Application for a B-ranking of RV

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Contents

1 Introduction

The present document constitutes a formal application for a change in the ranking of the RV (Runtime Verification) conference from a C ranking to a B ranking.

1.1 What is RV?

RV (Runtime Verification) is an international conference concerned with **monitoring and analysis of runtime behavior** of software and hardware systems. The goal is to study whether application of lightweight formal/rigorous methods during runtime is a viable complement to the traditional methods proving programs correct (such as model checking and theorem proving), traditional testing, and performance analysis. RV is managed by a steering committee consisting of currently ten members, see Section 3. A website for the conference is available here: https://runtime-verification.github.io/.

The conference focuses mainly on execution analysis, also referred to as dynamic analysis (in contrast to static analysis which covers analysis and verification of e.g. source code), and does as such overlap with testing, namely the test oracle part. It does not, e.g., focus on how to obtain executions (test case generation, software model checking). The RV steering committee has over the years explicitly avoided becoming "yet another testing conference" by excluding test input generation[1]. The field also overlaps with e.g. FDIR (Fault Detection, Isolation and Recovery) and more generally: self healing systems, where a systems behavior is controlled based on monitored past behavior.

The assumption is that we have one or more execution traces, and the research questions are: how to process them, for what purposes, how to elegantly formalize the analysis in specifications, and how to do the analysis efficiently. The field covers offline analysis of already generated traces as well as online analysis of systems as they execute. Topics include: monitoring executions against specifications written formal logics, design of such logics and their monitoring algorithms, use of fixed algorithms (no specifications) to detect anomalies in executions (typically concurrency problems), program instrumentation (to generate events to be observed), including e.g. aspect-oriented programing, mining of specifications from executions (machine learning), execution visualization for human comprehension, extracting any kind of information from traces (going beyond Boolean verdicts), and complex event processing (CEP). Interactions with other fields are, however, appreciated, e.g. the combination of static and dynamic analysis (monitor dynamically what cannot be proved statically).

1.2 Some History and Publication Venues

RV has occurred every year since 2001. It started as a workshop in 2001, and continued as such through 2009. In 2010 RV became a conference. The workshops were organized as satellite events to such established forums as CAV

[1] An exception was in 2006 where it as a workshop was joined with FATES (Formal Aspects of Testing).

(2001-2003, 2005-2006, and 2009), ETAPS (2004 and 2008), and AoSD (2007). In 2006, RV was organized jointly with the FATES workshop (Formal Aspects of Testing). As a conference it has mostly been a stand-alone event. In 2018, however, it was organized together with ISoLA, and in 2019 it was organized together with FM'19, the 3rd World Congress on Formal Methods, see the invitation RV received in Appendix A. In 2020 it was again a stand alone conference in Los Angeles (although finally virtual due to covid 19).

The proceedings for RV from 2001 to 2005 were published in Electronic Notes in Theoretical Computer Science (ENTCS). Since 2006, the RV proceedings have been published in Lecture Notes in Computer Science (LNCS). In 2018 RV was accepted for publication in the *Formal Methods* subline of LNCS[2], invited by subline series editors Ana Cavalcanti, University of York, UK and Marie-Claude Gaudel, Université de Paris-Sud, France. Acceptance for this subline requires an additional level of quality. As it was stated in the invitation from Ana Cavalcanti and Marie-Claude Gaudel: "*LNCS volumes in the area of formal methods will not be necessarily included in the new subline. The idea is that inclusion in the subline becomes an extra stamp of quality for the event, tutorial, or state-of-the-art survey. For that, we are pleased to count with the support of a very prestigious Advisory Board, and hope to receive applications from the organisers of the well established events in our area.*". It should be emphasized that RV was invited (as part of the launch of this subline). Our first proceedings in this subline was RV 2019.

Eleven journal issues have been, or are in the process of being, published containing selected papers from RV workshops and conferences, see Section 10 for details. This includes eight issues of Formal Methods in System Design (FMSD) and three issues of International Journal on Software Tools for Technology Transfer (STTT).

1.3 The Ranking

The RV conference is currently ranked as a C conference according to the Portal Core[3]. This ranking was given to RV during its status as a workshop (likely somewhere during the years 2001-2009 unless an error was made in its classification as a workshop). We only noticed in late 2016[4] that it was recorded as workshop, which we reported to CORE, upon which it was corrected by CORE, and recorded as a conference in early 2017. That is 6 years after if became a conference. It seems like RV has not been re-evaluated since it was first evaluated more than a decade ago. We believe that the current C ranking is out of date and far from reflects reality, and we are therefore applying for at least a B ranking. The document first gives a general argument based on CORE's official ranking criteria. Then follows various collected data supporting the argument.

[2] shorturl.at/tzEG0

[3] http://portal.core.edu.au/conf-ranks/1932/

[4] We were in 2016 made aware of CORE due to several independent authors from Asia that contacted us and expressed their worries about the C ranking of RV.

1.4 Overview of the Application

Section 2 makes an argument based on the B and A criteria (in that order) provided by CORE. Section 3 lists the steering committee members overseeing the execution of RV from year to year. Section 4 lists program chairs, general chairs, and other chairs for RV. Section 5 lists submission data, including number of submitted papers and number of accepted papers. Section 6 compares RV submission data with other conferences. Section 7 lists eminent scientists with $h{-}index \geq 40$ that have published at RV. Section 8 lists invited speakers at RV. Section 9 lists the runtime verification competitions that have been organized. Section 10 lists special journal issues of RV papers derived from RV conferences and earlier workshops. Section 11 lists Dagstughl events organized around RV as a theme. Section 12 lists schools for students that have been organized as part of RV. Appendix A contain an invitation from the organizers of FM 2019 to arrange RV with them.

2 According to the CORE Ranking Rules

2.1 B Ranking

According to CORE's ranking rules[5], we believe that RV ranks as at least a B. This is based on the following observations on the ranking criteria, which are repeated in framed boxes. We first present our comments to the B-ranking criteria, which we believe we pass (and in three cases, out of five, outperform). We then present our comments to the A-ranking criteria, which we believe we pass except for two cases out of seven.

2.1.1 Criteria B.1

Acceptance rates may be higher than for A Conferences.

The acceptance rates (from when RV became a conference in 2010) have been on average of 44.40%. The numbers, also provided in Section 5, are as follows: 2010: 38.98%, 2011: 42.42%, 2012: 50.00%, 2013: 41.38%, 2014: 38.57%, 2015: 46.67%, 2016: 37.50%, 2017: 46.55%, 2018: 42.86%, 2019: 50.00%, and 2020: 53.49%. Section 6 compares submission rates and acceptance rates with five other B-ranked conferences for the last five years. It is there demonstrated that RV performs comparable with those other conferences. Specifically, RV performs very well compared to those conferences wrt. number of submissions. Wrt. acceptance rates, RV is comparable with the other conferences, by each year on average performing better or the same as two of the other five conferences (on average better than 2.86 of the other five conferences).

[5] shorturl.at/bjEFH

2.1.2 Criteria B.2

Being a PC Chair of a B Conference is often a role taken by mid-career researchers who have established strong track records, and regard it as being a way of being noted for their organizational skills, and demonstrating their availability for similar roles in more highly-rated conferences.

This criteria matches RV fairly well. Usually PC chairs for RV are chosen according to two criteria: (1) they are known excellent researchers within the field of RV, and (2) they are willing to do the ground work needed to organize such an event. This leads often to mid carrier researchers (due to especially criteria 2). We occasionally combine mid carrier researchers in PC chair roles with more established researchers, e.g. as general chairs. However, we try to have at least two PC chairs that both are able to do the detailed work in the trenches. We do not want all work to land on the shoulders of one person. Chairs are always chosen with great attention to quality of the chosen researchers as well as ability to do the hard work. Section 4 provides details about chairs of RV since 2010.

