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Information Fusion and Logic-based Reasoning Approaches for Decision Making under Uncertainty

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Decision Making is a core area in different research fields related to human beings' intelligent activities; such activities involve different types of uncertainties depending on its nature. Therefore, different methods, models and formalisms have been investigated and applied to a wide range of decision making problems under uncertainty.

This special issue is devoted to information fusion models and logic based formalisms and their application to decision making under uncertainty, it encompasses eleven papers.

The first paper *Some Views on Information Fusion and Logic Based Approaches in Decision Making under Uncertainty* establishes the framework of this special issue, making a review of the state of art and pointing out different open problems and research opportunities in the topic. Salguero and Araque then propose an integration process based on the OWA operator taking into account temporal characteristics of the data. And Oussalah *et al*. address a track-to-track fusion problem.

In the paper *A Selection Process Based on Additive Consistency to Deal with Incomplete Fuzzy Linguistic Information*, Cabrerizo *et al*. manage missing values in decision making problems. Kahraman *et al*. present a new approach for a selection process for renewable energies and Ruan *et al*. a decision support system to analyze long-term energy policies. And in *A Demand Forecasting Methodology for Fuzzy Environments* a fuzzy demand forecast methodology is introduced.

Mingyi *et al*. explore fuzzy semi-equivalence relations and its properties in decision reasoning processes. Meanwhile, Yang and Xu introduce a lattice-valued logic decision model.

Eventually Kołaczek and Juszczyszyn present a multi-ontology framework for multi-agent systems based on deontic logic and Châtel *et al*. provide a graphical model based on LCP-nets and its logic formalism to model non-functional properties in order to be applied to the dynamic selection of web services.

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