Dear colleagues and researchers,
Please consider contributing to the 2nd edition of the international workshop " **Ontology Uses and Contribution to Artificial Intelligence** ", in conjunction with **PAKDD 2022** which will be held online or in Chengdu, China - May 16 - 19, 2022.

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The deadline for paper submissions is **March 11, 2022**

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OnUCAI-2022

2nd International workshop on Ontology Uses and Contribution to Artificial Intelligence
at **PAKDD 2022**, Chengdu, China - May 16 - 19, 2022
Workshop website: https://sites.google.com/view/onucai-pakdd-2022

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Context

An ontology is well known to be the best way to represent knowledge in a domain of interest. It is defined by Gruber and Guarino as "an explicit specification of a conceptualization". It allows us to represent explicitly and formally existing entities, their relationships, and their constraints in an application domain. This representation is the most suitable and beneficial way to solve many challenging problems related to the information domain (e.g., knowledge representation, knowledge sharing, knowledge reusing, automated reasoning, knowledge capitalizing, and ensuring semantic interoperability among heterogeneous systems). Using ontology has many advantages, among them we can cite ontology reusing, reasoning, explanation, commitment, and agreement on a domain of discourse, ontology evolution, mapping, etc. As a field of artificial intelligence (AI), ontology aims at representing knowledge based on declarative and symbolic formalization. Combining this symbolic field with computational fields of IA such as Machine Learning (ML), Deep Learning (DL), Uncertainty and Probabilistic Graphical Models (PGMs), Computer Vision (CV), Multi-Agent Systems (SMA) and Natural Languages Processing (NLP) is a promising association. Indeed, ontological modeling plays a vital role to help AI reduce the complexity of the studied domain and organizing information inside it. It broadens AI's scope allowing it to include any data type as it supports unstructured, semi-structured, or structured data format which enables smoother data integration. The ontology also assists AI for the interpretation process, learning, enrichment, prediction, semantic disambiguation, and discovery of complex inferences. Finally, the ultimate goal of ontologies is the ability to be integrated into the software to make sense of all information.

In the last decade, ontologies are increasingly being used to provide background knowledge for several AI domains in different sectors (e.g. energy, transport, health, banking, insurance, etc.). Some of these AI domains are:

- Machine learning and deep learning: semantic data selection, semantic data pre-processing, semantic data transformation, semantic data prediction, semantic

clustering correction of the outputs, semantic enrichment with ontological concepts, use the semantic structure for promoting distance measure, etc.
- Uncertainty and Probabilistic Graphical Models: learning PGM (structure or parameters) using ontologies, probabilistic semantic reasoning, semantic causality, probability, etc.
- Computer Vision: semantic image processing, semantic image classification, semantic object recognition/classification, etc.
- Blockchain: semantic transactions, interoperable blockchain systems, etc.
- Natural Language Processing: semantic text mining, semantic text classification, semantic role labeling, semantic machine translation, semantic question answering, ontology-based text summarizing, semantic recommendation systems, etc.
- Multi-Agent Systems and Robotics: semantic task composition, task assignment, communication, cooperation, coordination, plans and planification, etc.
- Voice-video-speech: semantic voice recognition, semantic speech annotation, etc.
- Game Theory: semantic definition of specific games, semantic rules, and goals definition, etc.
- etc.

Objective

This workshop aims at highlighting recent and future advances on the role of ontologies and knowledge graphs in different domains of AI and how they can be used to reduce the semantic gap between the data, applications, machine learning process, etc., to obtain semantic-aware approaches. In addition, the goal of this workshop is to bring together an area for experts from industry, science, and academia to exchange ideas and discuss the results of ongoing research in ontologies and AI approaches.

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We invite the submission of original works that are related -- but are not limited to -- the topics below.

Topics of interest:

- Ontology for Machine Learning/Deep Learning
- Ontology for Uncertainty and Probabilistic Graphical Models
- Ontology for Edge Computing
- Ontology for Federated Machine Learning
- Ontology for Smart Contracts
- Ontology for Computer Vision
- Ontology for Natural Language Processing
- Ontology for Robotics and Multi-agent Systems
- Ontology for Voice-video-speech
- Ontology for Game Theory
- and so on.

Submission:

The workshop is open to submitting unpublished work resulting from research that presents original scientific results, methodological aspects, concepts, and approaches. All submissions

are not anonymous and must be PDF documents written in English and formatted using the following style files: PAKDD2022_authors_kit

Papers are to be submitted through the workshop's EasyChair submission page.

We welcome the following types of contributions:

- **Full papers** of up to 9 pages, including abstract, figures, and appendices (if any), but excluding references and acknowledgments: Finished or consolidated R&D works, to be included in one of the Workshop topics.
- **Short papers** of up to 4 pages, excluding references and acknowledgments: Ongoing works with relevant preliminary results, opened to discussion.

Submitting a paper to the workshop means that the authors agree that at least one author should attend the workshop to present the paper if the paper is accepted. For no-show authors, their affiliations will receive a notification. For further instructions, please refer to the PAKDD 2022 page.

Important dates:

- Workshop paper submission due: **March 11, 2022**
- Workshop paper notifications: March 31, 2022
- Workshop paper camera-ready versions due: April 15, 2022
- Workshop: May 16-19, 2022 (Half-Day)

All deadlines are 23:59 anywhere on earth (UTC-12).

Publication:

The accepted papers of this workshop may be included in the Proceedings of PAKDD 2022 Workshops published by Springer.

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Workshop Chairs

- Sarra Ben Abbès, Engie, France
- Lynda Temal, Engie, France
- Nada Mimouni, CNAM, France
- Ahmed Mabrouk, Engie, France
- Philippe Calvez, Engie, France

Program Committee

- Shridhar Devamane, Physical Design Engineer, Tecsec Technologies, Bangalore, India
- Oudom Kem, Engie, France
- Philippe Leray, Professor at University of Nantes
- Stefan Fenz, key researcher at SBA Research and Senior Scientist at Vienna University of Technology

- Olivier Dameron, Professor at Université de Rennes I, Dyliss team, Irisa / Inria Rennes-Bretagne Atlantique
- Ammar Mechouche, Data Science expert at AIRBUS Helicopters
- Aarón Ayllón Benitez, PhD in bioinformatics and Ontology Lead at BASF Digital Solutions S.L.
- François Scharffe, Researcher on Knowledge-based AI, New York, United States
- Maxime Lefrançois, Associate Professor at Saint Etienne University, France
- Pierre Maret, The QA Company & Saint Etienne University, France
- Sanju Tiwari, Universidad Autonoma de Tamaulipas, Mexico