ICSE 2022 Review Process and Guidelines

v1.1 – September 2021

2022 Program Co-Chairs

Daniela Damian • Andreas Zeller

Based on *ICER 2021 training slides* by Amy Ko and Jan Vahrenhold,
with material from Arie van Deursen and Tao Xie and input from the ICSE 2022 PC

New in Version 1.1

1. How to assess novelty with respect to grey literature (arXiv.org, tech reports)
2. Whether to expect tools to be available
3. How to handle papers you have reviewed before
4. Revised and detailed the role of discussion leads in HotCRP
5. Revised and detailed the process for entering meta-reviews

Overview

Welcome! These slides explain the ICSE review process and prepare you to constructively and fairly evaluate submissions. We discuss

1. The Program Committee
2. Important Dates
3. HotCRP Setup
4. Bidding
5. Paper Assignment
6. Reviewing
7. Authors' Response
8. Discussion
9. Final Decisions

Reviewing this guide should take **less than one hour.**

Our Goals

- Accept **high quality papers**
- Give **clear feedback** to papers of insufficient quality
- **Consistency** in paper evaluation
- **Transparency** in the review process
- Embrace **diversity** of perspectives, but work in an **inclusive, safe, collegial** environment
- Drive decisions by **consensus** among reviewers
- Have a **scalable process** for 600+ papers
- Manageable **workload** for PC members
- **Do our best on all of the above**

HotCRP

All reviewing takes place on the **HotCRP conference management system**. Whenever practical, we include here screenshots to illustrate relevant features.

But first, make sure you can sign in, then bookmark it:

http://icse2022.hotcrp.com

After you are signed in, **visit your profile page** to enter your topics of interest.

If you have trouble signing in, or you need help, contact our submission chair: Michael Vierhauser (michael.vierhauser@jku.at or Direct Message on Slack),

1. The Program Committee

Reviewers

185 PC members (reviewers)

- Write high quality **reviews**
- Check quality of **co-reviews**
- Participate in **discussion** and the **recommendation** on the paper
- Act as **discussion leads** on ~⅓ of papers assigned to them

All reviewers are equal. There is no subset with specific privileges or duties.

Discussion Leads

- One of the three reviewers assigned to the paper
- Moderate **discussion** among the paper reviewers
- Build **consensus** where possible
- Check **quality** of reviews and work with reviewers to improve if needed
- Make a **recommendation** on the paper
- Write **meta-review**, explaining decision

Discussion leads for a paper are assigned as the discussion period starts, with a preference towards reviewers with *expertise* and a *positive stance*.

Area Chairs

Seven Area Chairs

- Assist in **PC selection**
- Assist in **paper assignment**
- Ensure that **discussion leaders** do their job
- Moderate **discussion** and break tie for no-consensus papers
- Help maintain **consistency** in paper evaluation
- **Synchronize and coordinate** with PC and co-Chairs
- Do **not review** papers (but can submit)

Our Area Chairs all have long-standing experience as past PC Chairs.

Area Chairs

Topic Area	Area Chair (in alphabetical order)
AI and Software Engineering	**Lionel Briand**, Univ.of Luxemburg and Univ. of Ottawa, Canada
Dependability	**Tevfik Bultan**, University of California, Santa Barbara, USA
Software Analytics	**Massimiliano Di Penta**, University of Sannio, Italy
Software Evolution	**Sonia Haiduc**, Florida State University, USA
Social Aspects of Software Engineering	**Anita Sarma**, Oregon State University, USA
Testing and Analysis	**Frank Tip**, Northeastern University, USA
Requirements, Modeling and Design	**Andrea Zisman**, The Open University, UK

