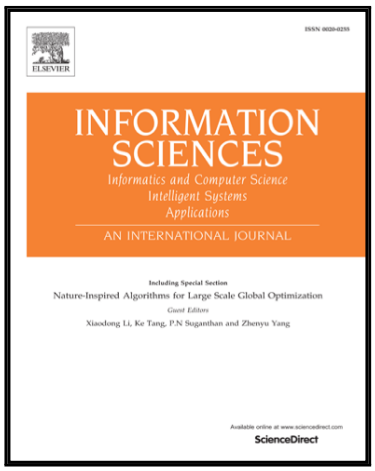

L-fuzzy relational mathematical morphology based on adjoint triples

Nicolás Madrid, Manuel Ojeda-Aciego, Jesús Medina, Irina Perfilieva

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L-fuzzy relational mathematical morphology based on adjoint triples

Nicolás Madrid, Manuel Ojeda-Aciego

Universidad de Málaga, Dept. Matemática Aplicada.
Blv. Louis Pasteur 35, 29071 Málaga, Spain.

Jesús Medina

Universidad de Cádiz, Dept. Matemáticas, Facultad de Ciencias
Campus Universitario de Puerto Real 11510 Puerto Real, Cádiz, Spain.

Irina Perfilieva

Center of Excellence IT4Innovations, Division University Ostrava, Institute for Research and Applications of fuzzy Modeling. 30. dubna 22, 701 03 Ostrava 1, Czech Republic.

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.

Email addresses: nicolas.madrid@uma.es (Nicolás Madrid), aciego@uma.es (Manuel Ojeda-Aciego), jesus.medina@uca.es (Jesús Medina), irina.perfilieva@osu.cz (Irina Perfilieva)