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Applying bounding techniques on Grammatical Evolution

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Abstract: The Grammatical Evolution technique has been successfully applied to a wide range of problems in various scientific fields. However, in Grammatical Evolution, the chromosomes can be initialized at wide value intervals, which can lead to a decrease in the efficiency of underlying technique. In this paper, a technique for discovering appropriate intervals for the initialization of chromosomes is proposed using partition rules guided by a genetic algorithm. This method has been applied to feature construction technique used in a variety of scientific papers. After successfully finding a promising interval, the feature construction technique is applied and the chromosomes are initialized within that interval. This technique was applied to a number of known problems in the relevant literature and the results were extremely promising.

Keywords: Grammatical Evolution; Bounding techniques; Neural networks; Evolutionary techniques; Stochastic methods.

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