

Generation of A Conservative Chaotic System via CNN

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It has been well accepted that chaos is a new kind of science, which helps us to understand the discontinuous and erratic side of nature. Among the studies on chaotic systems, energy/volume preserving nonlinear systems attract attention because of their conserved space volume. In literature, some examples of conservative chaotic systems can be presented like Nosé-Hoover system [1,2], Hénon-Heiles system [3], Munmuangsaen et al [4], Vaidyanathan-Volos system [5], Vaidyanathan-Pakiriswamy system [6], Singh-Roy system [7] etc. In this study, a conservative chaotic system is presented by using State Controlled Cellular Neural Networks (SC-CNN). The numerical results show that while the proposed system does not possess any equilibrium point, the sum of Lyapunov exponents are also zero. Addition to these, the behaviors of phase and time domains of the presented system are also presented, by using the variation of a control parameter.

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