

31st IEEE International Requirements Engineering Conference, RE 2023 Hannover, Germany, September 4-8th, 2023

Welcome to the proceedings of the 31st edition of the IEEE International Requirements Engineering Conference (RE'23), the flagship conference of the RE community. RE is where researchers, practitioners and students meet to share the latest advances, challenges and ideas related to software and systems requirements engineering.

After several virtual RE editions due to the COVID-19 pandemic, RE'23 was held in person as a fully live event in Hannover, Germany. The logo shows three little persons over the year "2023". They symbolize the first full in-person RE conference since Jeju Island, Korea, in 2019. We were very happy to gather the RE community in one place again!

Hannover is the capital city of the German state of Lower Saxony. The conference was held in the main building of Gottfried Wilhelm Leibniz Universität Hannover, the so-called "Welfenschloss". The Welfenschloss castle was built as a royal residence for the King of Hannover. About 150 years ago, the university moved into this impressive building. We are grateful to the university and its presidency for providing us with rooms and support in a time of insecurity, right after the COVID pandemic. Gottfried Wilhelm Leibniz lived in Hannover for many years and died there in 1716. Among his many inventions, the binary system of numbers stands out as a breakthrough and a basis for Computer Science. Leibniz Universität Hannover adopted the name of this universal scholar, and integrated his handwriting into its logo: It shows the first few binary numbers corresponding to 1, 2, and 4. Thus, Leibniz Universität Hannover is a highly appropriate host and venue for a requirements engineering conference.



Logo of the RE'23 conference and handwriting of G.W. Leibniz in the university logo

Theme

RE'23 welcomed original papers focusing on traditional RE topics. Furthermore, as part of this year's edition, we especially solicited submissions on the theme: "Redefining RE: Challenging RE Perceptions, Boundaries, and Topics". With this theme, the RE'23 organizers asked the RE community to challenge their notion of what is and is not included as part of requirements engineering, and how these boundaries affect successful buy-in and application of RE research in industry. With this theme, we encouraged submissions to:

- *Challenge the boundaries of requirements engineering*: given the changing landscape and paradigms of software and system developing, including the pervasiveness of agile methods and the rise in AI and machine learning, as well as cyber-physical and embedded systems, what sorts of problems and topics will be in the scope of RE in the

years to come? What topics are out of scope? How do we maintain our identity as a community and continue to utilize our expertise while adapting to new needs and ways of working?

- *Propose new theories, topics and methods*, or a revision of existing RE topics: these may be needed to address the changing landscape of software and systems development. They include new or revised theories, novel topics, new collaborations, increased transdisciplinarity, new tactics or topics for education and for revising the industrial perception of requirements engineering.

Submissions and Reviewing

The RE conference contained several tracks, including a Research Track, Industrial Innovation Track, RE@Next!, Posters and Tool Demos, Doctoral Symposium, and Journal First. Overall, the conference attracted 191 submissions with 78 finally accepted.

The Research Track received 94 abstracts, manifesting into 71 full paper submissions. Eight submissions were desk rejected for being clearly out of scope of the conference, keeping in mind the conference theme aiming to challenge RE boundaries. 63 papers entered the review process, with one withdrawn before notification. After an online program committee meeting to discuss any borderline decisions, eight papers were accepted unconditionally, and nine papers were accepted with conditions to be checked by an expert gatekeeper. Finally, 15 papers were accepted, with an acceptance rate of 21.1%.

The Industrial Innovation Track received 22 submissions. Each paper in the Industrial Innovation Track was reviewed by three members of the track's PC. Each submission was reviewed by three people. In total, 10 papers were accepted (acceptance rate of 45%).

Each paper in the RE@Next! Track was reviewed by three members of the track's PC. In total, out of 33 submitted papers, 13 papers were accepted to this Track (acceptance rate of 39%).

Posters and Tool Demo submissions were reviewed by three members of the track's PC. This track accepted 8 out of 11 submissions, including 3 posters and 5 demos. The Doctoral Symposium chairs accepted 6 submissions, while the Journal-First chairs received 10 submissions and accepted 8.

In addition, RE'23 involved an artifact track and review process. Submitted artifacts were reviewed by three expert reviewers. Accepted artifacts associated with RE'23 papers received an artifact badge on their paper. In addition, this year offered a new opportunity for artifacts associated with past RE-related papers to submit to this track. Accepted artifacts for these papers have an extended abstract included in these proceedings. Overall, 10 artifacts were submitted, 9 artifacts associated with RE'23 papers were accepted, while 1 artifact from past events were accepted with extended abstracts.

Looking across all tracks, out of 191 submissions, 51% of the authors came from Europe, 25% from the Americas, 20% from Asia, and 4% from Oceania. Considering the 78 accepted submissions, 22% of the authors were from Germany, 13% from the United States, 9% were from Italy, 7% were from Sweden, 9% came from Canada, 6% were from France, another 2% were from Austria, while the rest came from other countries around the world. Finally, we note that the main program contained contributions from 27 countries.

Program

Working with the organizers of each track, we created a full and exciting program, highlighting the state-of-the-art in RE. The first two days of the program focused on workshops, tutorials, and the Doctoral Symposium, holding 13 workshops and 6 tutorials. Material from the workshops is available in a separate IEEE proceedings volume, while Doctoral Symposium papers are in this volume.

The next three days included presentations for all Research, Industrial Innovation, RE@Next!, Posters and Tool Demos, and Journal First papers. The program also included two panels and a session presenting the Most Influential Paper from RE'13, as well as a memorial to community members. An award section presented the best paper and best industrial paper awards, as well as best Poster and Tool Demo, best artifact, and a lifetime service award.

RE'23 hosted three excellent keynotes. On Wednesday, Prof. Claes Wohlin (Blekinge Institute of Technology, Sweden) gave a keynote with the title "Do we publish credible evidence?", which challenged, both generally and particularly in RE, our publications include credible results. On Thursday, Rainer Dammers (ETAS, Germany) delivered a speech titled "A paradigm shift in the automotive industry and its requirements" that reviewed the history and the rapid changes that the automotive industry is undergoing in the context of software defined vehicles. On Friday, Prof. Federica Sarro (University College London, United Kingdom) presented a keynote titled "Search-Based Software Engineering in the Era of Modern Software Systems".

Acknowledgements

We express our sincere thanks to the RE community experts who served on track program committees. This included 50 Research Track PC members, 26 PC members for the Industrial Innovation Track, 29 for the RE@Next! Track, 13 for the Posters and Tool Demos Track, 15 for the Artifact Track, and 4 for the Doctoral Symposium. PC members included both academic and industry reviewers with a mix of experienced and new members with diverse requirements-related expertise.

Finally, we would like to thank the members of the organizing committee for their time and dedication. We thank the student volunteers who made the physical conference and sessions run smoothly. We particularly thank our academic and corporate sponsors for supporting the RE community.

We were very happy to meet new and old colleagues and collaborators in person in Hannover. We hope that the experience was enlightening and inspiring for all attendees, strengthening what is already the solid and vibrant RE community.

Kurt Schneider, General Chair
Fabiano Dalpiaz, Jennifer Horkoff, Program Chairs