Tolerance-based approach to nonlinear regression models with inexact, unstable or interval data

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Abstract

Interval regression analysis allows us to handle inexact, imprecise, unstable, rounded, censored and/or interval data. The tolerance approach to regression has been successful in the case of linear regression models with both crisp and interval input and output data. The contribution extends the approach to a particular class of nonlinear regression models. We study the case of nonlinear regression models with interval coefficients. We develop a new method for determination of interval regression coefficients of nonlinear regression models, extending the tolerance-based method for linear regression. We illustrate the approach by examples of growth models suitable for description of biological and physical processes with imprecise inputs.

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