Preface

1st International Workshop on Informing ML with Knowledge Engineering for Hybrid Intelligent Systems (HHAI-KEML)

Organizers

- Shreya Banerjee, University of New Orleans
- Atriya Sen, Oklahoma State University

Program Committee

- Shreya Banerjee, University of New Orleans
- Atriya Sen, Oklahoma State University
- Anthony Marchiafava, Oklahoma State University
- Henry Fordjour Ansah, University of New Orleans

Conference website

https://haim-lab.github.io/site/hhai2025.html

Papers Submitted: 8

Papers Accepted: 5

Overview

Integrating Knowledge Engineering (KE) with Machine Learning (ML) offers a promising approach to building trustworthy AI systems. This integration combines the strengths of data-driven learning with formal, structured reasoning, enabling AI models to be both highly accurate and explainable. By leveraging structured knowledge—such as electronic health records in healthcare, scientific axioms, or legal guidelines—AI systems gain the ability to perform commonsense reasoning, enhancing their reliability and making them more knowledge-aware. Although using symbolic methods for knowledge representation and reasoning can sometimes limit scalability, their ability to provide verifiable, human-understandable explanations makes them especially valuable in mission-critical applications.

This workshop hosted by HHAI 2025 seeks to bridge the gap between KE and ML by exploring the synergies between these fields. A key focus is on developing hybrid human-AI systems that utilize multimodal approaches, incorporating various forms of data including text, speech, images, and video. This collaborative forum will bring together researchers and practitioners from academia and industry to discuss cutting-edge research and innovative strategies for integrating KE and ML. Ultimately, the goal is to advance the development of AI systems that

are not only robust and efficient but also transparent and human-centric, addressing both the challenges and benefits of merging symbolic reasoning with data-driven techniques.

Topics of Interest

- Neuro-Symbolic Knowledge Representation
- KRR and Commonsense Reasoning in ML
- Artificial General Intelligence
- KE with Generative AI and Large Language Models
- KE in Multi-Agent AI Systems
- KRR in Hybrid AI Systems for Health and Other Application Domains
- Human-Centric Multimodal AI
- Human-AI Interaction and Human-in-the-loop

Paper Submission & Review Process

All submissions are peer-reviewed through a double-blind process. Papers required to be anonymized and written in English. Submissions of regular and short papers should be original work without substantial overlap with pre-published papers. For further details, please see the submission guidelines.

Accepted submissions shall be submitted to CEUR-WS.org for online publication in CEUR Workshop Proceedings (Scopus indexed). Contributions were presented as oral presentations.