Hybrid Artificial Bee Colony and Least Squares Method for Rule-Based Systems Learning

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Abstract : This paper deals with the problem of automatic rule generation for fuzzy systems design. The proposed approach is based on hybrid artificial bee colony (ABC) optimization and weighted least squares (LS) method and aims to find the structure and parameters of fuzzy systems simultaneously. More precisely, two ABC based fuzzy modeling strategies are presented and compared. The first strategy uses global optimization to learn fuzzy models, the second one hybridizes ABC and weighted least squares estimate method. The performances of the proposed ABC and ABC-LS fuzzy modeling strategies are evaluated on complex modeling problems and compared to other advanced modeling methods.