

Proceedings of the 40th Italian Conference on Computational Logic (CILC 2025)

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Preface

The Italian Conference on Computational Logic (CILC) is the annual event of the Italian Association for Logic Programming (GULP – Gruppo Ricercatori e Utenti Logic Programming¹). Since its first edition, held in Genoa in 1986, the conference has served as an important venue for researchers, developers, and users to meet and exchange ideas and experiences in the field of computational logic. Over the years, the scope of the conference has expanded beyond its original focus on logic programming to embrace the broader domain of computational logic. This includes areas such as declarative programming, constraint programming, and applications in closely related fields like artificial intelligence.

The 40th Italian Conference on Computational Logic (CILC 2025) was held in Alghero at the University of Sassari from 25 to 27 June. The event attracted over 43 participants from universities and research institutions across Italy and the United Kingdom. The program included 35 presentations, comprising invited talks and tutorials, original contributions (both full and short papers), and papers previously published elsewhere. The accepted contributions covered a wide range of topics in computational logic and its applications, including:

- Applications of Computational Logic and Systems
- Neuro-Symbolic Learning
- Explainability
- Analysis and Verification
- Probabilistic Logic Programming and Process Mining
- Answer Set Programming
- Natural Language Processing
- Data Mining and Data Integration
- Knowledge Representation
- Logic
- Argumentation

All accepted submissions underwent a rigorous peer-review process. Each original contribution was evaluated by two anonymous reviewers from the Program Committee to ensure high scientific quality. Non-original papers, already published elsewhere, were also reviewed to verify their relevance to the aims and scope of the conference. These non-original papers are not included in this volume; however, references to their original publications are provided at the end of the table of contents.

Out of 32 submissions, 32 papers were selected by the Program Committee. Of these, 22 are included in this volume – 20 as regular papers and 2 as short papers – while the remaining 10 were presented at the conference but had already been published elsewhere. The Best Student Paper Award was conferred to S. Sambri, A. Ghanbari, and F. Riguzzi for their paper titled “An Evaluation of Open Source LLMs for Neuro-Symbolic Integration.”

CILC 2025: 40th Italian Conference on Computational Logic, June 25–27, 2025, Alghero, Italy

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¹<https://www.programmazione logica.it>

The conference also featured two invited talks by distinguished researchers:

- *Arguing Together: The Evolution of a Concurrent and Timed Argumentation Language*, by Stefano Bistarelli (University of Perugia, Italy)
- *Rough Knowledge and its Refinement*, by Rafael Peñaloza (University of Milano-Bicocca, Italy)

In addition, the program included an invited tutorial on Answer Set Programming with quantifiers:

- *ASP with Quantifiers: A Natural and Efficient Way to Tackle Problems Beyond NP*, by Giuseppe Mazzotta (University of Calabria, Italy)

Acknowledgements

We would like to warmly thank everyone who contributed to the success of CILC 2025, especially the University of Sassari for hosting us, with particular appreciation for the Department of Architecture in Alghero. We are also grateful to the University of Sassari for sponsoring the three invited speakers.

Our sincere thanks go to all the authors of the submitted papers, the invited speakers, the members of the Program Committee, and the anonymous reviewers for their invaluable contributions. We also wish to express our gratitude to the President of GULP, Marco Gavanelli, the GULP Secretary, Emanuele De Angelis, and all members of the GULP Board for their ongoing support and insightful suggestions.

Finally, a special thanks to all the attendees who helped make CILC 2025 a vibrant forum for engaging discussions on key research topics and challenges in computational logic.