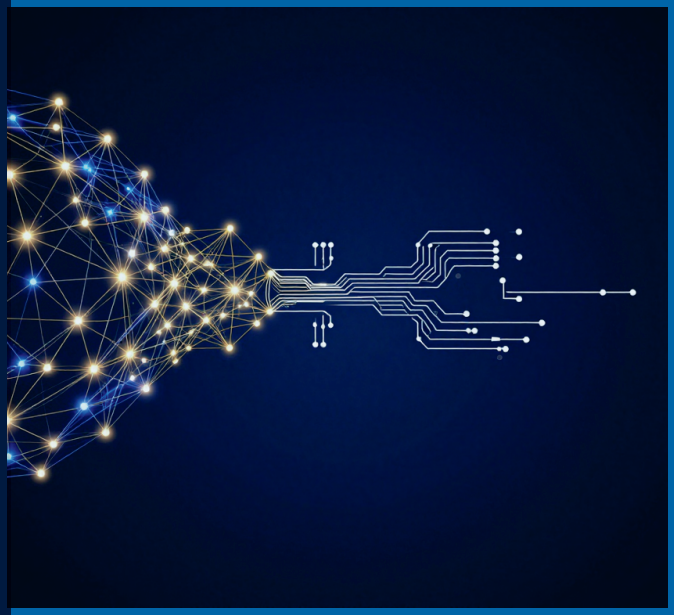
CALL FOR PAPERS

Special Issue on Neuro-Symbolic Computing for Explainable, Ethical, and Interpretable Intelligent Systems



International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems
IJUFKS / SPECIAL ISSUE

OVERVIEW

The recent surge of large-scale neural models has led to unprecedented advances in artificial intelligence. However, these systems often operate as opaque black boxes, raising critical concerns about explainability, transparency, and ethical behavior. At the same time, symbolic approaches, rooted in logic, knowledge representation, and reasoning, offer interpretability and decision-making that can be founded on clear ethical principles, yet struggle with scalability and learning from complex data.

Neuro-symbolic computing has emerged as a promising paradigm to bridge this gap, combining the learning capabilities of neural models with the reasoning and interpretability of symbolic methods. This hybrid approach is particularly relevant in domains where uncertainty, vagueness, and human-centric reasoning are central. In this respect bridging neural models with fuzzy logic and possibility theory has a main challenging role for defining flexible and powerful systems.

This special issue aims to gather cutting-edge research that advances neuro-symbolic methods with a strong focus on explainability of neural systems, ethical and trustworthy AI design, and interpretable decision-making under uncertainty. We particularly welcome contributions that explore applications in information retrieval and Retrieval-Augmented Generation, flexible and approximate query answering, and decision support systems.

WHY THIS SPECIAL ISSUE MATTERS

Bridging neural learning with symbolic reasoning for systems that are explainable, ethical, and able to reason under uncertainty.

KEYWORDS

Neuro-Symbolic Computing; Explainable AI; Ethical AI; Symbolic Reasoning; Fuzzy Logic; Retrieval-Augmented Generation; Approximate Query Answering; Decision Support Systems

IJUFKS / SPECIAL ISSUE

Research at the intersection of learning, logic, and responsibility.

Topics, guest editors, timeline, and submission guidelines

TOPICS OF INTEREST

We invite original research articles, surveys, and application papers addressing (but not limited to) the following topics:

- Neuro-symbolic architectures and frameworks
- Integration of neural learning with symbolic reasoning and knowledge representation
- Explainable AI techniques for neural and hybrid systems
- Logic-informed and constraint-based neural models
- Fuzzy, probabilistic, and approximate reasoning in neuro-symbolic systems
- Ethical AI: fairness, accountability, and transparency in hybrid models
- Human-centered and interpretable AI design
- Neuro-symbolic approaches for information retrieval and recommendation
- Flexible querying, query relaxation, and approximate query answering
- Decision support systems under uncertainty and incomplete information
- Knowledge graphs and reasoning-enhanced neural models
- Evaluation methodologies for explainability and interpretability
- Applications in real-world domains (e.g., healthcare, finance, governance)

GUEST EDITORS

Dr. Gloria Bordogna
CNR (Consiglio Nazionale delle Ricerche)
Rome, Italy
gloria.bordogna@cnr.it

Prof. Gabriella Pasi
University of Milano-Bicocca
Milan, Italy
gabriella.pasi@unimib.it

TIMELINE

SUBMISSION DEADLINE

10 December 2026

SUBMISSION GUIDELINES

Original Manuscripts, not already published in other journals or conference proceedings, should be prepared according to the IJUFKS author guidelines and submitted through the journal's online submission system. Submissions will undergo a rigorous peer-review process.

- Papers must be original and not under consideration elsewhere
- Theoretical contributions are encouraged
- Direct application papers are not accepted
- Survey papers should provide critical and forward-looking perspectives

SUBMIT YOUR MANUSCRIPT

https://www.worldscientific.com/page/ijufks/callforpapers01