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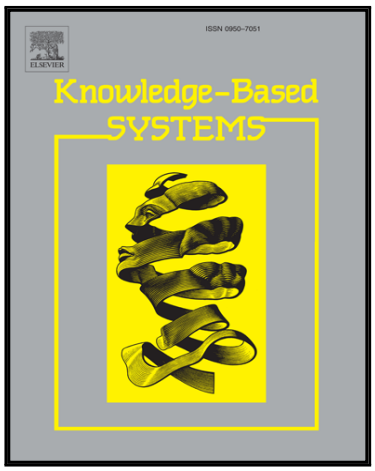

Robust clustering by identifying the veins of clusters based on kernel density estimation

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Highlights

- A robust clustering algorithm(IVDPC) is proposed to solve the "chain reaction" and cut off distance selecting problems of DPC.
- A new similarity coefficient is introduced to represent the relevance between the points which is an extension of γ defined in DPC.
- The local density is estimated through a non-parametric density estimation method so as to eliminate the reliance of user-defined parameter dc.
- Clusters are characterized by veins rather than one representative point, which allows IVDPC to identify the main structure of clusters more visualized and precise.
- The robustness of the algorithm with respect to the choice of input parameters is proved via statistical method.

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