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Introduction (EN)

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## Introduction (EN)

This special issue of the ROIA<sup>(1)</sup> journal offers a selection of papers from the 2018, 2019, and 2020 editions of the CNIA (National Conference on Artificial Intelligence) conference. It testifies of the visibility and vitality of the different facets of artificial intelligence in France and in the French-speaking world. In a period when there is a lot of talk about science, as rarely before, and when artificial intelligence is often put forward, the CNIA conference and the ROIA journal take all their importance.

The papers included in this issue are revised and expanded versions of articles published in the CNIA proceedings. They have been peer-reviewed, according to the usual process of the journal. They offer a panorama of the diversity and vitality of French-speaking research in artificial intelligence. They also show the abundant hybridization of well-identified themes. Let's see what is at the menu.

Two revised and extended articles from CNIA and RJCIA 2018 are included in this issue.

The paper by Jean-Christophe Mensonides, Sébastien Harispe, Jacky Montmain and Véronique Thireau uses deep learning for natural language processing. It is concerned with the extraction of arguments from text. The article provides a detailed presentation of the architecture of such a deep learning system as well as an analysis of the contributions of each component.

The paper by Arnaud Giacometti, Béatrice Markhoff and Arnaud Soulet uses statistical techniques for the completion of symbolic knowledge representations. It proposes to induce a maximum bound for the cardinality of attributes within a class based on a statistical analysis of the (incomplete and erroneous) data it describes. The notion of maximum meaningful cardinality is defined, an algorithm to compute it is presented and it is shown to scale on large knowledge graphs while being mostly correct.

We have selected four papers from the 2019 edition of CNIA. They cover many branches of AI (machine learning, knowledge representation and reasoning, AI ethics, multi-agent systems, human-computer interaction, robotics).

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<sup>(1)</sup><https://roia.centre-mersenne.org/>

The paper by Florence Dupin de Saint-Cyr and Henri Prade is at the interface of cognitive science on the one hand, and knowledge representation and reasoning on the other hand: it gives an interpretation of the understanding of funny stories in terms of belief revision and reasoning by analogy.

The paper by Christophe Denis and Franck Varenne is at the interface of, on the one hand, the philosophy and ethics of AI, and on the other hand, machine learning: it gives a new epistemological perspective on the crucial problems, often debated in recent years, of the interpretability and explicability of machine learning techniques.

The paper by Damien Mondou, Armelle Prigent and Arnaud Revel is at the interface of human-machine interaction (especially serious games) and social robotics: it deals with the modeling and supervision of the behaviors of an assistant robot interacting with one or more human(s), especially in the context of guidance tasks.

The paper by Mehdi William Othmani-Guibourg, Amal El Fallah Seghrouchni and Jean-Loup Farges is at the interface of multi-agent systems, deep learning and planning: it proposes a new method to solve the well-known problem of multi-agent patrolling.

Finally, two papers from the 2020 edition have been selected.

The paper by Sihem Bellabes and Salem Benferhat, in both areas of knowledge representation and reasoning under uncertainty, proposes an extension of the possibilistic DL-Lite description logic in the case where the uncertain data are partially pre-ordered. The uncertainty concerns the assertional basis and can be a source of inconsistencies. Repair mechanisms are then proposed.

The paper by Richard Fontaine, Rémy Courdier and Denis Payet focuses on the environmental impact of connected systems. An architecture model is proposed, based on the concept of artifact, in order to promote the mutualization of the components present in connected devices, and thus to reduce the negative impact of the overabundance of connected objects.

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*Introduction (EN)*

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