Fault-Tolerant Control of Nondeterministic Input/Output Automata

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DESCRIPTION:
This book presents novel methods of fault-tolerant control theory in a discrete-event system framework. Nondeterministic input/output automata are used to model nominal and faulty technological systems. The main contributions are the following: Control design method for discrete-event systems Fault modeling technique for actuator, sensor and system internal faults and failures Off-line and on-line control reconfiguration based on trajectory re-planning and input/output adaptation. Two small size running examples are used to explain the developed methods. Experiments on a manufacturing cell demonstrate the application of these methods in a realistic environment. The state of the art is provided on methods for modeling, supervisory control and fault-tolerant control of discrete-event systems.