2.1.3 Criteria B.3

Leading researchers will submit to B Conferences if, for example, they have an interest in the location, or if they have other travel plans that allow straightforward attendance; but may not attend if they do not have a paper accepted. A leading researcher is unlikely to make attendance at a B Conference the sole purpose of an international journey.

There are several sub-criteria mentioned here. We believe that RV largely outperforms this criteria. That is, a researcher will attend RV not only if "they have an interest in the location", or "if they have other travel plans that allow straightforward attendance". They will according to our observations attend as "the sole purpose of an international journey". So according to these sub-criteria we consider RV to clearly rather match an A conference. However, a researcher will likely not attend RV unless they "have a paper accepted" (most of us don't attend conferences unless we have a paper accepted in some form or other). The exception would likely be local students encouraged by local organizers, as we think is the case for most conferences in our field. Section 7 provides a listing of eminent scientists (with $h\text{–}index \geq 40$) that have published in RV.

2.1.4 Criteria B.4

Reviewing for B Conferences is carried out by people who are knowledgable in the area, but the reviews might not be as comprehensive or detailed as for A or A* Conferences.

The program committees for RV have from the beginning of RV, even as a workshop, been composed of well known excellent researchers in RV. There has from the beginning been a focus on well known people in order to advertise RV as a high quality event. As a workshop from 2001, and certainly as a conference from 2010. This standard exceeds "people who are knowledgable in the area", which suggests a more peripheral knowledge (if we read this criteria correct). The reviews for RV are in general detailed, as detailed as for A and A* conferences.

2.1.5 Criteria B.5

Being an invited keynote speaker at a B Conference would not necessarily count as a significant career highlight for a strong researcher, and they would consider other plans before agreeing.

We believe RV outperforms this criteria as well. The invited speakers are generally very famous international scholars with an average h-index of 46.91 and they usually gladly accept to be our invited speakers. In our judgment it is a career highlight to be invited speaker at RV. In Section 8 we provide the information about the invited speakers of the last editions of RV.

2.1.6 Summary of B Ranking

We have argued that RV satisfies all B-criteria and even in our view outperforms the last three of the five criteria. That is, acceptance rates are not as high as A conferences, and PC chairs are mid carrier to mature excellent researchers. Leading researchers will submit to RV also when not in nice/convenient locations and also if they have no other travel plans in the area. Reviews are done by experts and reviews are detailed. Being invited as speaker to RV is considered a carrier highlight.

2.2 A Ranking

It says about this ranking: "*Somewhat reduced level (from A*). They may be narrower, less widely known and less visible outside the immediate community*". RV is indeed a conference focusing on a narrow topic. RV focuses only on dynamic program analysis (excluding even test case generation), in contrast to more general conferences such as CAV or TACAS, which focus on any form of analysis.

2.2.1 Criteria A.1

They possibly have somewhat higher acceptance rates than A* Conferences, and the pools of submitted papers may include some that are only of moderate quality.

RV's acceptance rates do not match those of A conferences, in part due to its limited scope, and thereby fewer submissions (ignoring that RV is newer than most A and A* conferences). However, we do attempt to minimize papers of "moderate" quality. It is our view that papers submitted to RV are generally (and always have been) of a high quality. There seems to be some pre-selection going on even before people submit papers.

2.2.2 Criteria A.2

Research leaders routinely submit papers to A Conferences, but might not attend that year if their work is not accepted.

That is the case for RV.

2.2.3 Criteria A.3

Reviews of papers are generally undertaken by people who have published in the area of the submitted work, and provide detailed and extended feedback.

Since RV is a narrowly scoped conference (dynamic analysis) and since PC members are chosen within the field of RV, one can well argue that papers are "generally undertaken by people who have published in the area of the submitted work". If one, however, is more precise and focuses on the sub-fields of RV, it is probably the case that papers are assigned, using EasyChair, based on people's bidding references and EasyChair's automated paper assignment (as we actually also believe is the approach taken by at least A conferences and probably A* conferences as well). Reviews usually "provide detailed and extended feedback".

2.2.4 Criteria A.4

Researchers are pleased to have their work accepted at A Conferences.

We believe this is definitely the case for RV.

2.2.5 Criteria A.5

An A Conference may be the center of an ecosystem, including workshops and tutorials.

RV consists each year of a tutorial part (the first day) and a regular conference part (typically three days). On the tutorial day a collection of tutorials take place, either sequentially or in parallel, depending on the number of tutorials. Since 2013 (for the last 6 years) RV has been associated with satellite events, including some workshops and runtime verification competitions. The specifics are as follows.

- RV 2013 was hosting SMC'13, First Workshop on Statistical Model Checking:
  `http://rv2013.gforge.inria.fr/workshop.html`.
- RV 2014 was hosting CSRV'14, the First International Competition of Software for Runtime Verification:
  `http://rv2014.imag.fr/monitoring-competition.html`.
- RV 2015 was hosting CRV'15, the Second International Competition on Runtime Verification:
  `http://rv2015.conf.tuwien.ac.at/?page_id=276`,
  as well as the RERS'15 Challenge:
  `http://rv2015.conf.tuwien.ac.at/?page_id=317`.
- 2016 was hosting the First ARVI COST Summer School on Runtime Verification:
  `https://rv2016.imag.fr/?page_id=128`,
  as well as CRV'16, the 3rd International Competition on Runtime Verification:
  `https://rv2016.imag.fr/?page_id=188`.
- 2017 was hosting RV-CuBES'17, International Workshop on Competitions, Usability, Benchmarks, Evaluation, and Standardisation for Runtime Verification Tools:
  `http://rv2017.cs.manchester.ac.uk/rv-cubes`.
- 2018 was hosting CRV'18, the Fourth International Runtime Verification Competition:
  `https://www.rv-competition.org/2018-2`.
- 2019 was itself part of FME's Symposium on Formal Methods (FM) organised as *a World Congress* with multiple other conferences and workshops.
- 2020 was virtual without any affiliated events.

See Section 9 for a list of RV competitions, Section 12 for a list of student schools, and Section 11 for a list of related Dagstuhl events.

2.2.6 Criteria A.6

Being a PC Chair or invited keynote speaker for an A Conference is regarded as being a significant career milestone.

We do believe that it is a career highlight to be invited speaker for RV, but probably not a "significant career milestone", as it would be e.g. to PC chair or keynote speaker for TACAS, CAV or POPL.

2.2.7 Criteria A.7

Researchers will favor A-conference papers when preparing their career highlights for grant applications and etc.

This is a delicate matter, in part due to CORE's early C ranking of RV when it was a workshop (it became a conference 10 years ago). People have asked for RV to be better ranked by CORE. This means that people want to submit to RV and they want to use RV to promote their careers. We believe that researchers not familiar with CORE do that, but that especially Asian researchers are worried about the C ranking.

2.2.8 Summary of A Ranking

We actually do believe that RV satisfies most of the A criteria, except acceptance rates, and except potentially the "significant career milestone" of being a PC chair or invited speaker for RV. We would call it a career highlight though!

3 Steering Committee

The steering committee overseeing the execution of RV from year to year, including selecting its chairs, consists of the following researchers.

- Insup Lee - $h\text{–}index \geq 63$
  `https://scholar.google.at/citations?user=qPlUgrgAAAAJ&hl=en`.
- Grigore Rosu - $h\text{–}index \geq 59$
  `https://scholar.google.at/citations?user=yxpqbdQAAAAJ&hl=en`.
- Klaus Havelund - $h\text{–}index \geq 50$
  `https://scholar.google.com/citations?user=yr-qU5MAAAAJ&hl=en`.
- Oleg Sokolsky - $h\text{–}index \geq 49$
  `https://scholar.google.com/citations?user=JOSKz5YAAAAJ&hl=en`.
- Saddek Bensalem - $h\text{–}index \geq 36$
  `https://scholar.google.com/citations?user=UxarTKgAAAAJ&hl=en`.
- Martin Leucker - $h\text{–}index \geq 35$
  `https://scholar.google.com/citations?user=K5TogrcAAAAJ&hl=de`.
- Ezio Bartocci - $h\text{–}index \geq 32$
  `https://scholar.google.com/citations?hl=en&user=EeK43rAAAAAJ`.
- Ylies Falcone - $h\text{–}index \geq 26$
  `https://scholar.google.com/citations?hl=en&user=hrtbAgIAAAAJ`.
- Giles Reger - $h\text{–}index \geq 17$
  `https://scholar.google.com/citations?hl=en&user=Js3EdsEAAAAJ`.

