Preface: case-based reasoning and deep learning.

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Case-Based Reasoning and Deep Learning

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Preface

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.

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

This year the workshop has attracted researchers from a number of related areas including Case-based Reasoning, Deep Learning and Machine Learning. This diversity allowed us to address the challenges in the field and identify where our efforts, as a research community, should focus.

Workshop Topics focus on:

- 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
- Similarity/Metric Learning Models

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