

PROPOSAL FOR THE ICCBR-18 WORKSHOPS

XCBR: Case-based Reasoning for the explanation of intelligent systems

PROPOSER CONTACT INFORMATION

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TECHNICAL DESCRIPTION

The success of the intelligent systems has led to an explosion of the generation of new autonomous systems with new capabilities like perception, reasoning, decision support and self-actioning. Despite the tremendous benefits of these systems, they work as black-box systems and their effectiveness is limited by their inability to explain their decisions and actions to human users. The problem of explainability in Artificial Intelligence is not new but the rise of the autonomous intelligent systems has created the necessity to understand how these intelligent systems achieve a solution, make a prediction or a recommendation or reason to support a decision in order to increase users' reliability in these systems. Additionally, the European Union included in their regulation about the protection of natural persons with regard to the processing of personal data a new directive about the need of explanations to ensure fair and transparent processing in automated decision-making systems.

The goal of Explainable Artificial Intelligence (XAI) is “to create a suite of new or modified machine learning techniques that produce explainable models that, when combined with effective explanation techniques, enable end users to understand, appropriately trust, and effectively manage the emerging generation of Artificial Intelligence (AI) systems”.

The aim of the XCBR workshop is to provide a forum for the discussion of trends, research issues and practical experiences in the use of Case-based Reasoning (CBR) methods for the inclusion of explanations to several AI techniques using reasoning-by-example. CBR systems have previous experiences in interactive explanations and in exploiting memory-based techniques to generate these explanations.

For this purpose, the workshop is intended to have a structure of activities that helps exchange of ideas and interaction, suited to highlight the main bottlenecks

and challenges, as well as the more promising research lines, for CBR research related to the explanation of intelligent systems. To this end, the agenda will include ample discussion time and it will invite submissions both of short position papers (4 pages) and longer papers on research results (10 pages).

PRELIMINARY AGENDA

We request a half day for the workshop. However, with a strong response, we might ask if it is possible to extend the workshop to a full day. The half-day workshop would include two presentation sessions, organized by topic and facilitated by discussants, and a session for an open closing discussion. We expect that presentations will be comparatively short, to emphasize discussion over formal presentations.

WORKSHOP SCOPE AND INTEREST

This workshop is not only focused on the CBR community but also on any other AI researcher that is looking for novel generic explanation techniques, which would be extensible to different domains, and could be applied for both symbolic and subsymbolic AI systems.

Due to the emerging relevance of topics such as transparency, reliability, or trust in the area of AI, this workshop could be interesting for a wide audience.

(DRAFT) CALL FOR PAPERS

First Workshop on XCBR: Case-based Reasoning for the explanation of intelligent systems.

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The success of the intelligent systems has led to an explosion of the generation of new autonomous systems with new capabilities like perception, reasoning, decision support and self-actioning. Despite the tremendous benefits of these systems, they work as black-box systems and their effectiveness is limited by their inability to explain their decisions and actions to human users. The problem of explainability in Artificial Intelligence is not new but the rise of the autonomous intelligent systems has created the necessity to understand how these intelligent systems achieve a solution, make a prediction or a recommendation or reason to support a decision in order to increase users reliability in these systems. Additionally, the European Union included in their regulation about the protection of natural persons with regard to the processing of personal data a new directive about the need of explanations to ensure fair and transparent processing in automated decision-making systems.

The goal of Explainable Artificial Intelligence (XAI) is “to create a suite of new or modified machine learning techniques that produce explainable models that, when combined with effective explanation techniques, enable end users to understand, appropriately trust, and effectively manage the emerging generation of Artificial Intelligence (AI) systems”.

For this purpose, the XCBR workshop is intended to have a structure of activities that helps exchange of ideas and interaction, suited to highlight the main bottlenecks and challenges, as well as the more promising research lines, for CBR research related to the explanation of intelligent systems.

CBR systems have previous experiences in interactive explanations and in exploiting memory-based techniques to generate these explanations that can be successfully applied to the explanation of emerging AI and machine learning techniques.

Research contributions submitted to the workshop will be related to areas that include, but are not limited to, the following:

- Generic explanation methods based on CBR for AI techniques.
- Novel techniques for the visualization of case-based explanations.
- Case-based explanation of deep-learning techniques.
- Case-based explanation of big data techniques.

- Case-based explanation of the massive data obtained from sensor systems, Internet of Things, or wearables.
- Combination of existing AI models and CBR to provide explanation capabilities.
- Application of Case-based explanation capabilities to different domains.
- Lessons learned in XCBR investigations
- Challenge tasks for XCBR systems in novel AI techniques.

PARTICIPATION IN THE WORKSHOP

This workshop will be held on July XX, 2018 as part of the ICCBR 2018 workshop series in Stockholm, Sweden. This workshop is open to all interested conference participants but may be limited by available room facilities.

SUBMISSION PROCEDURE AND FORMAT

We invite submissions of two types:

- Long research and application papers: a maximum of 10 pages describing original contributions.
- Short position papers: a maximum of 4 pages describing new research ideas and partially developed frameworks

Papers must be submitted in electronic form as PDF. Springer LNCS is the format required for the final camera-ready copy. Authors' instructions along with LaTeX and Word macro files are available on the web at Springer.

WORKSHOP CHAIRS

Belén Díaz Agudo, University Complutense of Madrid
 Juan A. Recio García, University Complutense of Madrid

PROGRAM COMMITTEE (tentative)

Derek Bridge, University College Cork, Ireland
Amélie Cordier, University Claude Bernard Lyon 1, France
Pedro A. González Calero, UCM, Madrid
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Hector Muñoz-Ávila, Lehigh University, USA
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