- Howard Barringer - $h\text{–}index \geq Unavailable$
  `google scholar website not avalable`. Barringer is Professor Emeritus at University of Manchester, UK.

4 Program Chairs

RV has from the start had strong Program Committee (PC) Chairs, General Chairs, etc. Below all roles are by default PC chairs, unless otherwise stated. Within each year chairs are sorted according to h-index.

- RV 2021 (conference)
  - Dana Fisman - $h\text{–}index \geq 20$
    `https://scholar.google.com/citations?user=LWgGkRsAAAAJ&hl=de`.
  - Lu Feng - $h\text{–}index \geq 11$
    `https://scholar.google.com/citations?hl=de&user=HiyMQzEAAAAJ`.
    (Awarded with an NSF Career Grant)
- RV 2020 (conference)
  - Dejan Nickovic - $h\text{–}index \geq 24$
    `https://scholar.google.com/citations?user=O7GjJiAAAAAJ&hl=en`.
  - Jyotirmoy V. Deshmukh - $h\text{–}index \geq 23$
    `https://scholar.google.com/citations?user=CwFX74MAAAAJ&hl=en`.
- RV 2019 (conference)
  - Leonardo Mariani - $h\text{–}index \geq 28$
    `https://scholar.google.com/citations?user=cNkeo34AAAAJ&hl=en`.
    (Awarded with an ERC Consolidator)
  - Bernd Finkbeiner - $h\text{–}index \geq 29$
    `https://scholar.google.com/citations?user=mSwHrYMAAAAJ&hl=en`.
    (Awarded with an ERC Consolidator)
- RV 2018 (conference)
  - Saddek Bensalem (general chair) - $h\text{–}index \geq 36$
    `https://scholar.google.com/citations?user=UxarTKgAAAAJ&hl=en`.
  - Martin Leucker - $h\text{–}index \geq 35$
    `https://scholar.google.com/citations?user=K5TogrcAAAAJ&hl=en`.
  - Christian Colombo - $h\text{–}index \geq 15$
    `https://scholar.google.com/citations?user=eFR8lkgAAAAJ&hl=en`.
- RV 2017 (conference)

  - Klaus Havelund (general chair) - h–$index \geq 50$
    `https://scholar.google.com/citations?user=yr-qU5MAAAAJ&hl=en`.
  - Oleg Sokolsky (finance chair) - h–$index \geq 49$
    `https://scholar.google.com/citations?user=JOSKz5YAAAAJ&hl=en`.
  - Shuvendu Lahiri - h–$index \geq 34$
    `https://scholar.google.com/citations?user=OPzT1VoAAAAJ&hl=en`.
  - Giles Reger - h–$index \geq 17$
    `https://scholar.google.com/citations?user=Js3EdsEAAAAJ&hl=en`.

- RV 2016 (conference)

  - Klaus Havelund (tool chair) - h–$index \geq 50$
    `https://scholar.google.com/citations?user=yr-qU5MAAAAJ&hl=en`.
  - Yliès Falcone - h–$index \geq 27$
    `https://scholar.google.com/citations?user=hrtbAgIAAAAJ&hl=en`.
  - Cesar Sanchez - h–$index \geq 17$
    `https://scholar.google.com/citations?user=uwzBnJwAAAAJ&hl=en`.

- RV 2015 (conference)

  - Rupak Majumdar - h–$index \geq 56$
    `https://scholar.google.com/citations?user=COuXyKwAAAAJ&hl=en`.
  - Radu Grosu - h–$index \geq 37$
    `https://scholar.google.com/citations?user=1g_muAgAAAAJ&hl=en`.
  - Ezio Bartocci - h–$index \geq 32$
    `https://scholar.google.com/citations?user=EeK43rAAAAAJ&hl=en`.

- RV 2014 (conference)

  - Scott A. Smolka - h–$index \geq 56$
    `https://scholar.google.com/citations?user=4q-QenMAAAAJ&hl=en`.
  - Ezio Bartocci (tool and competition chair)- h–$index \geq 32$
    `https://scholar.google.com/citations?user=EeK43rAAAAAJ&hl=en`.
  - Patrick Lam (Local arrangement chair) - h–$index \geq 24$
    `https://scholar.google.com/citations?user=36fAXB4AAAAJ&hl=en`.
  - Yliès Falcone (comptition and publicity chair) - h–$index \geq 27$
    `https://scholar.google.com/citations?user=hrtbAgIAAAAJ&hl=en`.
  - Borzoo Bonakdarpour - h–$index \geq 22$
    `https://scholar.google.com/citations?user=T_hw6kcAAAAJ&hl=en`.
  - Sebastian Fischmeister - h–$index \geq Unavailable$
    `google scholar website not avalable`.

- RV 2013 (conference)

  - Axel Legay - h–$index \geq 45$
    https://scholar.google.com/citations?user=6sGLpJIAAAAJ&hl=en.
  - Saddek Bensalem - h–$index \geq 36$
    https://scholar.google.com/citations?user=UxarTKgAAAAJ&hl=en.

- RV 2012 (conference)
  - Shaz Qadeer - h–$index \geq 51$
    https://scholar.google.com/citations?user=EqIVfYcAAAAJ&hl=en.
  - Serdar Tasiran - h–$index \geq Unavailable$
    google scholar website not avalable.

- RV 2011 (conference)
  - Koushik Sen - h–$index \geq 49$
    https://scholar.google.com/citations?user=Vn3L_ioAAAAJ&hl=en.
  - Sarfraz Khurshid - h–$index \geq 44$
    https://scholar.google.com/citations?user=bG5-ZzIAAAAJ&hl=en.

- RV 2010 (conference)
  - Insup Lee (general chair) - h–$index \geq 63$
    https://scholar.google.at/citations?user=qPlUgrgAAAAJ&hl=en.
  - Grigore Rosu - h–$index \geq 59$
    https://scholar.google.at/citations?user=yxpqbdQAAAAJ&hl=en.
  - Klaus Havelund (general chair) - h–$index \geq 50$
    https://scholar.google.at/citations?user=yr-qU5MAAAAJ&hl=en.
  - Oleg Sokolsky (finance chair) - h–$index \geq 49$
    https://scholar.google.com/citations?user=JOSKz5YAAAAJ&hl=en.
  - Nikolai Tillmann (tool demonstration chair) - h–$index \geq 47$
    https://scholar.google.at/citations?user=pcZrOKwAAAAJ&hl=en.
  - Bernd Finkbeiner (tutorial chair) - h–$index \geq 29$
    https://scholar.google.com/citations?user=mSwHrYMAAAAJ&hl=en.
  - Gordon Pace (organizder) = h–$index \geq 23$
    https://scholar.google.com/citations?user=XtYG-jsAAAAJ&hl=en.
  - Yliès Falcone - h–$index \geq 27$
    https://scholar.google.com/citations?user=hrtbAgIAAAAJ&hl=en.
  - Howard Barringer (general chair) - h–$index \geq Unavailable$
    google scholar website not avalable.

5 Submission Data

The numbers for previous conferences[6] extracted from LNCS proceedings prefaces are as indicated below. The acceptance rates swing from 37.50 to 53.49 with an average of 44.40% acceptance rate. Below different categories of papers are referred to by the following letters: r = regular paper, s = short paper, t = regular tool paper, d = tool demo paper.

