

## Preface

Ever since the early days of machine learning and data mining, it has been realized that the traditional attribute-value and item-set representations are too limited for many practical applications in domains such as chemistry, biology, network analysis and text mining. This has triggered a lot of research on mining and learning within alternative and more expressive representation formalisms such as computational logic, relational algebra, graphs, trees and sequences. The state-of-the-art is that attribute-value and item-set representations lie at one extreme end of the spectrum, and multi-relational data mining and inductive logic programming at the other end. The middle is occupied by traditional data structures employed throughout the field of computer science. These include graphs, trees and sequences (or strings). The motivation for using such representations is that they are 1) more expressive (and therefore more widely applicable) than flat representations, and 2) potentially more efficient than multi-relational learning and mining techniques. At the same time, the data structures of graphs, trees and sequences are among the best understood and most widely applied representations within computer science. Thus these representations offer ideal opportunities for developing interesting contributions in data mining and machine learning that are both theoretically well-founded and widely applicable.

Whereas there have been a large number of workshops devoted to multi-relational data mining and inductive logic programming as well as applications of intermediate representations in e.g. ontologies, bioinformatics, XML-data, text-mining, there has - to the best of our knowledge - not been any workshops specifically devoted to foundational issues in intermediate representations. It is precisely the goal of this workshop to bring together researchers interested in mining and learning within graphs, trees and sequences. Considerable number of papers have been submitted to this workshop, and the papers selected for presentation have high quality in terms of originality, theory and potential practicality. We believe that this workshop provides a great chance to exchange stimulative information among researchers and establish a new research field of data mining.

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