

SEMINAR ANNOUNCEMENT

Friday March 1st, 2024

at 03:30 pm

Room "Sala Seminari" - Abacus Building (U14)

Linear Temporal Logic over Finite Traces for Declarative Business Processes

Speaker

Prof. Marco Montali

Free University of Bozen-Bolzano

Abstract

Business process management (BPM) is a discipline at the intersection between operations management, computer science, and software and systems engineering, whose grand goal is to support managers, analysts, and domain experts in the design, deployment, enactment, and continuous improvement of (work) processes within an organisation.

In this talk, we review the BPM lifecycle, introducing the main reasoning and analysis tasks needed to support process management from process design to operational support and process mining, a growing area of research that aims at continuous process improvement based on the factual event data recorded inside information systems.

We then focus on knowledge-intensive processes, which challenge the foundations of BPM and process mining, due to their inherent flexibility. We argue that such processes cannot be satisfactorily modelled nor understood using conventional, procedural process modelling languages, but are instead best captured using a declarative approach based on temporal constraints. We ground our discussion on one of the most prominent languages in the declarative BPM spectrum: Declare. We show that Declare is naturally formalised in LTLf, and explain how the automata-theoretic characterisation of LTLf provides a solid, effective basis to elegantly solve a variety of central BPM/process mining tasks: model verification, enactment, anticipatory monitoring, and process discovery. In doing so, we touch on interesting recent extensions of LTLf dealing with data and uncertainty.

Short Bio

Marco Montali is Full Professor in Computer Engineering in the Faculty of Engineering at the Free University of Bozen-Bolzano, Italy, where he also coordinates the BSc Program in Informatics and Management of Digital Business. His research is in artificial intelligence for the modelling, analysis, and mining of processes, agents, and their data and dynamics. He has served as PC Chair of BPM 2018, RuleML+RR 2019, ICPM 2020, and CBI 2021, as General Chair of ICPM 2022 and EDOC 2022, and is steering committee member of the IEEE task force on process mining. He is co-author of more than 250 papers and recipient of 10 best paper awards and 2 test-of-time awards. He received the 2015 "Marco Somalvico" award, given by the Italian Association of Artificial Intelligence to the best under 35 Italian researcher in artificial intelligence.