- 2010
  - submitted : 59
  - accepted : 23
  - Percentage : 38.98
  - (In addition 15 tutorial and tool proposals were submitted of which six tutorials and four tool demonstrations were selected.)
- 2011
  - submitted : 66 = 52r + 9s + 5d
  - accepted : 28 = 22r + 2s + 4d
  - percentage : 42.42 42.3r 22.2s 80.0d
- 2012
  - submitted : 50
  - accepted : 25
  - percentage : 50.00
- 2013
  - submitted : 58
  - accepted : 24
  - percentage : 41.38
- 2014
  - submitted : 70 = 57r + 10s + 3t
  - accepted : 27 = 18r + 7s + 2t
  - percentage : 38.57 31.6r 70.0s 66.7t
- 2015
  - submitted : 45 = ?r ?s ?d

[6] The RV workshops from 2001-2009 are not included.

  - accepted : 21 = 15r + 4s + 2d
  - percentage : 46.67

- 2016
  - submitted : 72 = 49r + 10s + 6t + 2d
  - accepted : 27 = 18r + 4s + 3t + 2d
  - percentage : 37.50 36.7r 40.0s 50.0t 100.0d

- 2017
  - submitted : 58 = 47r + 8s + 3t
  - accepted : 27 = 18r + 5s + 4t
  - percentage : 46.55 38.3r 62.5s 133.3t (4 regular papers were accepted as short or tool papers).

- 2018
  - submitted : 49
  - accepted : 21
  - percentage : 42.86

- 2019
  - submitted : 38
  - accepted : 19
  - percentage : 50.00

- 2020
  - submitted : 43
  - accepted : 23
  - percentage : 53.49

6 Comparison to Other Conferences

This section compares RV submission and acceptance rates with the following five conferences, all ranked B: FORTE, AdaEurope, COORDINATION, VMCAI, and TIME.

6.1 Comparison of Acceptance Rates

In the histogram shown in Figure 1 we have compared the number of submissions received by RV in the last seven editions with the number of submissions received by the other five conferences that are ranked B according to the CORE ranking:

- FORTE - International Conference on Formal Techniques for Distributed Objects, Components, and Systems
  http://portal.core.edu.au/conf-ranks/805/.
- AdaEurope - International Conference on Reliable Software Technologies
  http://portal.core.edu.au/conf-ranks/1191/.
- COORDINATION - International Conference on Coordination Models and Languages
  http://portal.core.edu.au/conf-ranks/980/.
- VMCAI - International Conference on Verification, Model Checking, and Abstract Interpretation
  http://portal.core.edu.au/conf-ranks/1847/.
- TIME - International Symposium on Temporal Representation and Reasoning
  http://portal.core.edu.au/conf-ranks/1424/.

These data are generally available in the preface of the proceedings of each conference. The diagram shows that in the last seven editions, RV has received more submissions per year than AdaEurope, COORDINATION, and TIME. Wrt. AdaEuope, RV's submission rates are higher in all years. Wrt. FORTE, RV's submission rates are higher in all years except 2015 and 2019. Wrt. COORDINATION, RV's submission rates are higher in all years. Wrt. VMCAI, RV's submission rates are higher in three of the years (2014, 2016, 2018), and in two years (2017, 2020) very even. Wrt. TIME, RV's submission rates are higher in all years. The average number of submissions for RV of the last seven editions (53.57 papers) is only 2.57 papers below the average number of submissions (56.14 papers) of the last seven editions of VMCAI, which is a more broadly scoped conference.

In the histogram shown in Figure 2 we have compared the acceptance rates for RV in the last seven editions (in average 45.09%) with the acceptance rates for the five other conferences. The diagram shows that the acceptance rates for RV are in general comparable or better than at least two of the other conferences each year. The average acceptance rate of the last seven editions of RV (45.09%) is less than those of TIME (62.84%) and COORDINATION (46.01%), and only 0.49 higher than that VMCAI (44.60%).

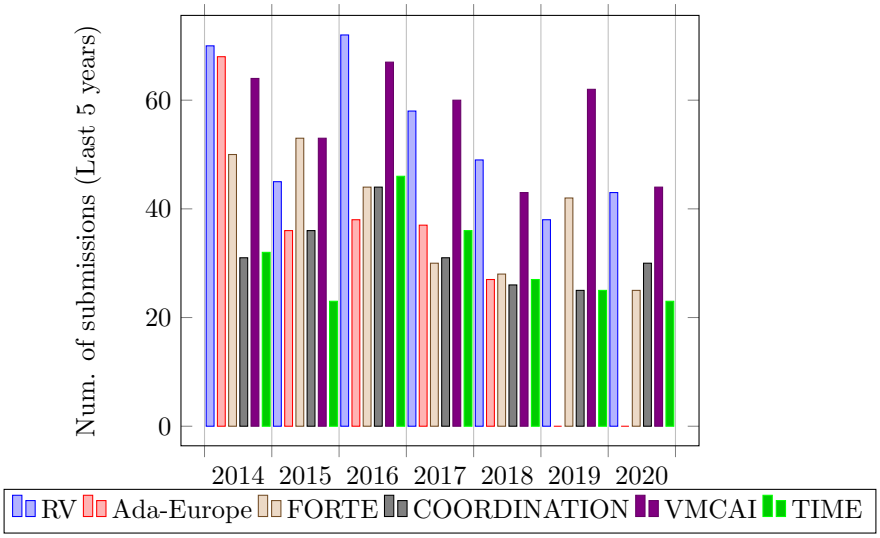

Figure 1: Number of submissions per conference.

6.2 Conference by Conference

6.2.1 FORTE (Ranked B)

- FORTE 2020 - 11 regular papers over 25 submissions (44% accept. rate)
  `https://link.springer.com/book/10.1007%2F978-3-030-50086-3`
- FORTE 2019 - 15 regular + 3 short over 42 submissions (42.85% accept. rate)
  `https://link.springer.com/book/10.1007/978-3-030-21759-4`
- FORTE 2018 - 10 regular papers over 28 submissions (35% accept. rate)
  `https://link.springer.com/book/10.1007%2F978-3-319-92612-4`
- FORTE 2017 - 13 regular + 3 short + 1 tool papers over 30 submissions (46% accept. rate)
  `https://link.springer.com/book/10.1007%2F978-3-319-60225-7`
- FORTE 2016 - 18 regular papers over 44 submissions (41% accept. rate)
  `https://link.springer.com/book/10.1007%2F978-3-319-39570-8#about`
- FORTE 2015 - 15 regular papers over 53 submissions (28% accept. rate)
  `https://link.springer.com/book/10.1007%2F978-3-319-19195-9#about`
- FORTE 2014 - 18 regular papers over 50 submissions (36% accept. rate)
  `https://link.springer.com/book/10.1007%2F978-3-662-43613-4#about`
- FORTE 2013 - 20 regular papers over 39 submissions (51,2% accept. rate)
  `https://link.springer.com/book/10.1007%2F978-3-642-38592-6#about`

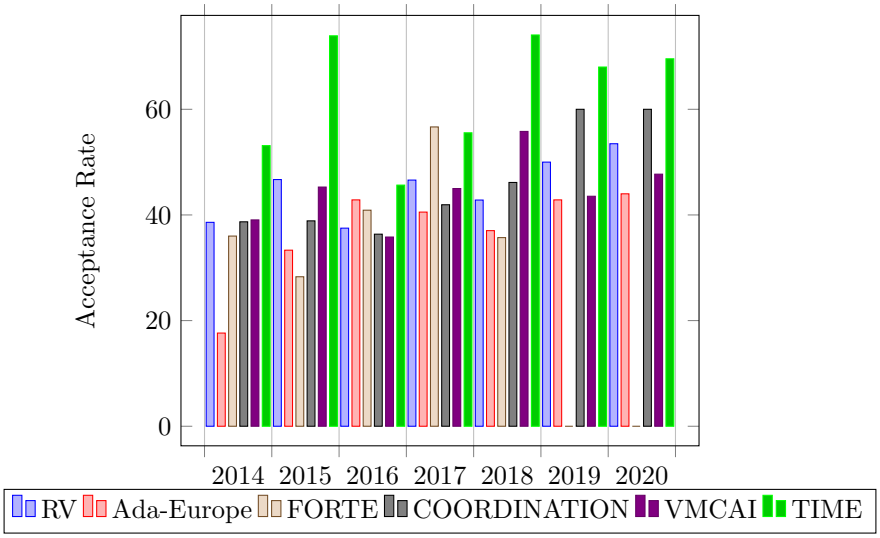

Figure 2: Acceptance rates per conference.