Topic Areas

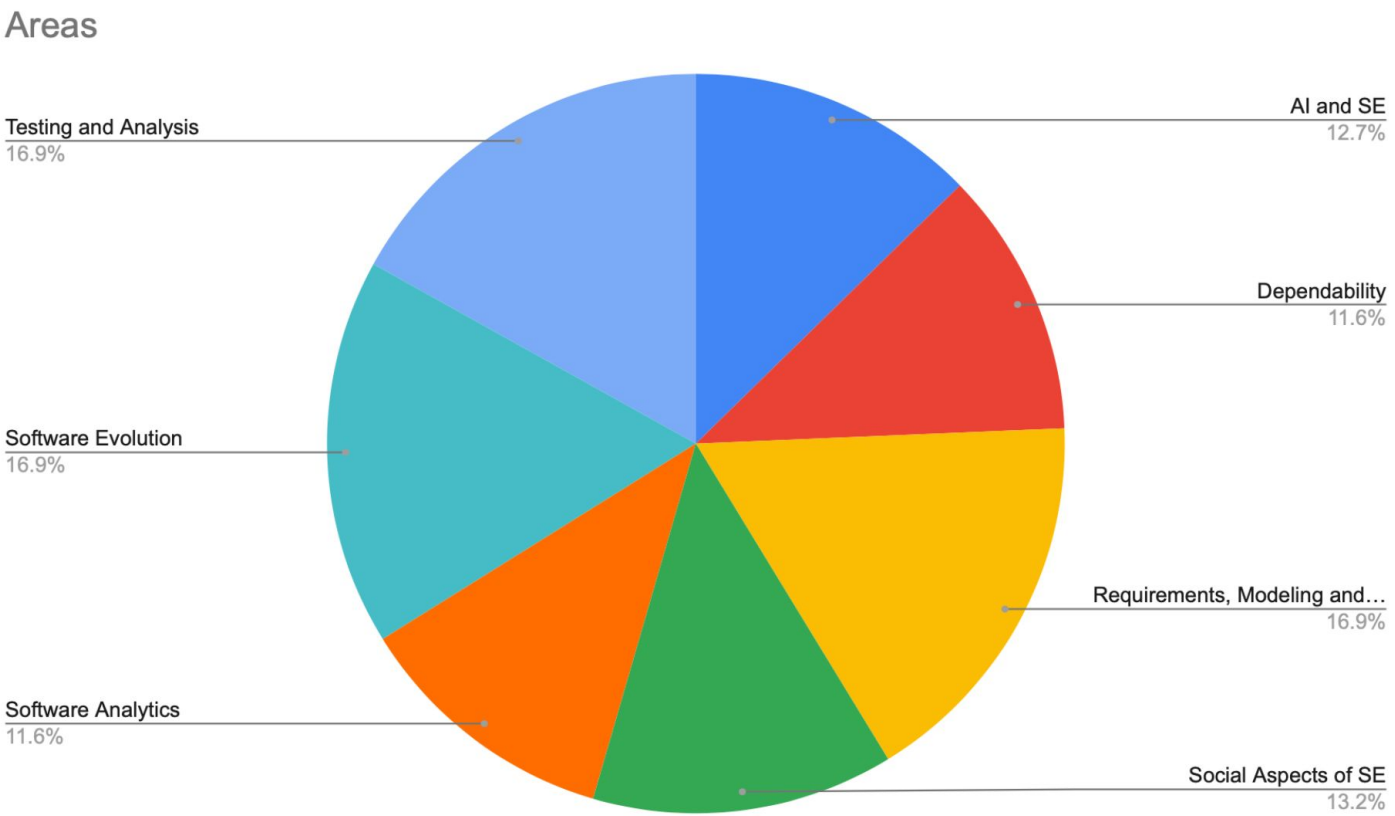
- **AI and software engineering**, including
  - Search-based software engineering
  - Machine learning with and for SE
  - Recommender systems
  - Autonomic systems and self adaptation
  - Program synthesis
  - Program repair
- **Testing and analysis**, including
  - Software testing
  - Program analysis
  - Debugging and Fault localization
  - Programming languages
  - Performance
  - Mobile applications
- **Software analytics**, including
  - Mining software repositories
  - Apps and app store analysis
  - Software ecosystems
  - Configuration management
  - Software visualization
- **Software evolution**, including
  - Evolution and maintenance
  - API design and evolution
  - Release engineering and DevOps
  - Software reuse
  - Refactoring
  - Program comprehension
  - Reverse engineering
- **Social aspects of software engineering**, including
  - Human aspects of software engineering
  - Human-computer interaction
  - Distributed and collaborative software engineering
  - Agile methods and software processes
  - Software economics
  - Crowd-based software engineering
  - Ethics in software engineering
  - Green and sustainable technologies
- **Requirements, modeling, and design,** including
  - Requirements Engineering
  - Privacy and Security by Design
  - Modeling and Model-Driven Engineering
  - Software Architecture and Design
  - Variability and product lines
  - Software services
- **Dependability**, including
  - Formal methods
  - Validation and Verification
  - Reliability and Safety
  - Privacy and Security
  - Embedded and cyber-physical systems

