Evolutionary Approach for the Design of Neural Networks

ABSTRACT: Finding the optimal architecture for an artificial neural network (ANN) is a very complex task. Our paper presents a general framework to automate the design of neural networks using evolutionary approach. We use a multiparameter function optimization process to evolve a neural network. Our approach exploits the biological evolutionary mechanism to select an optimal architecture throughout the evolution process. We experimentally tested the proposed framework to design an ANN and compared the results against a manually designed one. The results show that the automatically generated ANN outperform the hand-crafted one with an optimized learning time and classification accuracy.

Keywords: artificial neural network; evolutionary algorithms; optimization