

CAiSE'22

Proceedings of the Doctoral Consortium Papers at the 34th International Conference on Advanced Information Systems Engineering (CAiSE 2022)

Conference hosted by KU Leuven in collaboration with Ghent University, Belgium, 6-10 June 2022, Leuven 2022.

Edited by

Amy Van Looy¹, Barbara Weber² and Michael Rosemann³

¹ Ghent University, Tweekerkenstraat 2, 9000 Ghent, Belgium

² University of St. Gallen, Rosenbergstrasse 30, 9000 St. Gallen, Switzerland

³ Queensland University of Technology, 2 George Street, Brisbane Qld 4000, Australia

CAiSE 2022

Doctoral Consortium Papers

Proceedings

This volume of CEUR-WS Proceedings contains 10 Doctoral Consortium papers presented at the 34th International Conference on Advanced Information Systems Engineering (CAiSE 2022). The conference was held in Leuven, Belgium, 6 – 10 June 2022.

Copyright © 2022 for the individual papers by the papers' authors. Copyright © 2022 for the volume as a collection by its editors. This volume and its papers are published under the Creative Commons License Attribution 4.0 International (CC BY 4.0).

CEUR-WS.org, ISSN 1613-0073

Preface

This volume of CEUR-WS proceedings contains the accepted papers of the Doctoral Consortium, held in conjunction with the 34th International Conference on Advanced Information Systems Engineering (CAiSE 2022). This edition of CAiSE was organized as a collaboration between KU Leuven and Ghent University, which took place in Leuven (Belgium) between June 6th and 10th. We were delighted that this conference and all collocated events were organized again in the engaging atmosphere of a face-to-face setting after having experienced a long series of COVID-19 pandemic lockdowns worldwide.

The CAiSE conference is known for being the premier venue concerning innovative and rigorous research across the broad spectrum of information systems engineering. Its Doctoral Consortium is well appreciated in this community as being one of the first events that allow its PhD candidates to enter the community. Junior research students are offered a comfortable setting to experience and further improve their writing and presentation skills, while getting the opportunity to discuss their research plans with senior researchers (mentors) and to network with likeminded students. Besides an emphasis on gathering constructive feedback, the Doctoral Consortium provides a platform to explore and reflect on issues regarding methodology, research-related topics, supervision and career-related aspirations.

The CAiSE 2022 Doctoral Consortium received a total of 14 submissions, all of which have been reviewed by two senior researchers acting as mentors in the field. With an acceptance rate of 71%, ten papers have been accepted and selected to be presented during this event as well as to be included in these proceedings. The invited PhD candidates received timely and relevant feedback, which needed to be addressed when preparing for the proceedings and presentations.

The Doctoral Consortium started with a keynote by Professor Han van de Aa (University of Mannheim), who shared his experience in pursuing a PhD and the next steps after his PhD life. His reflection on his PhD journey and follow-up trajectory (including related hurdles) were an authentic, inspirational and educational briefing for all participants. Moreover, the Doctoral Consortium chairs shared relevant research design and methodology experiences.

In the second part of the Doctoral Consortium, the PhD students' presentations were held in two sessions during which the PhD candidates talked to their assigned mentors in search for valuable advice and recommendations to further improve their PhD proposals. Lively peer-to-peer interactions complemented these discussions and allowed all participants to interact with and to learn from each other.

We would like to express our gratitude to all mentors involved in the reviewing process. Especially, we would like to thank them for attending the Doctoral Consortium and their valuable comments during the event. While we acknowledge the PhD participants for their active contributions, we would also like to thank all those candidates who submitted their work but unfortunately did not get selected. We wish all PhD candidates a rewarding and productive continuation of their PhD journey. Finally, we are grateful to the CAiSE 2022 conference organizers (in particular Prof. dr. Monique Snoeck and Prof. dr. Frederik Gailly) for supporting this event and for arranging the logistical and administrative side of this Doctoral Consortium.

June 2022

Amy Van Looy
Barbara Weber
Michael Rosemann

Doctoral Consortium Organization

Doctoral Consortium Chairs

Amy Van Looy	Ghent University, Belgium
Barbara Weber	University of St. Gallen, Switzerland
Michael Rosemann	Queensland University of Technology, Australia

Doctoral Consortium Mentors

Sjaak Brinkkemper	Utrecht University, the Netherlands
François Charoy	Université de Lorraine – LORIA – Inria, France
John Krogstie	Norwegian University of Science and Technology, Norway
Selmin Nurcan	Université Paris 1 Panthéon – Sorbonne, France
Oscar Pastor	Universidad Politécnica de Valencia, Spain
Jolita Ralyté	University of Geneva, Switzerland
Pnina Soffer	University of Haifa, Israel
Jelena Zdravkovic	Stockholm University, Sweden

Table of Contents

Session 1. Intelligence and Mining

Towards Better Data Selection for Self-Service Business Intelligence Outputs: a Local Authorities Case Study <i>Mathieu Lega</i>	1
Process-Aware Attack-Graphs for Risk Quantification and Mitigation in Industrial Infrastructures <i>Gal Engelberg</i>	11
The Management of Artificial Intelligence: Developing a Framework Based on the Artificial Intelligence Maturity Principle <i>Philipp Fukas</i>	19
Complex Behaviours Detection and Analysis in Process Mining <i>Yang Lu</i>	28
Probabilistic and Non-deterministic Event Data in Process Mining: Embedding Uncertainty in Process Analysis Techniques <i>Marco Pegoraro</i>	37

Session 2. Agility, Models and Architecture

A New Definition of Unambiguous User Stories: a Proposed Framework to Identify and Avoid Ambiguity in User Stories <i>Anis Amna</i>	47
The MERLIN Method to Create Modeling Assistants for Model-Driven Development Tools <i>David Mosquera</i>	54
A Reference Framework for Agile Transformation in Public Administration <i>Hanna Looks</i>	62
Strategy Execution through Enterprise Architecture: Capability-based Management as a Foundation for Successful (Digital) Transformations <i>Jonas Van Riel</i>	69
Sensemaking in Multi-artefact Information Tasks <i>Tianwa Chen</i>	77