

A Consensus Problem in Networks with Unreliable Nodes

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We consider a stochastic consensus problem in networks with unreliable nodes. We develop a new stochastic model in which some nodes can break down and repaired after some random time. Breakdowns and repairs are assumed to form an alternating process. To study the model behavior we use the theory of alternating renewal process. Under some conditions, we prove the model convergence.

Using the computer simulations we analyze the network dynamics. We study the dependence of the consensus value on the model parameters.