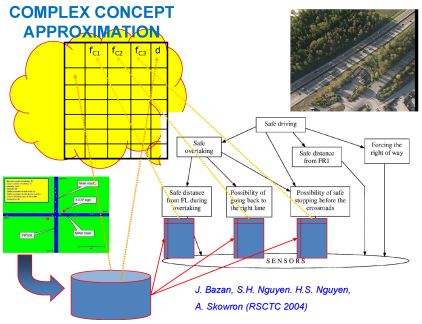
Коллоквиум факультета компьютерных наук НИУ ВШЭ

Rough sets: A tool for qualitative knowledge discovery

Ivo Düntsch[*], Brock University, St Catharines, ON, Canada

14 марта, 18:10 – 19:30 Кочновский проезд, 3, ауд. 205



Rough set theory (RST) was introduced in the early 1980s by Z. Pawlak (1982) and has become a well researched tool for knowledge discovery. The basic assumption of RST is that information is presented and perceived up to a certain granularity:

> "The information about a decision is usually vague because of uncertainty and imprecision coming from many sources [...] Vagueness may be caused by granularity of representation of the information. Granularity may introduce an ambiguity to explanation or prescription based on vague information" (Pawlak and Słowiński, 1993).

In contrast to other machine learning or statistical methods, the original rough set approach uses only the information presented by the data itself and does not rely on outside distributional or other parameters. RST relies only on the principle of indifference and the nominal scale assumption. It has been applied in many fields, most recently in the investigation of complex adaptive systems, interactive granular computing, and big data analysis (Skowron et al., 2016). In my talk I will present the basic concepts of RST as well as non–parametric methods for feature reduction, data filtering, significance testing and model selection.

Список литературы

Pawlak, Z. (1982). Rough Sets. Internat. J. Comput. Inform. Sci., 11:341–356.

Pawlak, Z. and Słowiński, R. (1993). Rough set approach to multi–attribute decision analysis. ICS Research Report 36, Warsaw University of Technology.

Skowron, A., Jankowski, A., and Dutta, S. (2016). Toward Problem Solving Support Based on Big Data and Domain Knowledge: Interactive Granular Computing and Adaptive Judgement, pages 49–90. Springer International Publishing, Cham.

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[*]Joint work with Günther Gediga. Thanks to Andrzej Skowron for part of this presentation.