Training Neural Networks by Continuation Particle Swarm Optimization

Jairo Rojas Delgado

Rafael Trujillo Rasúa

Universidad de las Ciencias Informáticas, Havana, Cuba. {jrdelgado,trujillo}@uci.cu

Abstract

Artificial Neural Networks research field is among the areas of major activity in Artificial Intelligence. Conventional training approaches applied to neural networks present several theoretical and computational limitations. In this paper we propose an approach for Artificial Neural Network training based on optimization by continuation and Particle Swarm Optimization algorithm. The objective is to reduce overall execution time of training without causing negative effects in accuracy. Our proposal is compared with Standard Particle Swarm Optimization algorithm using public benchmark datasets. Experimental results show that the optimization by continuation approach reduces execution time required to perform training in about 20%–50% without statistically significant loss of accuracy.

Keywords: *Continuation, Optimization, Neural-network, Training*

Disponible en https://www.springer.com/gp/book/9783030011314