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Preface for the Special Issue on Tool Papers of the 23rd International Conference on Coordination Models and Languages, COORDINATION 2021

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1 This special issue reports on the tools selected out of the tool track of the
2 23rd International Conference on Coordination Models and Languages (CO-
3 ORDINATION 2021), originally programmed in the University of Malta and
4 held online, on June 14-18, 2021. Since 2019 the conference welcomes sub-
5 missions describing technological artefacts, including innovative prototypes,
6 for modelling, analysing, simulating or testing systems in the scope of the
7 research topics of COORDINATION. The prescribed format of the submis-
8 sions includes both a short abstract describing the tool and a short video to
9 showcase the presentation to be carried out at the conference, an innovative
10 feature that has been highly appreciated by the members of the program
11 committee.

12 There was a total of 8 submissions to the tool track (about 25% of the to-
13 tal submissions), and 7 were accepted for publication (about 88% of the total
14 of tool track submissions and 40% of the number of overall accepted contribu-
15 tions) as full papers extending the submitted version. For this special issue,
16 the authors of the more mature contributions were invited to submit their

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17 tool as an Original Software Publication, a novel format that attends to the
18 need of disseminating valuable implementation efforts. A total of 6 invita-
19 tions were issued to COORDINATION 2021 authors, and all 6 contributions
20 are included in this special issue. Each tool submission was reviewed by
21 three experts, one of which chosen from the COORDINATION PC members
22 who reviewed the conference version, and the remaining two among recog-
23 nised experts in the specific area of the submission, including also reviewers
24 suggested by the authors themselves.

25 The contributions included in this special issue are the following:

- 26 - Lorenzo Bacchiani, Mario Bravetti, Marco Giunti, João Mota, and
27 António Ravara. *A Java typestate checker supporting inheritance*. This
28 contribution presents a tool that allows to perform typestate analysis
29 over Java programs, recognized by the reviewers as an easy to use tool
30 and including well documented code. The accompanying paper includes
31 an illustrative running example that allows the reader to go through
32 the usage steps while grasping underlying concepts.
- 33 - Davide Basile and Maurice H. ter Beek. *Contract Automata Library*.
34 Contract automata facilitate the specification, composition, and syn-
35 thesis of behavioural contracts. This contribution presents Contract
36 Automata Library (CATLib), a software API supporting the specifi-
37 cation of contract automata. The accompanying paper discusses the
38 library architecture, details a usage example and presents recent qual-
39 itative improvements of the software.
- 40 - Riccardo Bianchini and Francesco Dagnino. *QueryAGT: asynchronous*
41 *global types in co-logic programming*. QueryAGT aims at high-level
42 specification of protocols and analysis thereof. It implements in co-
43 logic programming a novel formalism of global types with asynchronous
44 communication. The user defines sessions and global types in a simple
45 language with primitives for type checking. The tool can check different
46 safety and liveness properties, either in interactive or batch mode.
- 47 - Christian Bartolo Burlò, Adrian Francalanza, Alceste Scalas, Catia
48 Trubiani and Emilio Tuosto. *PSTMonitor: Monitor Synthesis from*
49 *Probabilistic Session Types*. This contribution presents PSTMonitor,
50 a tool for the run-time verification of quantitative specifications of
51 message-passing applications. Crucially, PSTMonitor uses probabilistic

52 session types to detect executions that deviate from expected proba-
53 bilistic behaviour. The accompanying paper presents the architecture
54 and operation of the tool, while assessing the runtime overheads it in-
55 duces.

56 - Eva Maria Kuehn. *The Peer-Model Tool-Chain*. This paper presents an
57 open-source implementation of the blackboard-based Peer Model tool
58 chain. The tool-chain aims at supporting model-driven development
59 of coordination software and identifying potential issues at an early
60 stage. A demo video linked from the accompanying paper is available
61 to further illustrate the proposed methodology.

62 - Rudolf Schlatte, Einar Broch Johnsen, Eduard Kamburjan and S. Lizeth
63 Tapia Tarifa. *The ABS Simulator Toolchain*. This contribution presents
64 an executable specification language, for behavioural modelling of dis-
65 tributed, time- and resource- sensitive communicating systems. The
66 language provides asynchronous method calls, a resource model, and
67 support for software product lines. The accompanying paper includes
68 a review of several case studies available online.

69 We would like to thank all the authors who contributed to this special is-
70 sue and the members of the Program Committee of COORDINATION 2021
71 and in particular the chairs, Ferruccio Damiani and Ornela Dardha. We
72 are also extremely grateful for the work carried out by the referees in the
73 review of the tools invited for this special issue. Finally, we would like to
74 acknowledge the support throughout the editorial process from the editors of
75 Science of Computer Programming Journal, and in particular of the Editors
76 in chief Mohammad Reza Mousavi and Andrea De Lucia, and also the As-
77 sociate Editors in chief of the Software Section, Ana Cavalcanti and Marieke
78 Huisman.