- FORTE 2012 - 16 regular papers over 42 submissions (38% accept. rate) https://link.springer.com/book/10.1007%2F978-3-642-30793-5#about
- FORTE 2011 - 21 regular over 65 submissions (32,30% accept. rate) https://link.springer.com/book/10.1007%2F978-3-642-21461-5#about
- FORTE 2010 - 13 regular + 6 short papers over 38 submissions (50% accept. rate) https://link.springer.com/content/pdf/bfm%3A978-3-642-13464-7%2F1.pdf
- FORTE 2009 - 12 regular + 6 short papers over 42 submissions (42.85% accept. rate) https://link.springer.com/book/10.1007%2F978-3-642-02138-1#about
- FORTE 2008 - 19 regular + 1 short papers over 44 submissions (45.45% accept. rate) https://link.springer.com/book/10.1007%2F978-3-540-68855-6#about
- FORTE 2007 - 22 regular papers over 67 submissions (32.83% accept. rate) https://link.springer.com/book/10.1007%2F978-3-540-73196-2#about

6.2.2 Ada-Europe (Ranked B)

- Ada-Europe 2018 - 10 regular papers over 27 submissions (37,04% acceptance rate) https://link.springer.com/book/10.1007%2F978-3-319-92432-8#about.
- Ada-Europe 2017 - 15 regular papers over 37 submissions (40,54% acceptance rate) https://link.springer.com/book/10.1007%2F978-3-319-60588-3#about.

- Ada-Europe 2016 - 12 regular papers + 1 invited over 28 Submissions (44,44% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-319-39083-3#about.
- Ada-Europe 2015 - 12 regular papers over 36 submissions (33,33% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-319-19584-1#about.
- Ada-Europe 2014 - 12 regular papers over 68 submissions (17,65% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-319-08311-7#about.
- Ada-Europe 2013 - 11 regular papers over not available number of submissions
  https://link.springer.com/book/10.1007%2F978-3-642-38601-5#about.
- Ada-Europe 2012 - 15 regular papers over 34 Submissions (44,12% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-642-30598-6#about.
- Ada-Europe 2011 - 12 regular papers over 30 Submissions (40,0% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-642-21338-0#about.
- Ada-Europe 2010 - 17 regular papers over 42 Submissions (40,48% acceptance rate)
  https://link.springer.com/content/pdf/bfm%3A978-3-642-13550-7%2F1.pdf.
- Ada-Europe 2009 - 18 regular papers over not specified number of submissions
  https://link.springer.com/content/pdf/bfm%3A978-3-642-13550-7%2F1.pdf.
- Ada-Europe 2008 - 20 regular papers over not specified number of submissions
  https://link.springer.com/book/10.1007%2F978-3-540-68624-8.
- Ada-Europe 2007 - 18 regular papers over not specified number of submissions
  https://link.springer.com/book/10.1007%2F978-3-540-73230-3#toc.

6.2.3 COORDINATION (Ranked B)

- COORDINATION 2020 - 12 regular papers + 6 short papers over 30 submissions (60,0% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-030-50029-0
- COORDINATION 2019 - 15 regular papers over 25 submissions (60,0% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-030-22397-7.

- COORDINATION 2018 - 12 regular papers over 26 submissions (46,15% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-319-92408-3#about
- COORDINATION 2017 - 13 regular papers over 31 submissions (41,94% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-319-59746-1#about.
- COORDINATION 2016 - 16 regular papers over 44 submissions (36,36% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-319-39519-7#about
- COORDINATION 2015 - 14 regular papers over 36 submissions (38.89% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-319-19282-6#about.
- COORDINATION 2014 - 12 regular papers over 31 submissions (38,71% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-662-43376-8#about.
- COORDINATION 2013 - 17 regular papers over 42 submissions (40,48% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-642-38493-6#about
- COORDINATION 2012 - 18 regular papers over 55 submissions (32,73% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-642-30829-1#about
- COORDINATION 2011 - 14 regular papers over 35 submissions (40,0% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-642-21464-6#about
- COORDINATION 2010 - 12 regular papers over 28 submissions (42.86% acceptance rate)
  https://link.springer.com/content/pdf/bfm%3A978-3-642-13414-2%2F1.pdf
- COORDINATION 2009 - 14 regular papers over 61 submissions (22,95% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-642-02053-7#about
- COORDINATION 2008 - 21 regular papers over 61 submissions (34,43% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-540-68265-3#about
- COORDINATION 2007 - 17 regular papers over 51 submissions (33,33% acceptance rate)
  https://link.springer.com/content/pdf/bfm%3A978-3-540-72794-1%2F1.pdf

6.2.4 VMCAI (Ranked B)

- VMCAI 2020 - 21 regular papers over 44 submissions (47.72% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-030-39322-9
- VMCAI 2019 - 27 regular papers over 62 submissions (43.54% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-030-11245-5
- VMCAI 2018 - 24 regular papers over 43 submissions (55.81% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-319-73721-8
- VMCAI 2017 - 27 regular papers over 60 submissions (45% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-319-52234-0#about
- VMCAI 2016 - 24 regular papers over 67 submissions (35.82% acceptance rate)
  https://link.springer.com/content/pdf/bfm%3A978-3-662-49122-5%2F1.pdf
- VMCAI 2015 - 24 regular papers over 53 submissions (45.28% acceptance rate)
  https://link.springer.com/content/pdf/bfm%3A978-3-662-46081-8%2F1.pdf
- VMCAI 2014 - 25 regular papers over 64 submissions (39.06% acceptance rate)
  https://link.springer.com/book/10.1007%2F978-3-642-54013-4#about

6.2.5 TIME (Ranked B)

- TIME 2020 - 16 regular papers over 23 submissions (69.56% acceptance rate)
  https://drops.dagstuhl.de/opus/volltexte/2020/12968/pdf/LIPIcs-TIME-2020-0.pdf
- TIME 2019 - 17 regular papers over 25 submissions (68% acceptance rate)
  https://drops.dagstuhl.de/opus/volltexte/2019/11358/pdf/LIPIcs-TIME-2019-0.pdf
- TIME 2018 - 20 regular papers over 27 submissions (74.07% acceptance rate)
  http://drops.dagstuhl.de/opus/volltexte/2018/9765/pdf/LIPIcs-TIME-2018-0.pdf
- TIME 2017 - 20 regular papers over 36 submissions (55.55% acceptance rate)
  http://drops.dagstuhl.de/opus/volltexte/2017/7911/pdf/LIPIcs-TIME-2017-0.pdf
- TIME 2016 - 21 regular papers over 46 submissions (45.65% acceptance rate)
  https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7774636

- TIME 2015 - 17 regular papers over 23 submissions (73.91% acceptance rate)
  https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7371913
- TIME 2014 - 17 regular papers over 32 submissions (53.12% acceptance rate)
  https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6940363

7 Eminent Scientists Publishing

List of eminent scientists with *h-index* ≥ 40 publishing at RV:

