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Enhancing an Intelligent Digital Twin with a Self-organized Reconfiguration Management based on Adaptive Process Models

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Abstract

Shorter product life cycles and increasing individualization of production leads to an increased reconfiguration demand in the domain of industrial automation systems, which will be dominated by cyber-physical production systems in the future. In constantly changing systems, however, not all configuration alternatives of the almost infinite state space are fully understood. Thus, certain configurations can lead to process instability, a reduction in quality or machine failures. Therefore, this paper presents an approach that enhances an intelligent Digital Twin with a self-organized reconfiguration management based on adaptive process models in order to find optimized configurations more comprehensively.

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