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Abstract

This work provides mathematical formulas and algorithm in order to calculate the derivatives that being necessary to perform Steepest Descent models to make T1 and T2 FLSs much more accessible to FLS modelers. It provides derivative computations that are applied on different kind of MFs, and some computations which are then clarified for specific MFs. We have learned how to model T1 FLSs when a set of training data is available and provided an application to derive the Steepest Descent models that depend on trigonometric function (SDTFM). This work, also focused on an interval type-2 non-singleton type-2 FLS (IT2 NS-T2 FLS) in order to determine how to assign all the parameters of the antecedent and consequent MFs using the set of n input-output and build mathematical formulas to calculate the derivatives ($\cosh(?)$)??? depend on general formula of SDTFM. Additionally?, we showed how to complete the calculations for input measurement and antecedent Gaussian primary MFs with uncertain standard deviations and means.

Refer

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Index Terms

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Fuzzy Systems

Keywords

Type-2 fuzzy sets interval type-2 membership functions type-2 fuzzy logic system steepest descent models

interval type-2 non-singleton type-2 FLS

derivative

uncertainty.