

37th Euromicro Conference on Real-Time Systems

ECRTS 2025, July 8–11, 2025, Brussels, Belgium

Edited by

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■ Message from the Chairs

Joël Goossens, Université libre de Bruxelles, Belgium

Renato Mancuso, Boston University, USA

Antonio Paolillo, Vrije Universiteit Brussel, Belgium

Opening Note

It is with great pleasure that we welcome you to the 37th edition of the Euromicro Conference on Real-Time Systems (ECRTS). Owing to its long tradition, ECRTS has established itself as a premier event for the real-time and embedded systems community. Indeed, ECRTS serves as a top-ranking platform, comparable to RTAS and RTSS, for researchers, practitioners, and industry professionals to exchange ideas and advance the field of real-time systems.

We are thrilled to host this year's ECRTS in Brussels, Belgium, often dubbed as the *Capital of Europe*: a historical backdrop that well resonates with the remarkable heritage of the conference. Joël Goossens (Université libre de Bruxelles) and Antonio Paolillo (Vrije Universiteit Brussel) serve as the general chairs. The technical program has been curated by the Technical Program Committee (TPC) chair Renato Mancuso from Boston University to foster a collaborative environment that encourages innovation and knowledge sharing.

Since its inception, ECRTS has been a fertile ground for innovative initiatives to boost inclusiveness, improve the evaluation process, and broaden participation in the research community. This year, we have continued the well-established tradition of open-access proceedings using Dagstuhl LIPIcs (Leibniz International Proceedings in Informatics); we have continued to offer the authors of accepted papers an optional artifact evaluation process. ECRTS' double-blind submission policies incorporate provisions allowing authors to freely publish pre-prints of their work before or after submission to ECRTS.

Furthermore, this year, we have introduced two significant additions. First, we have introduced a Shadow Technical Program Committee (STPC). The primary objective of the STPC is to create an immersive training platform for young and emerging researchers who might go on to become future reviewers. Participation in the STPC aims to offer early-career researchers hands-on experience in the peer-review process, developing and refining their evaluation and reviewing skills under the guidance of more experienced reviewers in an inclusive environment. Under the guidance of Filip Markovic (University of Southampton) in the role of STPC chair, STPC members conducted a parallel review process of the same articles evaluated by the main TPC – on an opt-in basis for the authors. They were then provided the anonymized reviews that TPC members produced for the same set of papers. We sincerely thank Filip for making this possible.

Second, we strove to improve the objectivity and mitigate the personal bias of the anonymous peer evaluation process. This was done by refining the traditionally broad evaluation metrics into nine fine-grained evaluation criteria, namely (1) Relevance to ECRTS and to the RT/Embedded Community; (2) Novelty and Originality; (3) Controversial Contribution; (4) Technical Soundness; (5) Significance of Contribution; (6) Practical Contribution; (7) Theoretical Contribution; (8) Comparison with Existing Work; and (9) Quality of Writing and Organization. These criteria were inspired by the thoughtful reflections of Gerhard Fohler in his blog *1 is the Only Acceptable Acceptance Ratio* and whom we vehemently thank for his continued guidance.



We are thankful to Catherine Nemitz (Davidson College) and Bryan Ward (Vanderbilt University), who served as chairs of this year's Artifact Evaluation (AE) committee. This year, the AE committee was comprised of 16 international experts who evaluated six submissions. Papers approved by the AE committee are identified in this proceedings with a badge indicating that the artifact has passed the required reproducibility test. These artifacts are published in the Dagstuhl Artifacts Series (DARTS). We would also like to thank all the members of the AE committee for dedicating their time to conducting their evaluation.

ECRTS 2025 continues to feature a Real-Time Pitches session completing the Work-in-Progress papers session. The Real-Time Pitches session provides a valuable opportunity for authors to showcase demos, present works already published in journals, and issue calls for actions and new ideas of potential interest to the community. We wholeheartedly thank Daniel Casini (Scuola Superiore Sant'Anna) for chairing the Real-Time Pitches session, as well as all the reviewers.

Continuing a long-standing tradition, this year's ECRTS also includes an industrial challenge session. The industrial challenge session originally stemmed as a satellite event of the WATERS workshop and has become a symbiotically integrated part of the main ECRTS program. Our thanks go to Paolo Burgio (University of Modena and Reggio Emilia) and Michael Roitzsch (Barkhausen Institute) for organizing the session, as well as to participating industry partners responsible for the preparation of new challenges and the maintenance of past challenges.

