Identifying Fixed Points of Henon Map Using Artificial Neural Networks
Athanasios Margaris and Miltiadis Adamopoulos
University of Macedonia, Department of Applied Informatics, Thessaloniki, Greece
amarg@uom.gr, miltos@uom.gr

The objective of this work is to present the application of back propagation neural networks for the experimental identification of fixed points of chaotic maps. The results presented here, are associated with the Henon map but the same algorithm can be applied without modification for the estimation of the fixed points of any chaotic attractor. The type of neural network presented in this paper, is a powerful general purpose neural network architecture, capable of solving nonlinear algebraic systems with an arbitrary complexity. The next sections describe the main theory associated with this field, the structure of the neural networks used for this purpose as well as the experimental results for the case of the Henon map.

Keywords: chaotic maps, fixed points, nonlinear equations, neural networks.