Program Chairs – *Dana and Andreas*

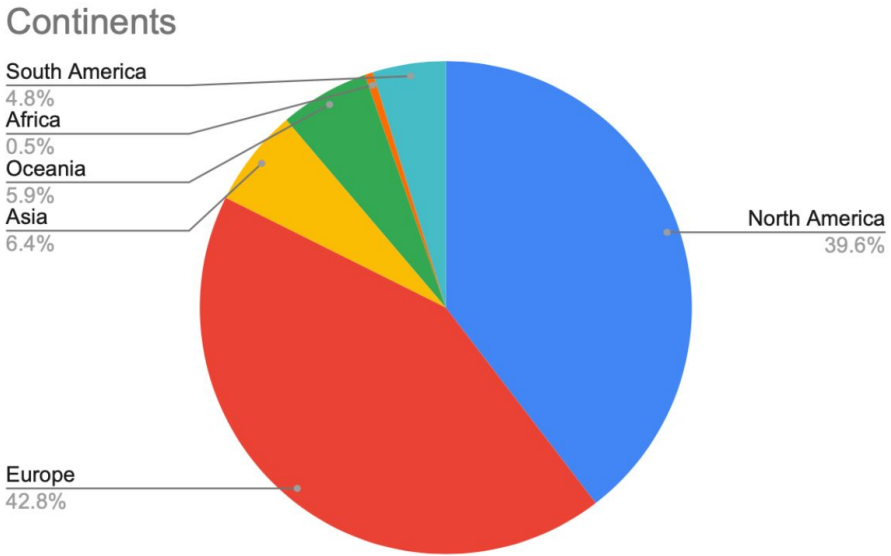
- Take **responsibility** for technical program
- Define the **call for papers** and associated guidelines
- Define the **review process** and associated guidelines (like this one)
- Select **Area Chairs**
- Compose and lead **program committee***
- **Assign papers** to reviewers*
- Monitor **progress** and **quality** of all reviews and decisions*
- Handle **communication** between Program Committee and authors
- Make **final decisions**, coordinating with Area Chairs and reviewers
- Do **not review or submit** papers

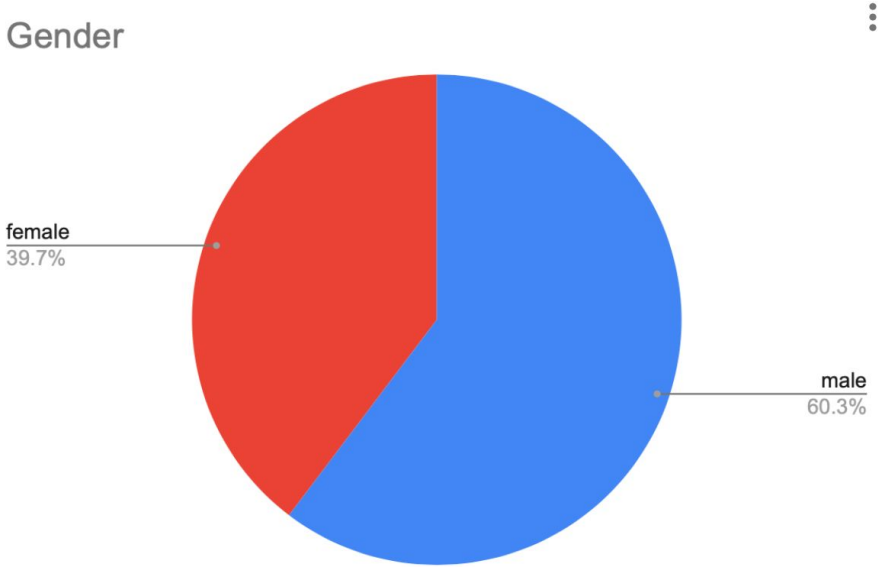
* assisted by Area Chairs

PC Statistics



PC Statistics





Review Load

With 750 submissions, we will need

- **2,250 initial reviews + ~250 extra reviews (~**13 papers per reviewer)
- **750 meta-reviews (**~4 per reviewer)

