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Dynamics of a network of map-based neurons in problems of reservoir computing

Oleg Maslennikov, Mechislav Pugavko, Vladimir Nekorkin

Abstract: Reservoir computing is a framework of computational neuroscience and machine learning where it is assumed that information processing occurs in a special high-dimensional network called a reservoir. In this work we consider a reservoir system which contains a network of neuron-like map-based elements. The system task is to generate a certain type of oscillations at the readout. We uncover what type of dynamic behaviors emerge at a microscopic level of individual reservoir nodes at different stages of training.

[1)] Oleg Maslennikov, Ph.D.: Institute of Applied Physics of the Russian Academy of Sciences, 46 Ulyanov Str., 603950 Nizhny Novgorod, Russia (RU), oleg.maov@gmail.com, the author presented this contribution at the conference in the special session "A special session dedicated to Prof. Miguel A.F. Sanjuán on the occasion of the celebration of his 60th anniversary" organized by J. Awrejcewicz.

[2)] Mechislav Pugavko, B.A. (M.Sc. student): Institute of Applied Physics of the Russian Academy of Sciences, 46 Ulyanov Str., 603950 Nizhny Novgorod, Russia (RU), slavapugavko2@gmail.com.

[3)] Vladimir Nekorkin, Professor: Institute of Applied Physics of the Russian Academy of Sciences, 46 Ulyanov Str., 603022 Nizhny Novgorod, Russia (RU), vnekorkin@appl.sci-nnov.ru.