Doctoral School of Information and Biomedical Technologies Polish Academy of Sciences

Subject
Topology, learning procedures and the application of Fuzzy Flip Flop neural networks.

Supervisors, contact, place of research
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Project Description

The subject of the research will be the innovative development of a full analytical model and the investigation of the Fuzzy-Flip-Flop neural network in the form proposed by Professors Pedrycz, Hirota and Koczy, as well as the introduction of new solutions that have emerged recently, ie new aggregation operators and components granular calculations. For supervised learning of these networks, heuristic algorithms will be used, e.g. swarm, along with additional local search algorithms, eg Covariance Matrix Adaptation Evolution Strategy. The above neural network is a special case of recurrent networks, due to the use of the activation function realized by the fuzzy J-K or D type latch. In addition, the proposed neural network will be verified in many application examples.

In the further stages of research related to this type of neural networks, it is to create a multi-agent neural network system Fuzzy-Flip-Flops, between which would exchange selected parameters, which will result in the possibility of cooperation and exchange of information on certain groups of class patterns. Such a process indicated that the groups of patterns are still "active" and which should be forgotten. The above adaptation effect will be implemented for research related to the processing and recognition of streaming data.

Bibliography

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