

June 27–30, 2023
Neuchâtel, Switzerland



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DEBS 2023

Proceedings of the 17th ACM International Conference on
Distributed and Event-Based Systems

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ISBN: 979-8-4007-0122-1

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Foreword

We welcome you to the 17th ACM International Conference on Distributed and Event-Based Systems DEBS 2023 hosted as a physical conference at the University of Neuchâtel, Switzerland.

DEBS 2023 is the seventeenth in a series that spans more than 20 years of history, with 16 past editions as a conference and five editions as a workshop co-located with major conferences.

The objectives of DEBS have been to provide a forum dedicated to the dissemination of original research, the discussion of practical insights, and the reporting of experiences relevant to distributed systems and event-based computing. The conference provides a forum for academia and industry to exchange ideas through its tutorials, research papers, and the grand challenge. Recently, the ACM International Conference on Distributed and Event-Based Systems, including DEBS 2022, has become the premier venue for cutting-edge research in the integration of distributed and event-based systems in relevant domains such as Big Data, AI, ML, IoT, and Blockchain.

As in previous years, DEBS 2023 included the Research track, Industry and Application track, Demos and Posters track, as well as a Doctoral Symposium. However, the Grand Challenge, a tradition of the previous editions, was instead put on hold, to be resumed in the 2024 edition.

This year's edition maintained the goal to widen the scope of and participation in the conference, which has been successful in attracting papers from the communities working on data management, machine learning, and blockchain technologies.

For the first time, DEBS 2023, and in particular the Research track, has moved to a dual-deadline mode, one in Fall 2022 and one in Spring 2023. This change has helped in attracting more submissions, giving authors one additional opportunity to submit their work to DEBS 2023. The call for research papers included both regular (12 pages) papers as well as short (6 pages) papers, vision papers. This year again, the authors of selected top-rated papers will be invited to submit extended versions for a special issue in Elsevier Information Systems. Regarding reproducibility, DEBS 2023 has maintained the possibility of receiving the ACM Artifacts Available badge on submissions following the relevant guidelines.

The session took place live at the University of Neuchâtel, hosted by the Faculty of Science and its UniMail building. Remote participants were able to join online through WebEx. We intended to strongly promote in-person attendance, and as a result only two remote presentations were scheduled.

The call for research contributions, considering both deadlines, attracted 21 submissions: 5 submissions in the Fall deadline, and 16 submissions in the Spring deadline. The Fall deadline accepted two papers. The Spring deadline initially accepted 4 papers, while two additional ones were conditionally accepted and eventually accepted. In total, the Research track consists of total of 8 accepted submissions.

The Industry and Applications track received 13 submissions, of which 6 were initially accepted and two underwent shepherding. Eventually, 8 papers were accepted in the Industry and Applications track.

The total of 16 papers were organized in 6 sessions around the following topics: programming streams, secure and dependable streams, financial streams, IoT systems, and predictable streams. Every paper received at least three reviews.

In addition to the Research sessions and the Industrial and Applications papers, the technical program included three Demo papers (and corresponding presentations), and 4 Poster submissions. In addition to those submitted to the Call for Posters, authors of accepted papers from both the Research and the Industry and Application tracks, as well from the Demo, were invited to present a poster.

The technical program further included a Doctoral Symposium, on the first day of the conference, which received 3 submissions. To enrich the program of the Doctoral Symposium, we leveraged one of our sponsors, CUSO (Conference Universitaire de Suisse Occidentale) to promote the attendance of additional PhD students

from French-speaking Swiss universities. On the first day of the conference, we organized an hands-on tutorial on Kafka, a mainstream stream-processing systems.

The DEBS 2023 Best Paper award was given to “I Will Survive: An Event-driven Conformance Checking Approach Over Process Streams” by Kristo Raun, Riccardo Tommasini, Ahmed Awad; the Best Industry and Application Paper award to “An exploratory analysis of methods for real-time data deduplication in streaming processes” by Joao Esteves, Rosa Costa, Yongluan Zhou, Ana Almeida. The winner of the Test-of-Time award was the paper titled “Adaptive Online Scheduling in Storm” by Leonardo Aniello, Roberto Baldoni and Leonardo Querzoni.

DEBS 2023 also featured four keynote speeches, one invited industry talk, and one panel. We would like to thank our keynote speakers: Paweł T. Wojciechowski, Boris Koldehofe, Yvonne-Anne Pignolet, Tania Lorido-Botran, and Patrick Eugster; our tutorial speaker, Ugo Landini, for sharing their knowledge and experiences with the DEBS community.

We also wish to thank all the speakers who enriched the program through the research and industry track presentations, the doctoral symposium, the demos and posters presentations. We thank our peers who graciously volunteered to help with the organization of the DEBS conference: Josef Spillner and Mandana Vaziri (Industry and Application Co-Chairs); Pascal Felber and Alain Sandoz (Finance Co-Chairs); Riccardo Tommasini and Senjuti Basu Roy (Doctoral Symposium Co-Chairs); Baptiste Lepers (Poster and Demo Chair); Vania Marangozova-Martin and Naohiro Hayashibara (Publicity Co-Chairs); J  mes M  n  tre  y (Web Chair); and, of course, all the members of the DEBS Steering Committee.

We thank ACM for supporting the conference. We thank our main sponsors, ACM SIGMOD and ACM SIGSOFT. We thank CUSO for sponsoring the attendance of PhD students enrolled in Computer Science programs in Switzerland. We thank the University of Neuch  tel for supporting the conference’s logistics. We thank the committee members of the various tracks as well as the additional reviewers for their contribution in assembling such a high-quality program. Finally, a special thank goes to all the authors that submitted to the various tracks, without their contribution, DEBS 2023 would not be possible.

We hope that you will find our program exciting, inspiring, and thought-provoking. The conference will provide you with valuable opportunities to engage with the ideas of academic researchers and practitioners from around the world, both from academia and industry. Thank you for participating in DEBS 2023!

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