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Evolutionary Symbolic Regression in Machine Learning and Deep Learning Algorithm Design with Emphasis on Explainability of Artificial Intelligence

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Abstract:

The goal is to use evolutionary symbolic regression in machine learning and deep learning design. Symbolic regression can be used to design all or part of the symbolic structure of a classifier, detector or regressor but also for clustering. Since the amount of data is increasing day by day, it is necessary to search dependencies, relation hips between data from different reasons – commercial, scientific, etc. and new effective approaches are required. Evolutionary symbolic regression needs to identify suitable basic blocks or operators from which the more complex, analytic and symbolic solution is created. In the machine learning area, it is supposed to use already known functional blocks for the entire structure design or operators from which new functional blocks might be created and incorporated into existing model types. It is also necessary to design suitable quality of the proposed solution and design a suitable cost function. The purpose is to find new efficient approaches in machine learning and clustering increasing accuracy, efficiency, with faster convergence to solutions, saving time and cost required for training large scale machine and deep learning models.

Literature:

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