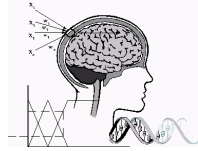




International

*Innovation in Knowledge Based and Intelligent
Engineering Systems*



INVITED SESSION SUMMARY

Title of Session:

Knowledge-Aware eXplainable Artificial Intelligence

Name, Title and Affiliation of Chair:

Dr Ali Ayadi, Associate professor, ICube laboratory - University of Strasbourg.

Dr Rabih Amhaz, Associate professor, Icube Laboratory, ECAM Strasbourg-Europe

Details of Session (including aim and scope):

Recent successes in machine and deep learning models have gained remarkable success and proven their utility to generate data-driven models with high accuracy and precision. Despite their successes, their integration in real-world applications is still limited by their inability to explain their decisions in a way that humans can easily understand them, urging for the need to improve the interpretability and trustworthiness from the user perspective – a crucial aspect for their adoption at large scale.

In response, explainable artificial intelligence (eXplainable AI) has rapidly become an active area of research, with an explosion of contributions focusing on using a variety of techniques to explain the functioning of machine and deep learning models and the logic of their inferences. Explainable artificial intelligence typically focuses on data-based explanations, lacking the semantic context needed to produce transparent intelligent systems affording explanations of how and why they arrived at a particular outcome, without sacrificing their performances.

Although the need for XAI is very clear, achieving this goal can be challenging. One typical approach is the integration and combination of semantic technologies (knowledge representation, knowledge graph, knowledge bases, ontologies, ...) with modern machine and deep learning techniques. Such topic would be the theme of this invited session with a special focus on XAI using a combination of graph-based knowledge representation and machine learning.

This invited session intends to provide an opportunity for the AI community to present their novel contributions and recent advances in the field of Knowledge-aware XAI, but also their application in different research domains. Both methodological and applicative works are welcome to this invited session.

Topics include, but are not limited to, the following:

- Explainable artificial intelligence tools
- Inclusion of domain-knowledge with machine and deep learning approaches
- Knowledge representation and reasoning in deep / machine learning
- Integration of knowledge graphs into deep learning models
- Knowledge-Aware Interpretable Recommender Systems
- Knowledge representation for human-centric explanations
- Applications of ontologies for explainability and trustworthiness in specific domains
- Semantic integration for explainable artificial intelligence
- Knowledge-enhanced semantic explanations
- Explainable knowledge-enabled systems
- Hybrid and neuro-symbolic learning and reasoning approaches
- XAI applications in industry 4.0, medical and health sciences, biology, etc.

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

<https://icube.unistra.fr/>

Website URL of Call for Papers (if any):

Email & Contact Details:

Dr Ali AYADI

PhD computer Science

ali.ayadi@unistra.fr

Associate Professor, University of Strasbourg

ICube laboratory - UMR 7357

CSTB research team (Complex Systems and Translational Bioinformatics)

1 rue Eugène Boeckel, CS 60026, 67084 Strasbourg

Dr Rabih AMZAH

PhD Image Processing

amhaz@unistra.fr

ICube Laboratory

ECAM Strasbourg-Europe

ICUBE laboratory - UMR CNRS 7357

CS-TB: Complex Systems and Translational Bioinformatics

Strasbourg, France