois Urbana-Champaign), Sanjeev Kumar (Blazel Inc), Shailza Jolly (Amazon Alexa AI), Shihao Ran (Dataminr), Simona Frenda (Heriot-Watt University), Srideepika Jayaraman (IBM TJ Watson Research Center), Sudarshan Rangarajan (International Business Machines), Tanay Kumar Saha (Purdue University), Tianhao Shen (Tianjin University), Tong Guo (Alibaba Group), Tracy Holloway King (Adobe Systems), Vera Pavlova (burevestnik.ai), Vinod Goje (IEEE), Voula Giouli (Aristotle University of Thessaloniki), Wei Hu (Nanjing University), Wenjie Zhou (Baidu), Won Ik Cho (Samsung Advanced Institute of Technology), Xiliang Zhu (Dialpad Inc.), Xu Jinan (Beijing Jiaotong University), Xueting Pan (Oracle), Yuwei Bao (Microsoft), Yuwei Yin (University of British Columbia), Zhengzhe Yang (Google), Zhixin Ma (Singapore Management University), Zhuoxuan Jiang (Shanghai Business School)

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Declaration on Generative AI

During the preparation of this preface, the editors used ChatGPT to assist with revising and improving language. The editors reviewed and edited the resulting text and take full responsibility for the content of this preface.

Articles presented at GenAIK-NORA 2026

[1] M. G. Ozsoy, Extending Confidence-Based Text2Cypher with Grammar and Schema Aware Filtering, in: Proceedings of the Joint Workshop on Generative AI and Knowledge Graphs and Knowledge Graphs & Agentic Systems Interplay co-located with IJCAI-ECAI, 2026. Long Research Paper.

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[3] I. Kirpichev, E. Kurmanaliev, F. Bushmelev, M. Abramov, A. Korepanova, A. Kalyuzhnaya, N. Nikitin, Towards Ontology-Driven Multi-Hop Benchmark for Corporate GraphRAG Systems, in: Proceedings of the Joint Workshop on Generative AI and Knowledge Graphs and Knowledge Graphs & Agentic Systems Interplay co-located with IJCAI-ECAI, 2026. Long Research Paper.

[4] I. O. Mulang', J. Thaller, T. Trivedi, L. Heling, F. Sasaki, Representing Agentic Tools in Knowledge Graphs for Structure-Aware Tool Discovery Under Tool Overload, in: Proceedings of the Joint Workshop on Generative AI and Knowledge Graphs and Knowledge Graphs & Agentic Systems Interplay co-located with IJCAI-ECAI, 2026. Long Research Paper.

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[10] O. S. Bhatti, A. M. Selim, L. Kopácsi, M. Barz, D. Sonntag, PhotoGraph: Claim-Centric Knowledge Graphs for Personal Photo Management, in: Proceedings of the Joint Workshop on Generative AI and Knowledge Graphs and Knowledge Graphs & Agentic Systems Interplay co-located with IJCAI-ECAI, 2026. Demo Paper.

[11] M. Beetz, Knowledge Graphs for Robots that Act: Grounding Generative AI in the Physical World, in: Proceedings of the Joint Workshop on Generative AI and Knowledge Graphs and Knowledge Graphs & Agentic Systems Interplay co-located with IJCAI-ECAI, 2026. Invited Keynote.
[12] F. Sasaki, From API Metadata to Agent-Ready Ontologies: An Industry Research Agenda for Semantic Layering in Enterprise Knowledge Graphs, in: Proceedings of the Joint Workshop on Generative AI and Knowledge Graphs and Knowledge Graphs & Agentic Systems Interplay co-located with IJCAI-ECAI, 2026. Invited Keynote.

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