Computing (2021) 103:1–2
https://doi.org/10.1007/s00607-020-00856-z

EDITORIAL

Special issue on business process intelligence

Andrea Burattin[1] · Jochen De Weerdt[2] · Boudewijn van Dongen[3] · Jan Claes[4] · Wil van der Aalst[5]

Published online: 31 October 2020

Mathematics Subject Classification 00B15

The business process intelligence (BPI) discipline refers to the development of data- and process-mining techniques to support business process management (BPM). BPI is a broad area that spans process mining, process discovery, conformance checking, predictive analytics and many other techniques that combine process science and data science. The uptake of process mining shows that BPI is of increasing relevance for industry and research. In practice, BPI is embodied in tools for managing process execution by offering several features such as analysis, prediction, monitoring, control, and optimization.

As mentioned, one of the key activities within BPI is conformance checking and, within this context, we would like to share two contributions that were originally presented at the BPI workshop 2019 and that push further our understanding of conformance checking. These contributions have been expanded with respect to the original papers to an extent that makes these work originals and worth dissemination.

The work "*How well did it recover: Impact-aware conformance checking*", by Tsoury, Soffer and Reinhartz-Berger, acknowledges that deviations from a prescriptive process have an impact in the rest of the executions (e.g., recovery actions) and, as such, should be treated differently. The paper shows the results in a synthetic setting as well as in a real-life case study.

The paper by Boltenhagen, Chatain and Carmona, entitled "*Optimized SAT Encoding of Conformance Checking Artefacts*" dives into the representation of the conformance checking problem as an optimized SAT instance. Specifically, authors

✉ Andrea Burattin
andbur@dtu.dk

1 Technical University of Denmark, Copenhagen, Denmark

2 KU Leuven, Leuven, Belgium

3 TU Eindhoven, Eindhoven, The Netherlands

4 Artevelde University of Applied Sciences, Ghent, Belgium

5 RWTH Aachen University, Aachen, Germany

show how to use a unified and optimized representation to calculate alignments, anti-alignments and multi-alignments, thus paving the way to the application of these techniques in realistic and large conformance checking scenarios.

We sincerely hope that these two papers can stimulate research in conformance checking as well as in the broader BPI community. In addition, we would like to thank all the authors for their contributions and the reviewers, who helped us with their expertise and valuable time. We are also very thankful to the Computing Editor-In-Chief Prof. Schahram Dustdar and the Springer staff, in particular to Linda Xavier and Christine Kamper.