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Editorial

This journal is the second journal in the series of journals Transaction on Case-Based Reasoning. It is comprised of papers presented at the second workshop on Case-Based Reasoning on Multimedia Data *CBR-MD 2009* (www.cbr-md.org) and selected topics on similarity from the Industrial Conference on Data Mining *ICDM 2009* (www.data-mining-forum.de).

It starts with a paper on distances in classification by Weihs and Szepannek that gives a fast introduction on the problem of similarity respective distances and how to find out the best measure for the current problem. Classification is seen as supervised and unsupervised classification so that it can be viewed from the clustering and classification aspect. They explain on different applications how to find out the best similarity.

Their paper brings the methodology how to deal with similarity for different applications closer to the engineers and practitioners and will help to pave the way for more Case-Based Reasoning applications.

The next paper by Vorobieva and Schmidt deals with the problem of exceptional cases that are handled by Case-Based Reasoning and the usual missing data problem. This is a big problem in particular in medical applications. The approach they propose combines Case-Based Reasoning with a statistical model. The statistical model is used to summarize the known cases while Case-Based Reasoning is used to explain the exceptional cases.

A system that uses Case-Based Reasoning to diagnose Lymphatic Tumors on Microscopic Images is presented by Colantonio et. al. The analysis of cells in microscopic images for different medical diagnosis purposes is a hot topic in medicine. Recently a lot of alternative methods, very specific and expensive chemical or molecular biological tests, are proposed to come around visual microscopic image diagnosis to avoid the problem that goes along with visual inspection. Although most visual microscopic tests are good for mass screening, automation is still limited. There are not enough automatic image interpretation systems available that can help to automatize these problems. A case-based reasoning system with proper functions can quickly adapt an image interpretation system to different problems.

Meta Learning of System Parameters by Case-Based Reasoning is proposed by Attig and Perner. It is a big problem in signal and image analysis is to find a model for the signal transformation that holds not only for a few images rather to a class of

images. Case-Based Reasoning with its incremental learning functions can help to solve this problem.

This special issue summarizes again new hot topics in Case-Based Reasoning. It shows what kind of applications can be solved by Case-Based Reasoning and why it is necessary to apply Case-Based Reasoning. We hope that this issue helps to further extend the work on Case-Based Reasoning and that it will attract more researchers to deal with it.

October, 2009

Petra Perner
Editor