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Tolerating Input Faults in Asynchronous Sequential Machines

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Abstract : A method of tolerating input faults for input/state asynchronous sequential machines is proposed. A corrective controller is placed in front of the considered asynchronous machine to realize model matching with a reference model. The value of the external input transmitted to the closed-loop system may change by fault. We address the existence condition for the controller that can counteract adverse effects of any input fault while maintaining the objective of model matching. A design procedure for constructing the controller is outlined. The proposed reachability condition for the controller design is validated in an illustrative example.

Keywords : asynchronous sequential machines, corrective control, fault tolerance, input faults, model matching
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