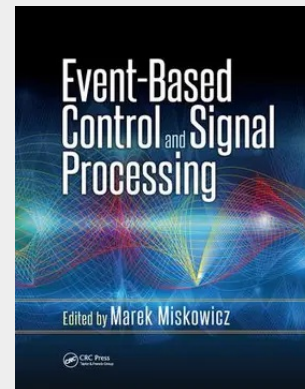


Event-Based Control and Signal Processing

Event-based systems are a class of reactive systems deployed in a wide spectrum of engineering disciplines including control, communication, signal processing, and electronic instrumentation. Activities in event-based systems are triggered in response to events usually representing a significant change of the state of controlled or monitored physical variables. Event-based systems adopt a model of calls for resources only if it is necessary, and therefore, they are characterized by efficient utilization of communication bandwidth, computation capability, and energy budget. Currently, the economical use of constrained technical resources is a critical issue in various application domains because many systems become increasingly networked, wireless, and spatially distributed. Event-Based Control and Signal Processing examines the event-based paradigm in control, communication, and signal processing, with a focus on implementation in networked sensor and control systems. Featuring 23 chapters contributed by more than 60 leading researchers from around the world, this book covers: - Methods of analysis and design of event-based control and signal processing - Event-driven control and optimization of hybrid systems - Decentralized event-triggered control - Periodic event-triggered control - Model-based event-triggered control and event-triggered generalized predictive control - Event-based intermittent control in man and machine - Event-based PID controllers - Event-based state estimation - Self-triggered and team-triggered control - Event-triggered and time-triggered real-time architectures for embedded systems - Event-based continuous-time signal acquisition and DSP - Statistical event-based signal processing in distributed detection and estimation - Asynchronous spike event coding technique with address event representation - Event-based processing of non-stationary signals - Event-based digital (FIR and IIR) filters - Event-based local bandwidth estimation and signal reconstruction Event-Based Control and Signal Processing is the first extensive study on both event-based control and event-based signal processing, presenting scientific contributions at the cutting edge of modern science and engineering.



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