

**On the behavior of certain classes of finite automata  
in a fuzzy environment**

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The behavior of finite linear and “deep” automata in a fuzzy environment, which punishes or encourages an automaton with certain fixed membership functions that do not depend on time, is considered. Using the properties of the generalized Markov chain, it is shown that the considered automata is learns predominantly to perform that the action, the penalty membership functions for which is minimal and, subject to additional conditions for these functions, an automaton with linear tactics in a fuzzy environment has the property of asymptotic optimality.