2. Important Dates

Important Dates – *Bidding and Reviewing*

- **August 27: Abstract Submission (Required)**
- *August 28–September 1: Reviewer Bidding*
- **September 3: Paper Submission**
- *September 13: Paper Assignment*
- *September 13–October 20: Reviewing (five weeks)*
  - *October 1: **50% of your reviews due***
  - *October 20: **All your reviews due***
- *October 20–November 8: Quality checks and ±1 extra review assignments*
  - *November 8: **Extra reviews due** (if any)*
  - *November 8: **Review questions to be asked to authors***
- **November 10–13: Author Response Period**

Author facing dates / *Reviewer facing dates and deadlines*. All dates are AoE.

Important Dates – *Discussion and Decision*

- *November 13–December 1: Discussion and Decision*
  - *November 18: **Meta-reviews due for clear cases** (~50% of papers)*
    - **Discussion Leads** suggest decision on papers with only accepts / only rejects
  - *November 24: **Meta-reviews due for mixed cases** (~25% of papers)*
    - **Discussion Leads** suggest decision on papers where consensus can be built
    - **Discussion Leads** identify remaining papers as no-consensus
  - *November 30: **Meta-reviews due for no-consensus papers** (remaining ~25%)*
    - **Area Chairs** moderate discussion and break tie on no-consensus papers
    - **Discussion Leads** follow decision from Area Chair
- *December 1–3: Chair Meeting*
  - Cover any remaining abnormal cases; finalize all decisions
- **December 3: Author Notification**

Author facing dates / *Reviewer facing dates and deadlines*. All dates are AoE.

3. HotCRP Setup

before August 27 (Abstract Submission Date)

Your Profile

In your HotCRP profile, please review and add your information. For example:

Email

zeller@cispa.de

First name (given name)

Andreas

Last name (family name)

Zeller

Affiliation

CISPA Helmholtz Center for Information Security

Country/region

Germany

If you have **multiple mail addresses**, consider "Merge with another account", below

Collaborators and Affiliations

In your HotCRP profile, list all **authors and institutions you have a conflict with.** This is typically copied from earlier service on HotCRP.

Collaborators and other affiliations

List potential conflicts of interest one per line, using parentheses for affiliations and institutions. We may use this information when assigning reviews.
Examples: “Ping Yen Zhang (INRIA)”, “All (University College London)”

This includes past advisors and students, people with the same affiliation, and any recent (≤3 years) coauthors and collaborators. For details, see the ACM SIGSOFT policy on conflicts of interests.

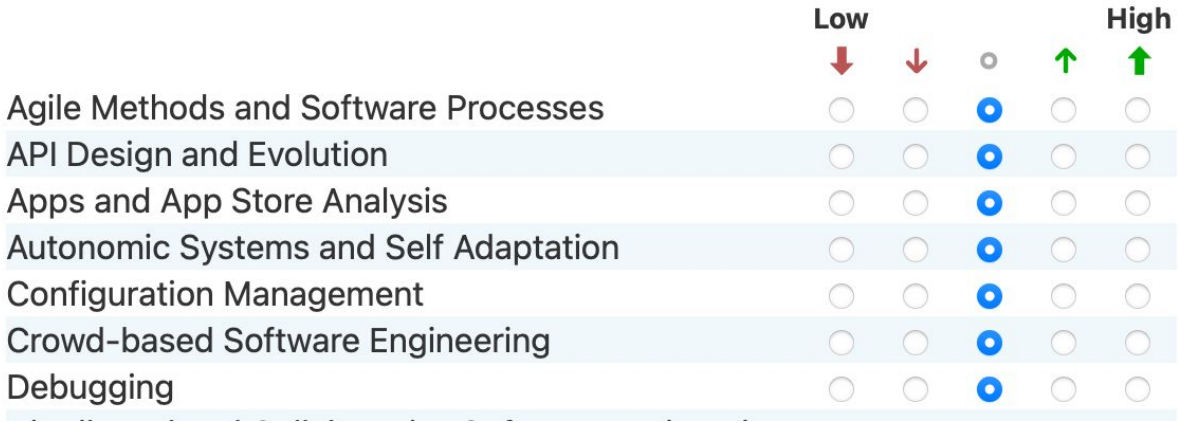
```
All (CISPA)
All (Saarland University)
All (Max-Planck Institute for Computer Science)
All (Max-Planck Institute for Software Systems)
```

Topics of Interest

In your HotCRP profile, indicate the **conference topics** you're interested in.

