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Uncertainty and reduction of variable precision multigranulation fuzzy rough sets based on three-way decisions

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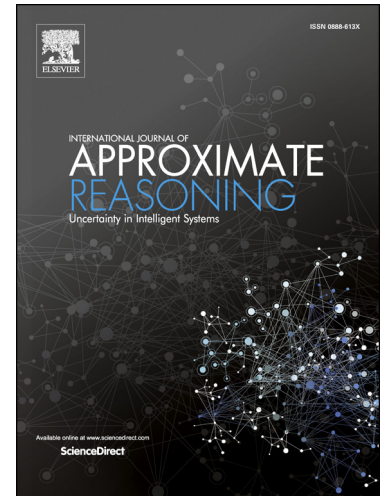
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Highlights

- This paper studies reduction of a multigranulation fuzzy information system by using uncertainty measures based on variable precision multigranulation decision-theoretic fuzzy rough sets, avoiding the positive region and negative region changing to small ones. Firstly, a double parameter rough membership degree of a fuzzy set is constructed based on variable precision multigranulation decision-theoretic fuzzy rough sets. Then, a double parameter uncertainty measure of a multigranulation decision system is also proposed. And then, in order to keep the decision-making of some element unchanged, we use the double parameter uncertainty measure of a multigranulation decision system to reduce the consistent decision system. Finally, we propose a conditional uncertainty measure and discuss the decision-theoretic reduction of conditional attribute set and granulation set in inconsistent views.

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