

異種個体集団が共存するGAによるニューラルネットワークの構造決定*

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Structural Design of Neural Networks by Genetic Algorithm Considering the Coexistence of Heterogeneous Populations

by

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Abstract

When we apply multi-layered neural network to a particular problem, we must determine beforehand the suitable sized network for the problem. It's, however, a very difficult problem. Too small a network will not learn at all, while too large a network will be inefficient.

In order to solve this problem, in this paper, we propose a structural design method for obtaining the suitable sized neural network by genetic algorithm considering the coexistence of heterogeneous populations. The genetic algorithm used in this method, has a new genetic operation called "the movement of individual among heterogeneous populations" to generate suitable sized neural network automatically. We demonstrate the effectiveness of this method by applying it to the identification problem of logical circuit and the recognition problem of plane figure.

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