Abstract

The Rough Set (RS) theory can be considered as a tool to reduce the input dimensionality and to deal with vagueness and uncertainty in datasets. Over the years, there has been a rapid growth in interest in rough set theory and its applications in artificial intelligence and cognitive sciences, especially in research areas such as machine learning, intelligent systems, inductive reasoning, pattern recognition, data preprocessing, knowledge discovery, decision analysis, and expert systems. This paper discusses the basic concepts of rough set theory and point out some rough set-based research directions and applications. The discussion also includes a review of rough set theory in various machine learning techniques like clustering, feature selection and rule induction.

References

- Agrawal, R., Imielinski, T. and Swami, A. Mining association rules between sets of items in large databases. in Proceedings of the 1993 ACM SIGMOD International Conference


- Do Prado H. A, Engel, P. M. and Filho, H. C. Rough clustering: an alternative to find
- Han, J., Pei, J., Yin, Y. and Mao, R. Mining frequent patterns without candidate generation. Data Mining and Knowledge Discovery, 8(2004), 53–87.
Rough Set Approach in Machine Learning: A Review

- Peters, G. and Lampart, M. A partitive rough clustering algorithm. Proceedings of the
Fifth International Conference on Rough Sets and Current Trends in Computing (RSCTC'06), Lecture Notes in Artificial Intelligence, LNAI-4259, (Kobe, Japan, 2006), Springer, 657-666.


- Richards, D. and Compton, P. An alternative verification and validation technique for an alternative knowledge representation and acquisition technique. Knowledge-Based Systems, 12,1–2(1999), 55–73.
- Yao, Y. Y. On combining rough and fuzzy sets. in Lin, T. Y. (Ed. ). Proceedings of the Computer Science Conference CSC, Workshop on Rough Sets and Database Mining, (Nashville, Tennessee, USA, 1995), San Jose State University,165-172.
- Yao, Y. Y. Three-way decisions with probabilistic rough sets. . Information Sciences, 180,3(2010),341-353.
- Zaki, M. J. Scalable algorithms for association mining. IEEE Transactions on
Knowledge and Data Engineering, 12,3(2000),372–390.

Index Terms
Computer Science Artificial Intelligence

Keywords
Clustering Rule Induction Feature Selection