Jang [23] introduced ANFIS, which is a hybrid model that combines fuzzy logic and NNs.The adaptation methods of most fuzzy inference systems rely on the back-propagation algorithm that is applied to deal with parameter optimization in general.(4) The node in layer 4 is an adaptive node, and its output is computed as O4,i = wi fi = wi (pix + qiy + ri), where pi , qi , and ri are the consequent parameters of the node i. In the last layer, there exists only one node whose output is computed by using the following equation: O5 = ?The crisp inputs x and y to the node of the first layer and the output O1i of this node are defined as O1i = uAi (x), i = 1, 2, O1i = uBi-2 (y), i = 3, 4, (1) where Ai and Bi are the membership values of the generalized Gaussian membership function defined as [23] u(x) = e − (x− ?i ?i)2 , (2) where pi and ?i are the premise parameters.Nevertheless, these methods could not achieve the promised results in all experimental cases and need much computation time; therefore, we use the GWO algorithm to determine the optimal weights of ANFIS and reduce the time complexity.One of these hybrid learning .algorithms is the hybrid between the back-propagation algorithm and the LSM