XCBR: Case-Based Reasoning for the Explanation of Intelligent Systems

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Preface

The problem of explainability in Artificial Intelligence is not new. But the rise of autonomous intelligent systems has created the necessity to understand how these intelligent systems arrive at a solution, prediction, recommendation, or decision. Helping users to reach this kind of understanding may promote the reliability of these systems, for example.

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

Case-Based Reasoning (CBR) systems play a dual role in XAI. On the one hand, CBR systems are AI systems, with their own need for explanations. But, on the other hand, CBR offers a way to generate explanations for other AI techniques. The CBR system can use previous experiences of interactive explanations and exploit memory-based techniques to generate explanations for these other AI techniques.

After the two successful previous XCBR workshops, one in 2018 in Stockholm, Sweden and the other in 2019, in Otzenhausen, Germany, this third workshop offered an opportunity for discussion of progress in this field. The workshop program included an invited talk by Mark Keane in which Mark reviewed ways of pairing deep learning systems with CBR for purposes of explanation and data augmentation. Then we organized two sessions with seven presentations in total. This year most of the contributions were oriented to applications of CBR for explanation in different domains, including reviews of existing libraries and evaluation approaches. Besides, we included a contribution from the Health Workshop into our program.

We wish to thank all who contributed to the success of this workshop, especially the authors, the Program Committee, and the editors of the workshop proceedings!

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