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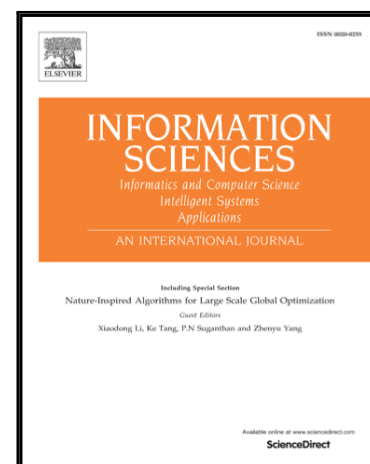
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L -fuzzy relational mathematical morphology based on adjoint triples

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Abstract

We propose an alternative to the standard structure of L -fuzzy Mathematical Morphology (MM) by, on the one hand, considering L -fuzzy relations as structuring elements and, on the other hand, by using adjoint triples to handle membership values. Those modifications lead to a framework based on set-theoretical operations where we can prove a representation theorem for algebraic morphological erosions and dilations. In addition, we also present some new results concerning duality and transformation invariance. Concerning duality, we show that duality and adjointness can coexist in this L -fuzzy relational MM. Concerning transformation invariance, we show sufficient conditions to guarantee the invariance of morphological operators under arbitrary transformations.

Keywords: Fuzzy Mathematical Morphology, Algebraic Mathematical Morphology, Fuzzy Sets, Adjoint triples.

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