

Preface for LLMs4OL 2025: The 2nd Large Language Models for Ontology Learning Challenge at the 24th ISWC

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We are pleased to present the proceedings of the “The 2nd Large Language Models for Ontology Learning Challenge (LLMs4OL 2025)”, held at the 24th International Semantic Web Conference (ISWC 2025), Nara, Japan. This challenge represents a significant advancement in utilizing Large Language Models (LLMs) for Ontology Learning (OL)—a crucial Semantic Web component that enables the automatic extraction of structured knowledge from unstructured data. The challenge features four main tasks: *Text2Onto* (extracting ontological terminologies and types from a raw text), *Term Typing* (identifying categories for terms), *Taxonomy Discovery* (uncovering hierarchical relationships), and *Non-Taxonomic Relation Extraction* (identifying other meaningful relationships between terms). Each task is designed to test different facets of ontology construction and to encourage the exploration of innovative techniques. This challenge seeks to foster collaboration, inspire innovation, and expand the capabilities of LLMs in OL. The proceedings include a collection of innovative solutions and insights from global participants, highlighting the crucial role of LLMs in enhancing the web with structured knowledge. We believe the outcomes of this challenge will propel further advancements in OL and its applications on the semantic web.

In summary, the second round of the challenge brought together 11 teams, showcasing a diverse range of methodological approaches and LLM perspectives. Further details are available on the challenge website (<https://sites.google.com/view/llms4ol2025>). The datasets are maintained in a dedicated GitHub repository (<https://github.com/sciknoworg/LLMs4OL-Challenge>).

We want to extend our gratitude to all the participants for their invaluable contributions, whose solutions and dedication have greatly enriched this challenge. Our sincere thanks also go to the conference organizers and committee for their efforts in hosting this event. We are deeply appreciative of the reviewers for their evaluations and feedback. Their reviews have been instrumental in enhancing the quality of the submissions. We want to acknowledge specifically:

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