ICCBR'18 Workshop: Case-Based Reasoning and Deep Learning

1 Introduction

Recent advances in deep learning (DL) have helped to usher in a new wave of confidence in the capability of artificial intelligence. Increasingly, we are seeing DL architectures outperform long established state-of-the-art algorithms in a number of diverse tasks. In fact, DL has reached a point where it currently rivals or has surpassed human performance in a number of challenges e.g. image classification, speech recognition and game play.

These successes of DL call for novel methods and techniques that exploit DL for the benefit of CBR systems. In particular, the potential of DL for CBR include improvement in knowledge aggregation and feature extraction for case representation, efficient indexing and retrieval architectures as well as assisting with case adaptation.

2 Workshop Goals

The goals of this workshop are to provide a forum to identify opportunities and challenges for the use of deep learning techniques and architectures in the context of case-based reasoning systems. Particular interests this workshop will explore include:

- How DL can be used to improve knowledge aggregation strategies for case representation
- The role of DL in making similarity computations easier and more efficient
- Application of DL to help with solution adaptation
- How DL architectures can be used to inspire more efficient indexing and retrieval architectures

Accordingly, we expect to draw interest from researchers from a number of related areas including Case-based Reasoning, Deep Learning and Machine Learning. We expect that this diversity would allow us to address the challenges in the field and identify where our efforts, as a research community, should focus.

3 Workshop Topics

Topics will include, but not be limited to, the following:
- Learning Theory;
- Representation Learning
- Deep Learning Architectures;
- Hybrid Systems;
- Deep Reinforcement Learning;
- Deep Belief Networks;
- Auto-encoders;
- Feed-Forward Neural networks;
- Convolutional Neural Networks;
- Recurrent Neural Networks;
- Generative Adversarial Networks;
- Transfer Learning and Domain Adaptation

4 Previous Workshops

Last year, we had the first in the first workshop of the series at ICCBR'17. The program committee consisted of 5 researchers from Norway, UK and USA. We had three full paper submissions and one demo submission. All four submissions were accepted for presentation at the workshop. The workshop also included an invited talk.

5 Workshop Format

The workshop will include the following activities.
- Presentation of peer-reviewed (application/research) papers;
- Presentation of short position papers;
- Demo supported by a brief abstract; and
- An invited talk.

We would generally expect to have a combination of 15 min and 30 min presentation slots for short and long paper submissions respectively. Depending on popularity the workshop can be organised into a half/full day event.

6 Submission Evaluation

Workshop submissions will be subject to review by at least two reviewers who will be members of the Programme Committee. Researchers who submit demo systems will be required to provide access to the software in advance to facilitate evaluation.

7 Registration

Workshop registration will be open to all registered to ICCBR'18.

8 Organisation

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