Visibility is a crucial aspect for a conference to remain relevant and thrive year after year. Hence, dissemination activities aimed at publicizing the incredible work of the ECRTS community are key to its long-term success. Therefore, our gratitude goes to Mario Günzel (TU Dortmund), who served as the publicity chair for this year's edition and introduced several new outreach channels.

Organizing a major international conference such as ECRTS 2025 demands countless hours of work for a whole team of people involved at different levels of the year-long process. At the top level, clarity and consistency of guidance has a make-or-break role. Thus, we would like to extend our heartfelt *thank you* to the ECRTS Executive Committee comprised of Yasmina Abdeddaïm (Université Gustave Eiffel), Sebastian Altmeyer (Universität Augsburg), Steve Goddard (University of Iowa), and Marcus Völz (University of Luxembourg). Their incredible guidance and unwavering support throughout the entire organizational process have been truly invaluable.

Finally, and perhaps most importantly, we would like to express our deep gratitude toward all the authors who submitted their work to ECRTS 2025. Unfortunately, employing a rigorous selection process means that some works will not be given the opportunity to appear in the conference program. Nonetheless, regardless of whether they are accepted or rejected, all the submitted articles contribute to setting the quality bar of the conference and are therefore vital for its existence. All in all, we are positively impressed by the general quality of this year's submissions. The final selection, which we hereby present to you, excels both in terms of breadth and depth. As such, we look forward to seeing you in Brussels and sincerely hope that you will enjoy ECRTS 2025!

Joël Goossens
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■ Paper Submission and Selection

Selection Process

The submission timeline was defined as follows. Authors of original papers could submit their work for consideration at ECRTS with a submission deadline set on February 28, 2025. A week-long online discussion phase preceded the TPC meeting. The purpose of the discussion phase was to understand the existence of a consensus (or lack thereof) between reviewers before heading to the TPC meeting. The per-paper discussions during this phase were facilitated by discussion leads selected by the TPC chair. The TPC meeting was held virtually on Zoom on April 17 and 18, 2025. At the beginning of the selection process, four papers were identified to have a conflict of interest (CoI) with the TPC chair. The entire process for three of these papers was handled by Angeliki Kritikakou (University of Rennes) and by Bryan Ward (Vanderbilt University) for the fourth one. The authors were notified of the result of the TPC peer-review process on April 21, 2025. The possible outcomes for manuscripts at this stage were: (1) *Accepted*, (2) *Rejected*, or (3) *Shepherded*.

A paper receiving an *Accepted* decision was immediately slated to appear in this proceedings. Conversely, a manuscript receiving a *Rejected* decision was deemed unsuitable for publication at ECRTS 2025 due to either a scope mismatch or foundational technical shortcomings. Finally, the reviewers had the option to recommend a paper for a *Shepherded* decision. This case was reserved for papers that were deemed promising by the reviewers but that were perceived as not quite ready to be accepted as is. A paper receiving a *Shepherded* decision was considered conditionally accepted. It was assigned (1) a clear set of shepherding requirements to be addressed by the authors and (2) a shepherd from the pool of reviewers tasked to ensure that the requirements are met in the revised version of the manuscript. The deadline for shepherds to finalize their decision was set as May 9, 2025.

Upon conclusion of the TPC meeting, all the papers received a final decision, as described above. Each paper also received a meta-review summarizing the nature of the discussion entertained by the reviewers and the chairs during the offline and online phases.

In line with the inclusiveness goals of ECRTS, no specific acceptance rate was targeted by the TPC chair. The reviewers were given explicit guidance to appropriately use *Shepherded* decisions in case of promising papers with fixable flaws. It is always challenging to ensure the perfect adherence of the entire TPC to the established guidelines. Nonetheless, we sincerely hope that all the authors of those papers that received a *Rejected* decision will be able to use the provided feedback to improve and re-submit their work to future venues.

