ZBIGNIEW SURAJ

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Rough sets in discovery of concurrent systems from data

Data mining and knowledge discovery [2],[4] is one of important and current research problems. Discovering unsuspected relationships between data and hidden models belong to main tasks of Machine Learning [4]. Data are often generated by concurrent processes, and discovering of concurrent system models may lead to better understanding the nature of physical phenomena [6],[9],[10],[13-14],[15].

The main goal of the lecture is to provide a survey of state of the art related to a new research direction concerning relationships between rough set theory and concurrency. The foundation of this research direction has been proposed by Z. Pawlak in 1992 [8]. In the last decade we have witnessed an intensive development of this new scientific discipline [5],[6],[7],[9],[10],[11],[12],[13-14],[15],[16]. In the lecture, we discuss the problem of automatic technique of discovering hidden models of concurrent systems from observational experimental data. The most noticeable contributions to the proposed approach come from the theory of rough sets [8] and coloured Petri nets [3]. The preprocessing of data [2] and Boolean reasoning [1] also contribute to the discussed research. Discovering of concurrent systems models from experimental data tables is very interesting and useful for a number of application domains. In particular, in knowledge discovery, data mining [6],[15], control design [11], object identification in real-time [10],[14].

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