Exploring Patterns on Footprints of Chaos

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We propose a new method for generating various patterns from chaos, which visualize the history by converting the value into an angle and plotting the circle on the two-dimensional plane. Chaos is one of the dynamical phenomena, which the behavior seems irregular but acts under a deterministic rule. Interestingly, the behavior of chaos is not only irregular, but also have a complex structure in the system. We show the map and movie to demonstrate that the proposed method is able to generates a lot of -— an infinite - various patterns according to the initial values and a of – control parameter.

In this presentation, we apply the method into the logistic map as follows. $x_n + 1 = a x_n (1 - x_n)$

where $0 \le x_n \le 1$ and $0 \le a \le 4$.

Mapping the Patterns with Changing Control Parameter a





Various Patterns on Footprints of Chaos

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We would like to show some interesting shapes of patterns generated by the method "Footprint of Chaos." and name it like the patterns in "Life Game

Edge of Chaos ?