Topic interests

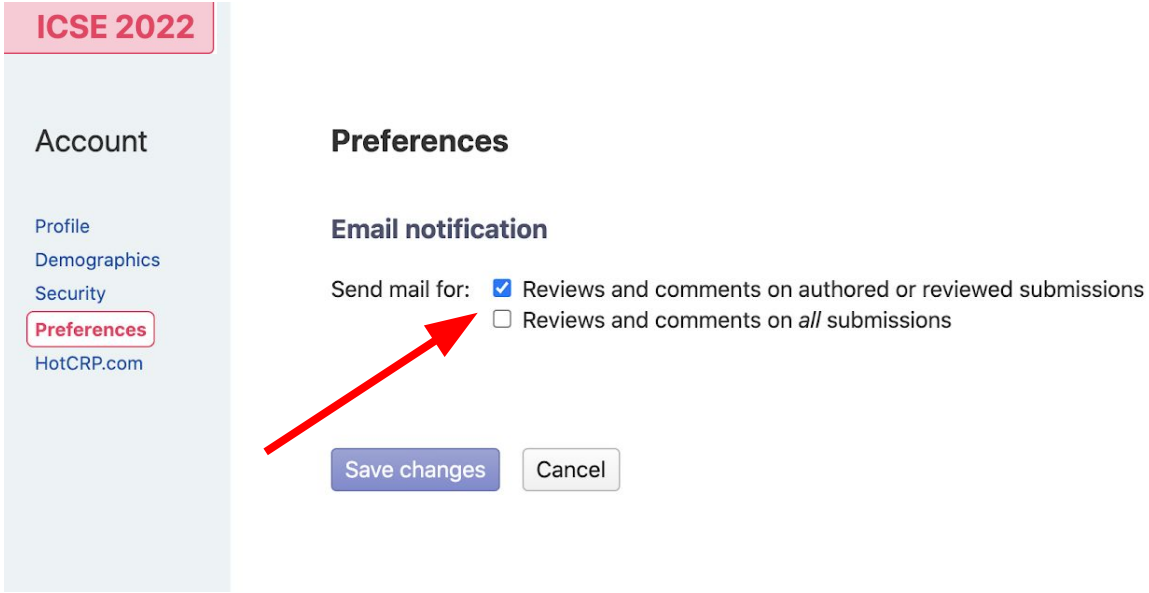
Please indicate your interest in reviewing papers on these conference topics. We use this information to help match papers to reviewers.



If you do not see these boxes, you are not logged in as PC member, but using a different HotCRP account. Use HotCRP to merge your accounts.

Get Notified

Under "Preferences" (left bar), be sure to **enable HotCRP notifications.**



Make sure you select the right boxes for your preferences.

4. Bidding

August 28–September 1

Conflicts of Interest

ICSE takes conflicts of interest, both **real** and **perceived**, seriously.

The conference adheres to the ACM conflict of interest policy, the SIGSOFT conflict of interest policy, and the IEEE Submission and Peer Review Policies.

Authors you have a conflict of interest with include

- past advisors and students;
- people with the same affiliation; and
- any recent (≤3 years) coauthors and collaborators.

Managing Conflicts of Interest

No PC member, Area Chair or co-Chair with a conflict of interest in the paper will be included in any evaluation, discussion, or decision about the paper.

It is the responsibility of the PC members, Area Chairs and co-Chairs to **declare their conflicts of interest** throughout the process.

It is the responsibility of the PC chairs to ensure that no member of the PC or Area Chair is assigned a role in the review process for any paper for which they have a conflict of interest.