Submission and Selection Statistics

The 37th edition of ECRTS received a total of 55 valid submissions. Table 1 provides a breakdown of their country of origin. In the table, the first column labeled “Country” reports the considered country/region. The second column, labeled “Authors,” counts how many authors with primary affiliation in the considered country submitted papers to the conference. In the third column labeled “Submissions,” the per-country breakdown of individual submissions is computed as follows. For each submission, the number of authors from the same country is divided by the total number of authors in that submission. Then, the per-submissions ratios are aggregated across all the submissions on a per-country basis. The same goes for the fourth column labeled as “Accepted,” but considering only accepted papers.

■ **Table 1** Statistics on the country of affiliation of authors and TPC members.

Country/Region	Authors	Submissions	Accepted	TPC Members
Austria	6	2	–	1
Australia	5	0.8	0.2	–
Brazil	2	0.7	–	–
Canada	10	3.2	1.2	4
Switzerland	11	2.3	1	–
China	6	1.3	–	2
Czech Republic	2	1	1	–
Germany	46	11.7	5.7	8
Estonia	2	0.3	0.3	–
Egypt	2	1	–	–
Spain	7	1.2	1	1
France	18	5.1	4.1	12
Hong Kong	1	0.2	0	1
India	6	1.5	1.3	–
Iran	–	–	–	1
Italy	12	2.4	0.8	4
Japan	6	2	–	–
Netherlands	5	0.7	0.7	–
Poland	6	2	–	–
Portugal	3	1	–	2
Sweden	4	0.8	–	3
Singapore	4	1	0.8	1
South Korea	–	–	–	1
United Kingdom	9	2.8	–	1
United States	36	10	3	10
Total	209	55	21	52

The statistics presented in Table 1 highlight that ECRTS 2025 was participated by a healthy mix of about 250 researchers between authors and TPC members (with some overlap) from 25 different countries around the globe. In terms of the number of submissions, Germany, France, and the United States contributed to about 49% of the total. The overall number of submissions corresponded to an 11% decrease compared to ECRTS 2024. Nonetheless, around 40% of the submissions were characterized by a list of authors where none of them had ever published at ECRTS – at least, according to our records dating back to 2017. This is a healthy sign that ECRTS represents a gateway for new researchers approaching the real-time community with their work and that the newly introduced publicity activities were successful.

Out of the total of 55 submissions, the TPC finally accepted 21 full papers for publication. This represents an acceptance rate of about 38%. Once again, this was not a targeted acceptance rate but rather the result of an organic selection process. By the conclusion of the TPC meeting, all papers received at least four full reviews. The TPC chair invited additional reviewers for papers with low-confidence evaluations. Thus, five papers also received an additional review. After the TPC meeting, 8 papers received an *Accepted* decision ($\sim 15\%$); 33 received a *Rejected* decision (60%); and 14 received a *Shepherded* decision ($\sim 25\%$). Of the papers that received a *Shepherded* decision, 13 ($\sim 93\%$) were subsequently accepted to appear at the conference.

Alignment between Evaluation Committees

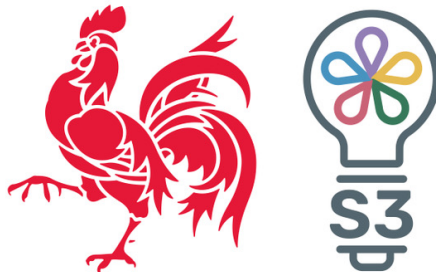
Out of the 55 total ECRTS 2025 submissions, the authors of 24 submissions (~44%) opted to have their work also submitted for evaluation to the STPC. This is an excellent opt-in rate, given that this was the first experimental run of an STPC at any of our real-time conferences. Of the 24 submissions, 18 submissions (75%) received three reviews, and six of them received two reviews from STPC members. This highlights an excellent engagement record, considering that STPC members had, in most cases, no track record of previous involvement in similar committees.

Having an STPC operating in parallel with respect to the main TPC allows for an interesting introspection into the level of objectiveness of the overall evaluation process. In particular, we have analyzed the level of alignment between the two evaluations (TPC vs. STPC). Out of the 24 papers evaluated by the STPC, 12 (50%) received the same outcome in both committees. This ratio was computed considering the final decisions of the TPC at the end of the shepherding phase. We consider the decisions of the two committees as “aligned” in those cases where (1) the TPC recommended an *Accepted* decision and the STPC provided a positive-leaning decision (*MayAccept*, *PreAccept*, *Borderline*); or (2) the TPC recommended a *Rejected* decision and the STPC provided a negative-leaning decision (*MayReject*, *PreReject*).

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