- Wil van der Aalst: *h–index* ≥ 155 - 1 paper in RV
  https://scholar.google.com/citations?user=aSZYyxIAAAAJ&hl=en&oi=sra
- Alberto L. Sangiovanni-Vincentelli: *h–index* ≥ 116 - 1 paper in RV
  https://scholar.google.com/citations?user=AhgjQ2QAAAAJ&hl=en
- Moshe Y. Vardi: *h–index* ≥ 110 - 2 papers in RV
  https://scholar.google.com/citations?user=DQaARsgAAAAJ
- Thomas Henzinger: *h–index* ≥ 110 - 1 paper in RV
  https://scholar.google.com/citations?user=jpgplxUAAAAJ&hl=de&oi=ao
- George J. Pappas: *h–index* ≥ 91 - 1 paper in RV
  https://scholar.google.com/citations?user=Kia-4B0AAAAJ
- Kim G. Larsen: *h–index* ≥ 82 - 2 papers in RV
  https://scholar.google.com/citations?hl=de&user=neDFD60AAAAJ
- Marta Kwiatkowska: *h–index* ≥ 66 - 1 paper in RV
  https://scholar.google.at/citations?user=ArcH6PkAAAAJ&hl=en&oi=sra
- Bernhard Steffen: *h–index* ≥ 65 - 3 papers is RV
  https://scholar.google.at/citations?user=YFGsf1YAAAAJ&hl=en
- Thomas Ball: *h–index* ≥ 64 - 1 paper in RV
  https://scholar.google.com/citations?user=d2f0VUQAAAAJ&hl=en
- Insup Lee: *h–index* ≥ 63 - 8 papers in RV
  https://scholar.google.com/citations?user=qPlUgrgAAAAJ&hl=en
- Alessandro Cimatti: *h–index* ≥ 61 - 2 papers in RV
  https://scholar.google.com/citations?user=lbZ6n5IAAAAJ&hl=de&oi=ao
- Rupak Majumdar: *h–index* ≥ 56 - 1 paper in RV
  https://scholar.google.com/citations?user=COuXyKwAAAAJ
- David Basin: *h–index* ≥ 58 - 7 papers in RV
  https://scholar.google.com/citations?user=-BA-kHYAAAAJ

- Grigore Rosu: *h–index* ≥ 59 - 11 papers in RV
  https://scholar.google.com/citations?user=yxpqbdQAAAAJ&hl=en
- Sanjit A. Seshia: *h–index* ≥ 56 - 7 papers in RV
  https://scholar.google.com/citations?user=SlZavnIAAAAJ&hl=en
- Holger Hermanns: *h–index* ≥ 55 - 1 paper in RV
  https://scholar.google.com/citations?user=lWMIeCAAAAAJ&hl=en
- Oded Maler: *h–index* ≥ 54 - 2 papers in RV
  https://scholar.google.com/citations?user=OPdSqqAAAAAJ&hl=en
- Calin Belta: *h–index* ≥ 52 - 1 paper in RV
  https://scholar.google.at/citations?user=72yPqG4AAAAJ&hl=en&oi=ao
- Scott A. Smolka: *h–index* ≥ 52 - 6 paper in RV
  https://scholar.google.com/citations?user=4q-QenMAAAAJ&hl=en
- Shaz Qadeer: *h–index* ≥ 51 - 4 papers in RV
  https://scholar.google.com/citations?user=EqIVfYcAAAAJ
- Klaus Havelund: *h–index* ≥ 50 - 10 papers in RV
  https://scholar.google.com/citations?user=yr-qU5MAAAAJ&hl=en
- Stavros Tripakis: *h–index* ≥ 49 - 2 papers in RV
  https://scholar.google.com/citations?user=xmdNUEcAAAAJ
- Oleg Sokolsky: *h–index* ≥ 49 - 10 papers in RV
  https://scholar.google.com/citations?user=JOSKz5YAAAAJ&hl=en
- Erez Zadok: *h–index* ≥ 49 - 3 papers in RV
  https://scholar.google.com/citations?user=ZG4V_jYAAAAJ&hl=en
- Doron Peled: *h–index* ≥ 48 - 2 papers in RV
  https://scholar.google.com/citations?user=XF61SSwAAAAJ
- Michael Fisher: *h–index* ≥ 48 - 1 paper in RV
  https://scholar.google.com/citations?user=ObjR3wwAAAAJ&hl=en
- Rance Cleaveland: *h–index* ≥ 47 - 1 paper in RV
  https://scholar.google.com/citations?user=EetL2HQAAAAJ&hl=en&oi=ao
- Axel Legay: *h–index* ≥ 45 - 5 papers in RV
  https://scholar.google.com/citations?user=6sGLpJIAAAAJ&hl=de
- Scott D. Stoller: *h–index* ≥ 41 - 7 papers in RV
  https://scholar.google.com/citations?user=9HNdszIAAAAJ&hl=en
- Sriram Sankaranarayanan: *h–index* ≥ 41 - 5 papers in RV
  https://scholar.google.com/citations?hl=de&user=V8RKLEsAAAAJ
- A. Prasad Sistla: *h–index* $\geq$? - 2 papers in RV. Not visible in Google Scholar. Prasad is, however, a well known computer scientist.

8 Invited Speakers

This section lists invited speakers at RV.

8.1 RV 2009 (still a workshop this year)

Source: http://www-rv2009.imag.fr/index.php.

- Amir Pnueli, New York University USA and Weizmann Institute of Science Israel, Turing Award winner, h–$index \geq 54$, `http://web.cs.ucla.edu/~palsberg/h-number.html`.
- Sriram Rajamani, Microsoft Research, India h–$index \geq 51$, 11846 citations `https://scholar.google.com/citations?user=o-EdErcAAAAJ&hl=en`.

8.2 RV 2010

Source: https://www.um.edu.mt/events/rv2010.

- Mike Barnett, Principal RSDE, Microsoft Research, Redmond, WA, USA h–$index \geq 27$, 3400 citations `https://scholar.google.at/citations?user=Dw7osAQAAAAJ&hl=en&oi=ao`.
- Rance Cleveland, University of Maryland, MD, USA h–$index \geq 45$, 8600 citations `https://scholar.google.at/citations?user=EetL2HQAAAAJ&hl=en&oi=sra`.
- Matthew Dwyer, University of Nebraska, NE, USA h–$index \geq 48$, 9500 citations `https://scholar.google.at/citations?user=-ZRKCcEAAAAJ&hl=en`.
- Martin Odersky, EPFL, Lausanne, Switzerland h–$index \geq 51$, 11000 citations `https://scholar.google.at/citations?user=LbRD9tEAAAAJ&hl=en`.
- Wim De Pauw, IBM T.J. Watson Research Center, New York, USA No data available on Google Scholar
- R. Sekar, Stony Brook University, NY, USA h–$index \geq 42$, 7500 citations `https://scholar.google.com/citations?user=FBIbhGoAAAAJ&hl=en`.

8.3 RV 2011

Source: http://rv2011.eecs.berkeley.edu/Program.html.

- Sharad Malik, Princeton University, USA h–$index \geq 63$, 24000 citations `https://scholar.google.com/citations?user=MV8KGT0AAAAJ&hl=en`.

- Wolfgang Grieskamp, Google, USA *h–index* ≥ 29, 3200 citations
  https://scholar.google.com/citations?user=nFVVL3gAAAAJ&hl=en.
- Steven P. Reiss, Brown University, USA
- Cormac Flanagan, University of California, Santa Cruz, USA *h–index* ≥ 47, 11000 citations
  https://scholar.google.com/citations?user=XkiApd4AAAAJ&hl=en&oi=ao.

8.4 RV 2012

Source: https://people.cs.kuleuven.be/ dirk.craeynest/ada-belgium/events/12/120925-rv.html.

- Jim Larus, Microsoft Research *h–index* ≥ 63, 1800 citations
  https://scholar.google.com/citations?user=xWZTGPUAAAAJ&hl=en.
- Martin Rinard, MIT, USA *h–index* ≥ 64, 15000 citations
  https://scholar.google.com/citations?user=hxlxVEUAAAAJ&hl=en.
- Giovanni Vigna, UCSB, USA *h–index* ≥ 74, 22300 citations
  https://scholar.google.com/citations?user=2eM6GocAAAAJ&hl=en.

8.5 RV 2013

Source: http://rv2013.gforge.inria.fr.