Conflicts of Interest on HotCRP

In HotCRP, **authors declare conflicts against PC members**. There is no need for you to check on each paper (or author). CoI papers will be excluded from bidding.

You will be excluded from all future evaluation, discussion, and decisions of that paper. Program chairs and area chairs will also specify conflicts of interest.

We will sample declared conflicts of interest for plausibility and consistency.

If you at any time, discover a conflict of interest, let us know immediately.

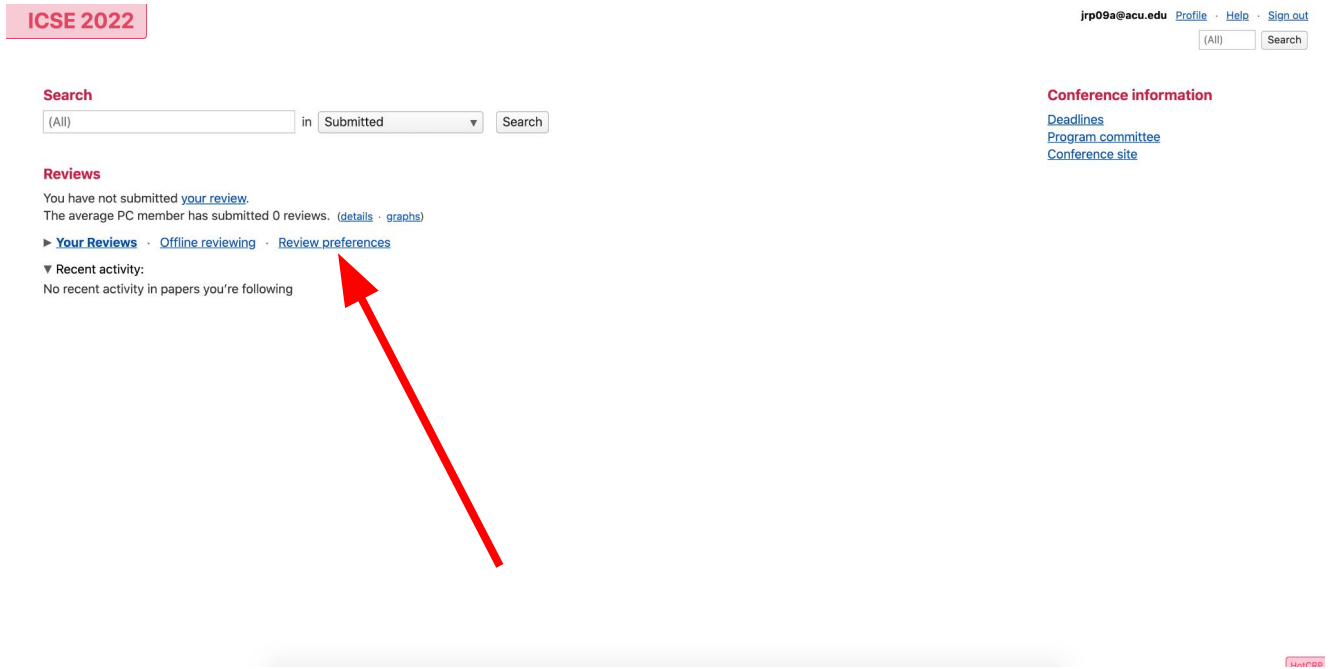
Bidding

The purpose of bidding is to express your **expertise** and **eligibility** for fairly evaluating the work. It is **not** to express interest in papers you want to read. These are subtly but importantly different purposes.

- Bid on *all* of the papers you believe you have **sufficient expertise** to review. Sufficient expertise includes knowledge of research methods used and prior research on the phenomena. Practical knowledge of a topic is helpful, but insufficient.
- Don't bid on papers about topics, techniques, or methods that you **strongly oppose**. That precludes authors from being fairly reviewed by reviewers without such bias.

