TR－H－013

Switching the Vector Field According to the Input of an Oscillatory Neural Network

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1993. 7. 16

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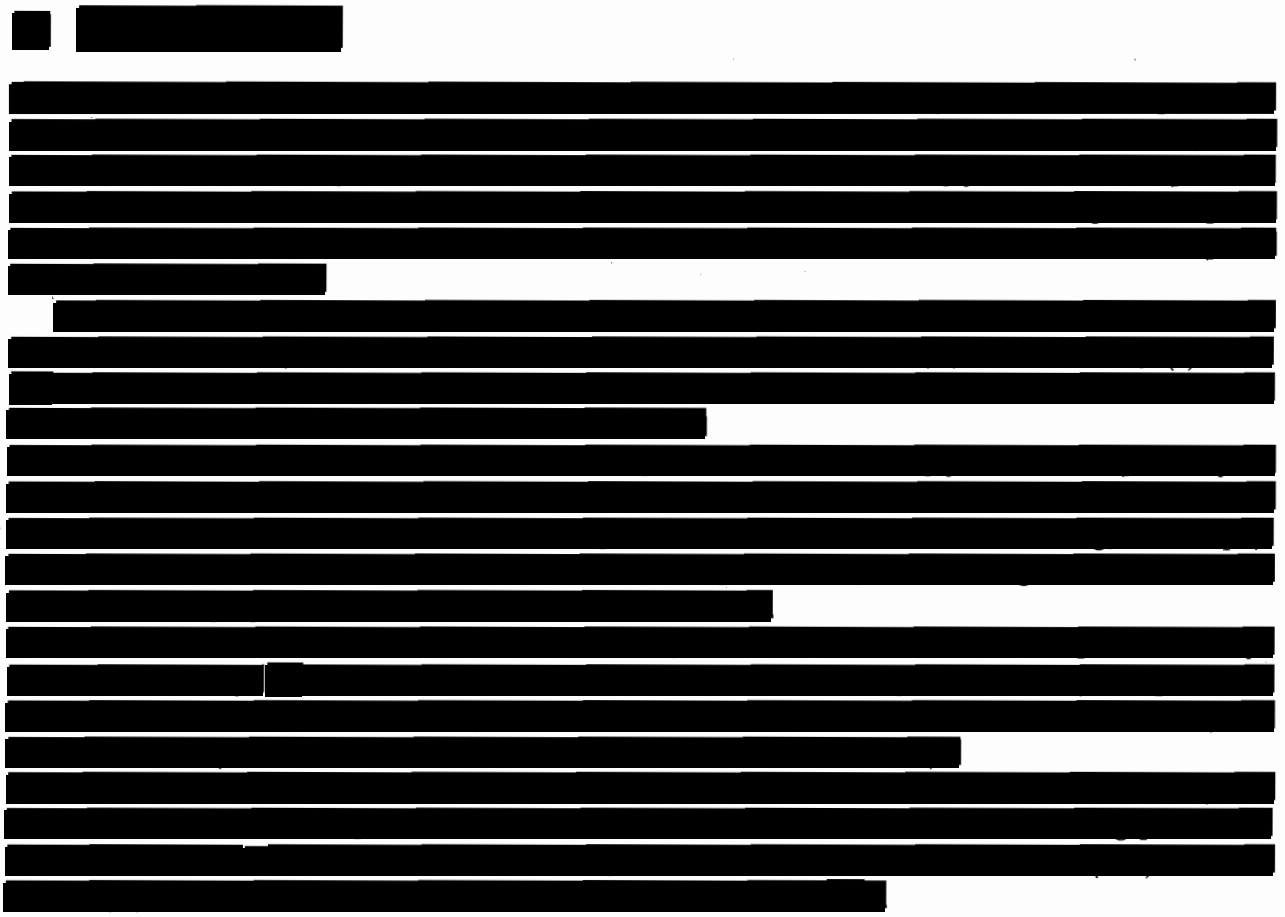
Abstract

We propose a new concept of spatiotemporal pattern processing by artificial neural networks taht is based on drastically changing the vector fields as attractors according to the input. The weight parameters do not maintain the global space partition, but maintain the vector fields as attractors to memorize the proper relations between inputs and outputs.
As an example, it is shown that the vector field of an oscillatory neural network drastically changes, e.g., from a limit cycle to chaos, when the input bias is switched.



*This paper is an extended version of the submitted paper to ICANN '93, Amsterdam.