

Recomposing conformance closing the circle on decomposed alignment-based conformance checking in process mining

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Abstract

In the area of process mining, efficient conformance checking is one of the main challenges. Several process mining vendors are in the process of implementing conformance checking in their tools to allow the user to check how well a model fits an event log. Current approaches for conformance checking are monolithic and compute exact fitness values but this may take excessive time. Alternatively, one can use a decomposition approach, which runs much faster but does not always compute an exact fitness value. This paper introduces a recombination approach that takes the best of both: it returns the exact fitness value by using the decomposition approach in an iterative manner. Results show that similar speedups can be obtained as by using the decomposition approach, but now the exact fitness value is guaranteed. Even better, this approach supports a configurable time-bound: "Give me the best fitness estimation you can find within 10 min." In such a case, the approach returns an interval that contains the exact fitness value. If such an interval is sufficiently narrow, there is no need to spend unnecessary time to compute the exact value..