



## Interval Uncertainty

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### Description:

Interval uncertainty is closely related to fuzzy techniques: indeed, if we want to know how the fuzzy uncertainty of the inputs propagates through the data processing algorithm, then the usual Zadeh's extension principle is equivalent to processing alpha-cuts (intervals) for each level alpha.

This relation between intervals and fuzzy computations is well known, but often, fuzzy researchers are unaware of the latest most efficient interval techniques and thus use outdated less efficient methods. One of the objectives of the proposed session is to help fuzzy community by explaining the latest interval techniques and to help interval community to better understand the related interval computation problems.

Yet another relation between interval and fuzzy techniques is that the traditional fuzzy techniques implicitly assume that experts can describe their degree of certainty in different statements by an exact number. In reality, it is more reasonable to expect experts to provide only a range (interval) of possible values - leading to interval-valued fuzzy techniques that, in effect, combine both types of uncertainty.