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EDITORIAL

Editorial: KI-SI: Business Process Management (BPM) in the Era of AI (BPM-AI)

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This issue contains the second part of the contributions of the Special Issue on Business Process Management (BPM) in the era of AI (BPM-AI).

In detail it collects the contributions focusing more on modeling, discovery and conformance checking aspects:

- 4 technical papers and
- 2 PhD Thesis overviews.

1 Technical contributions

Four contributions can be categorized under the umbrella of business process *modeling, discovery and checking*.

In the work Knowledge Graph Completion for Activity Recommendation in Business Process Modeling, Elyasi et al. target the problem of activity recommendation in business process modeling by leveraging AI-based approaches for solving the knowledge graph completion task.

In The WHY in Business Processes: Discovery of Causal Execution Dependencies, Fournier et al. deal with discovering causal execution dependencies in event logs and leverage them as an overlay for process discovery algorithms.

In SMT Techniques for Data-Aware Process Mining, Gianola et al. offer an overview about how AI techniques grounded in automated reasoning, such as Satisfiability and Optimisation Modulo Theory, can be used to address the challenges posed by data-aware process mining.

Finally, in Alignment-based conformance checking for stochastic Petri nets, Pereira de Almeda et al. deal with stochastic conformance checking. Specifically, building on the existing alignment-based conformance-checking fundamentals, the authors formally define and propose an approach for the alignment between a stochastic Petri net and an event log, that allows the use of log moves and aims at finding an optimal ranking of alignments.

2 Dissertation and Habilitation Abstracts

Finally, two dissertation abstracts are also included in this special issue, both focusing mainly on the modeling and elicitation aspects.

In the work Dissertation Abstract: Flexible Workflows—A Constraint- and Case-Based Approach, Grumbach presents an approach combining constraint satisfaction and process-oriented case-based reasoning to tackle flexibility by deviation in workflows, that is the possibility to allow unforeseen execution paths at runtime.

In Dissertation Abstract: Sensor-Based Elicitation of Manual Assembly Processes, Knoch focuses on a sensor-based system for capturing human activities in manual assembly processes. The system, which leverages an event-driven architecture controlling and generating event logs of assembly processes, aims at planning, optimization and quality assurance control of assembly processes.

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