- Klaus Ostermann, University of Marburg, Germany *h–index* ≥ 29, 3600 citations
  https://scholar.google.com/citations?user=doJ07f8oUtQC&hl=en.
- Viktor Kuncak, EPFL, Lausanne, Switzerland *h–index* ≥ 35, 3700 citations
  https://scholar.google.com/citations?user=kmoklesAAAAJ&hl=en.
- Martin Leucker, University of Lbeck, Germany *h–index* ≥ 31, 4331 citations
  https://scholar.google.com/citations?user=K5TogrcAAAAJ&hl=en.

8.6 RV 2014

Source: http://rv2014.imag.fr/invitedtalks.html.

- Kevin Driscoll, Honeywell Labs, USA
- Assaf Schuster, Technion, Israel *h–index* ≥ 45, 6600 citations
  https://scholar.google.com/citations?user=KfwgjswAAAAJ&hl=en.
- Jeannette Wing, Carnegie Mellon University, USA

8.7 RV 2015

Source: http://rv2015.conf.tuwien.ac.at/?page_id=27.

- Patrice Godefroid, Microsoft Research, USA *h–index* ≥ 54, 15000 citations
  https://scholar.google.com/citations?user=1bFun-AAAAAJ&hl=en&oi=ao.
- Sriram Sankaranarayanan, University of Colorado Boulder, USA *h–index* ≥ 34, 4144 citations
  https://scholar.google.com/citations?user=V8RKLEsAAAAJ&hl=en.
- Georg Weissenbacher, Vienna University of Technology, Austria *h–index* ≥ 15, 1021 citations
  https://scholar.google.com/citations?user=1KfaH-QAAAAJ&hl=en.

8.8 RV 2016

Source: https://rv2016.imag.fr/?page_id=7.

- Gul Agha, University of Illinois at Urbana-Champaign, USA *h–index* ≥ 57, 17000 citations
  https://scholar.google.com/citations?user=orHlhhQAAAAJ&hl=en.
- Oded Maler, University of Grenoble-Alpes (UGA), France *h–index* ≥ 50, 10500 citations
  https://scholar.google.com/citations?user=OPdSqqAAAAAJ&hl=en.
- Fred B. Schneider, Cornell University, USA *h–index* ≥ 61, 20303 citations
  https://scholar.google.com/citations?user=sxjynOsAAAAJ&hl=en&oi=sra.

8.9 RV 2017

Source: http://rv2017.cs.manchester.ac.uk.

- Rodrigo Fonseca, Brown University, USA *h–index* ≥ 32, 6700 citations
  https://scholar.google.com/citations?user=VuvKPiQAAAAJ&hl=en.
- Vlad Levin and Jakob Lichtenberg, Microsoft, USA
- Andreas Zeller, Saarland University, Germany *h–index* ≥ 55, 14000 citations
  https://scholar.google.com/citations?user=-Qytr_YAAAAJ&hl=en&oi=ao.

8.10 RV 2018

Source: https://rv2018.isp.uni-luebeck.de.

- Rajeev Alur, University of Pennsylvania, USA h–$index \geq 83$ 40147, citations
  https://scholar.google.com/citations?user=kWnv_YkAAAAJ&hl=en.
- Frits Vaandrager, Radboud University, Netherlands h–$index \geq 48$ 8875, citations
  https://scholar.google.com/citations?user=2bkjlMgAAAAJ&hl=en.

8.11 RV 2019

Source: https://www.react.uni-saarland.de/rv2019/.

- David Basin, ETH Zurich, Switzerland h–$index \geq 58$ 13851, citations
  https://scholar.google.com/citations?user=-BA-kHYAAAAJ&hl=de.
- Akshay Rajhans, Mathworks, USA h–$index \geq 13$ 767, citations
  https://scholar.google.com/citations?hl=en&user=522zploAAAAJ.
- Sanjit A. Seshia, University of California, Berkeley, USA h–$index \geq 55$ 13809, citations
  https://scholar.google.com/citations?user=SlZavnIAAAAJ&hl=en.

8.12 RV 2020

Source: https://rv20.ait.ac.at.

- Katherine Driggs-Campbell, University of Illinois at Urbana-Champaign, USA h–$index \geq 14$ 643, citations
  https://scholar.google.com/citations?user=UXNLsZUAAAAJ&hl=en.
- Thomas A. Henzinger, IST Austria, Austria h–$index \geq 110$ 54819, citations
  https://scholar.google.com/citations?hl=en&user=jpgplxUAAAAJ.
- Lane Desborough, CEO at Nudge BG, USA h–$index \geq 11$ 2144, citations
  https://scholar.google.com/citations?user=lMkvfl8AAAAJ&hl=en.

9 Competitions

The Runtime Verification Competition is an annual event, held since 2014, and organized as a satellite event of the main conference. Over the first three years of the competition 14 different runtime verification tools competed on over 100 different benchmarks. In general, the objective of the competitions are to:

- stimulate the development of new efficient and practical runtime verification tools and the maintenance of the already developed ones.

- produce benchmark suites for runtime verification tools, by sharing case studies and programs that researchers and developers can use in the future to test and to validate their prototypes.
- discuss the metrics employed for comparing the tools.
- compare different aspects of the tools running with different benchmarks and evaluating them using different criteria.
- enhance the visibility of presented tools among different communities (verification, software engineering, distributed computing and cyber security) involved in monitoring.

Each competition has consisted of several steps described below. Competitions span over several months before the announcement of results during the conference.

1. **Registration** collected information about entrants.
2. **Benchmark Phase.** In this phase, entrants submitted benchmarks to be considered for inclusion in the competition.
3. **Clarification Phase.** The benchmarks resulting from the previous phase were made available to entrants. This phase gave entrants an opportunity to seek clarifications from the authors of each benchmark. Only benchmarks that had all clarifications dealt with by the end of this phase were eligible for the next phase.
4. **Monitor Phase.** In this phase entrants were asked to produce monitors for the eligible benchmarks. As described later, these had to be runnable via a script on a Linux system (therefore the tool had to be installable on such a system).
5. **Evaluation Phase.** Submissions from the previous phase were collected and executed, with relevant data collected to compute scores as described later. Entrants were given an opportunity to test their submissions on the evaluation system. The output produced during evaluation were (will be) made available after the competition.

9.1 CSRV14

The First International Competition on Runtime Verification (CRV) was held in September 2014, in Toronto, Canada, as a satellite event of the 14th international conference on Runtime Verification (RV14). The event was organized in three tracks: (1) offline monitoring, (2) online monitoring of C programs, and (3) online monitoring of Java programs. Complete details about CSRV14 can be found in the dedicated reports [1].

9.2 CRV15

The Second International Competition on Runtime Verification (CRV-2015) was held as a satellite event of the 15th International Conference on Runtime Verification (RV15). The competition consisted of three tracks: offline monitoring, online monitoring of C programs, and online monitoring of Java programs. Complete details about CRV15 can be found in the dedicated report [4].

9.3 CRV16

The Third International Competition on Runtime Verification (CRV-2016) was held as a satellite event of the 16th International Conference on Runtime Verification (RV16). The competition consisted of two tracks: offline monitoring of traces and online monitoring of Java programs. Complete details about CRV16 can be found in the dedicated report [5].

9.4 RVBC18

In 2017 the competition was replaced by a workshop [6] aimed at reflecting on the experiences of the last three years and discussing future directions. A suggestion of the workshop was to hold a benchmark challenge focusing on collecting relevant and impactful benchmarks. Therefore, in 2018 a benchmark challenge was held with a track for MTL properties and an Open track.

10 Special Journal Issues

This section lists journal issues containing papers selected amongst those accepted for presentation at RV conferences and workshops.

