A dynamic neuro-fuzzy system configuration, stability, and fuzzy operational function

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Abstract
This paper describes a dynamic neuro-fuzzy system (DNFS) with the operational functions of fuzzy logic. The neurons of the DNFS correspond to the elements in a certain pattern set, and the fuzzy relation between the patterns is stored in the DNFS as a weighting matrix of the DNFS that represents the connective strength between the neurons of the DNFS. The stability and the fuzzy operational function of DNFS are examined in this paper. The theoretical study on DNFS in this paper shows that a DNFS is stable and possesses a fuzzy clustering function that is equivalent to a fuzzy clustering operation based on a fuzzy equivalence relation. It can be concluded that a DNFS as a computational model of fuzzy logic supplies a new neural-network-based implementation of fuzzy clustering operations. © 1999 Elsevier Science B.V. All rights reserved.

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