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Seminar

OUTLIER DETECTION USING ROUGH SETS THEORY

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Rough Set Theory is an extension of Set Theory for application to the case of incomplete or insufficient information. This theory arises from the practical need to solve classification problems, and it assumes that with every object in the universe there is associated a certain amount of information: the existing knowledge about the object, expressed in terms of the values of some set of properties that describe it. This theory has the added appeal of a simple and solid mathematical foundation: the theory of equivalence relations, which here allows for the description of partitions constituted by indiscernible classes that group objects of similar attributes, that is, a data classification methodology.

On the other hand, Outliers are objects that show abnormal behavior with respect to their context or that have unexpected values in some of their parameters. In decision-making processes, information quality is of the utmost importance. In specific applications, an outlying data element may represent an important deviation in a production process or a damaged sensor. Therefore, the ability to detect these elements could make the difference between making a correct and an incorrect decision.

The successful application of Rough Set Theory in multiple contexts demonstrates its efficiency and versatility for the solution of a variety of problems. In particular, it has been applied with outstanding results in KDD-DM processes. Outlier detection using rough set is a new and novel approach.