10.1 Issues of STTT Journal from RV Conferences

- 2020 - in progress https://www.springer.com/journal/10009
- 2019 - in progress https://www.springer.com/journal/10009
- 2018 - in progress https://www.springer.com/journal/10009

10.2 Issues of FMSD Journal from RV Conferences

- 2017 - https://link.springer.com/journal/10703/54/3/page/1
- 2016 - https://link.springer.com/journal/10703/53/1/page/1
- 2015 - https://link.springer.com/journal/10703/51/1/page/1
- 2014 - http://link.springer.com/journal/10703/49/1/page/1
- 2013 - http://link.springer.com/journal/10703/46/3/page/1
- 2010 - http://link.springer.com/journal/10703/41/3/page/1

10.3 Issues of FMSD Journal from RV Workshops

- 2002 - https://link.springer.com/journal/10703/27/3/page/1
- 2001 - https://link.springer.com/journal/10703/24/2/page/1

11 Dagstuhl and Shonan Seminars

Dagstuhl seminars (Germany) are traditionally considered high-prestige. E.g. being invited to a Dagstuhl seminar is considered as a career highlight since it shows that the organizers considered you as one of the top people in the particular field. The more recent Shonan meetings in Japan are meant to have a similar high-prestige profile. Below are listed RV oriented Dagstuhl and Shonan seminars that have been organized by researchers that have been influential in the RV community.

11.1 Dagstuhl: Runtime Verification

02-06 Januar 2007, Dagstuhl Seminar 07011. Organizers: Bernd Finkbeiner (Universitt des Saarlandes, DE), Klaus Havelund (NASA/JPL Pasadena, US), Grigore Rosu (University of Illinois Urbana-Champaign, US), and Oleg Sokolsky (University of Pennsylvania Philadelphia, US).
`https://www.dagstuhl.de/de/programm/kalender/semhp/?semnr=07011`.

11.2 Dagstuhl: Runtime Verification, Diagnosis, Planning and Control for Autonomous Systems

07-12 November 2010, Dagstuhl Seminar 10451. Organizers: Klaus Havelund (NASA/JPL Pasadena, US), Martin Leucker (Universitt Lbeck, DE), Martin Sachenbacher (TU Mnchen, DE), Oleg Sokolsky (University of Pennsylvania Philadelphia, US), and Brian C. Williams (MIT Cambridge, US).
`https://www.dagstuhl.de/de/programm/kalender/semhp/?semnr=10451`.

11.3 Dagstuhl: A Shared Challenge in Behavioural Specification

12-15 November 2017, Dagstuhl Seminar 17462. Organizers: Klaus Havelund (NASA/JPL Pasadena, US), Martin Leucker (University of Lübeck, DE), Giles Reger (University of Manchester, GB), and Volker Stolz (West. Norway Univ. of Applied Sciences Bergen, NO).
`https://www.dagstuhl.de/en/program/calendar/semhp/?semnr=17462`.

11.4 Dagstuhl: Specification-based Formalisms for Modern Cyber-Physical Systems

12-15 February 2019, Dagstuhl Seminar 19071. Organizers: Jyotirmoy Deshmukh (USC Los Angeles, US), Oded Maler (VERIMAG Grenoble, FR), and Dejan Nickovic (AIT Austrian Institute of Technology Wien, AT).
https://www.dagstuhl.de/en/program/calendar/semhp/?semnr=19071.

11.5 Shonan: Static Analysis Meets Runtime Verification

16-19 March 2015, Shonan Seminar 062. Organizers: Cyrille Artho (AIST - Japan), Einar Broch Johnsen (University of Oslo - Norway), Martin Leucker (University of Lübeck - Germany), and Keiko Nakata (FireEye Dresden - Germany).
https://shonan.nii.ac.jp/seminars/062/.

12 International Schools

Two international schools have been organized for students to discover and learn about Runtime Verification. Each of these international schools spanned over 3 days and were fully dedicated to Runtime Verification topics. Lecturers at the schools were international experts on Runtime Verification. They offered lectures on introductory as well as advanced topics. In addition, a school on cyber-physical systems was arranged, which had several RV lectures.

12.1 First Edition of the RV School

The first edition of the school:

https://rv2016.imag.fr/?page_id=128

took place in 2016, and was associated with RV'16 in Madrid. It attracted 45 students and had 13 international experts lecturing. Details of the 2016 school can be found in [2].

12.2 Second Edition of the RV School

The second edition of the school:

https://www.cost-arvi.eu/?page_id=1163

took place in 2018, and was associated with an RV summit at Praz sur Arly near Grenoble, France, in March 2018: https://www.cost-arvi.eu/?page_id=1142, which also hosted a COST meeting on runtime verification. Although this school was not affiliated with an RV conference, it was organized by Yliès Falcone, who was PC chair for the RV conference in 2016, and organizer of the first school

there. The second edition attracted 45 students and had 10 international experts. Details of the school can be found in [3], published as part of the RV 2018 (held on Cyprus) conference proceedings.

12.3 CPS School

We will also mention the Summer School on Cyber-Physical Systems (CPS) July 7-10, 2014 Grenoble, France:

`https://persyval-lab.org/en/summer-school/cps14`.

although this was not specifically a school targeting runtime verification by name. However, five out of 14 lectures were about runtime verification, presented by people in the RV community.

References

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[2] C. Colombo and Y. Falcone. First international summer school on runtime verification - as part of the arvi COST action 1402. In Y. Falcone and C. Sánchez, editors, *Runtime Verification - 16th International Conference, RV 2016, Madrid, Spain, September 23-30, 2016, Proceedings*, volume 10012 of *Lecture Notes in Computer Science*, pages 17–20. Springer, 2016.

[3] Y. Falcone. Second international school on runtime verification - as part of the arvi COST action 1402. In C. Colombo and M. Leucker, editors, *Runtime Verification - 18th International Conference, RV 2018, Limassol, Cyprus, 2018, Proceedings*, Lecture Notes in Computer Science. Springer, 2018. to appear.

[4] Y. Falcone, D. Nickovic, G. Reger, and D. Thoma. Second international competition on runtime verification CRV 2015. In E. Bartocci and R. Majumdar, editors, *Runtime Verification - 6th International Conference, RV 2015 Vienna, Austria, September 22-25, 2015. Proceedings*, volume 9333 of *Lecture Notes in Computer Science*, pages 405–422. Springer, 2015.

[5] G. Reger, S. Hallé, and Y. Falcone. Third international competition on runtime verification - CRV 2016. In Y. Falcone and C. Sánchez, editors, *Runtime Verification - 16th International Conference, RV 2016, Madrid, Spain, September 23-30, 2016, Proceedings*, volume 10012 of *Lecture Notes in Computer Science*, pages 21–37. Springer, 2016.

[6] G. Reger and K. Havelund, editors. *RV-CuBES 2017. An International Workshop on Competitions, Usability, Benchmarks, Evaluation, and Standardisation for Runtime Verification Tools*, volume 3 of *Kalpa Publications in Computing*. EasyChair, 2017.

A Invitation to Arrange RV'19 with FM'19

The following invitation was received from the organizer of FM 2019, José Nuno Oliveira (`http://www4.di.uminho.pt/~jno`). We accepted the invitation, RV 2019 will be held together with FM 2019 in Porto on the dates 8-11 October, 2019.

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Dear Colleague

I am contacting you as General Chair of RV 2018
(https://rv2018.isp.uni-luebeck.de).

FM19  the 3rd WC on Formal Methods, 10 years after FM09 in
Eindhoven and 20 after FM99 in Toulouse  is planned to take
place in Porto, 7th-11th October 2019 and I am involved in the
organization.

There will be FM18 in-between (Oxford) and, for the moment, we
are just doing prospect work on possible co-located events, since
conference planning is made quite in advance nowadays.

I am contacting you about the possibility of co-locating RV 2019
with FM19 in Porto.

Could you please consider this possibility? The OC of FM19 would
be very honored to host your prestigious conference in the FM week
to take place in Porto in October 2019.

Looking forward to your reply, I send you my best regards.

J.N. Oliveira
[ https://www.inesctec.pt/en/people/jose-nuno-oliveira-5601 ]

(On behalf of the FM19 OC)
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