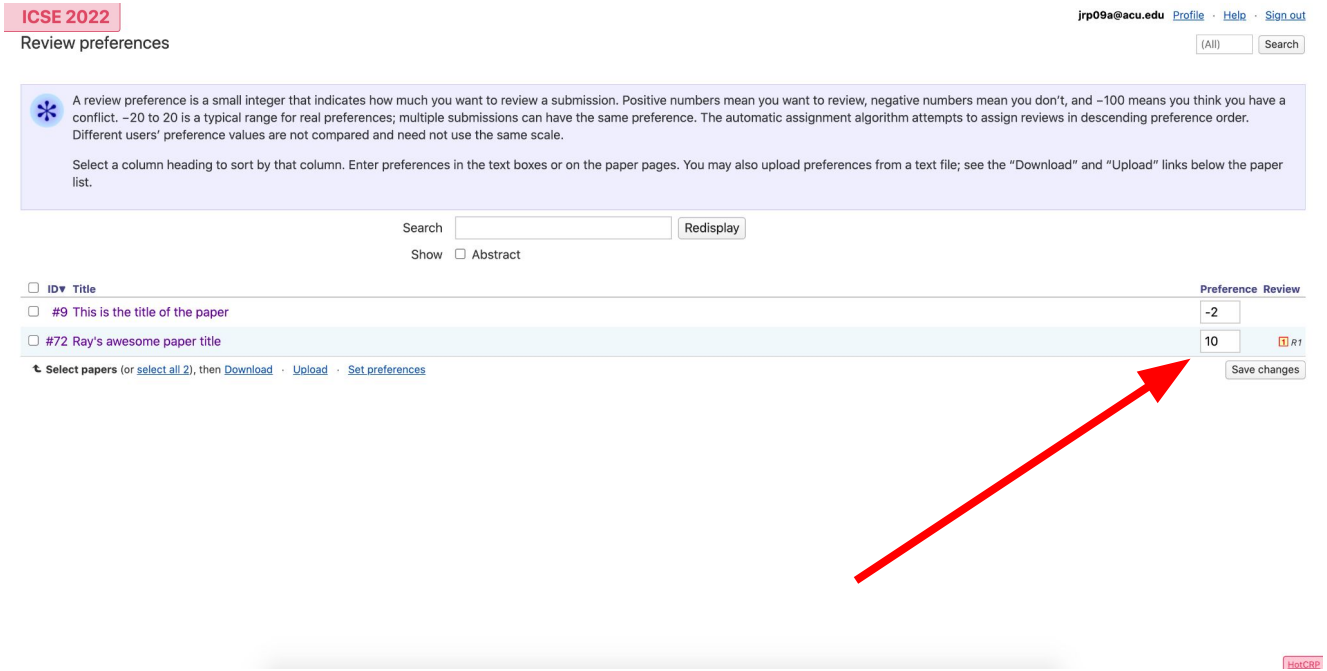
HotCRP - *How to Bid*

After the abstract deadline has closed, but before the full paper deadline, you can bid on papers you'd like to review. To do that, click "Review Preferences" on the homepage.



HotCRP - *Review Preferences*

On the review preferences page, you can indicate your level of interest in a particular paper (scale: -20 to +20) so that automated assignment can accurately place you into reviewing the right papers.



HotCRP - *Time for Bidding*

Reserve at least **three-four hours** for bidding. Reading all these titles and abstracts takes time.

You can **bid in several sessions** to avoid fatigue. We recommend doing it over a few days. HotCRP automatically saves your bids.

Note that not all abstracts may actually materialize into papers.

HotCRP - *Resubmissions*

If you find a paper you have reviewed earlier, take a quick look at the paper.

- If you see **reasons to be positive** (you see improvements, or you were a champion in the earlier version already), feel free to enter a positive bid on it.
- If you foresee that you will **repeat the same criticism** as for the previous version, we suggest you don't enter a positive bid on the paper this time, so that another PC member can have a fresh perspective.
- If the past version of the paper suggested **scientific misconduct** or **non-ethical behavior**, inform the PC chairs such that they can apply extra scrutiny.

5. Paper Assignment

by September 13

Anonymity

As stated in the call for papers, submissions are supposed to be **sufficiently anonymous** that a reader cannot determine the identity or affiliation of the authors.

The main purpose of the doubly-anonymous reviewing process is to **reduce the influence of potential biases on reviewers' assessments.** You should be able to review the work without knowing the authors or their affiliations.

Do not try to find out the identity of authors. (Most guesses will be wrong anyway.)

Anonymity

The call for papers defines what constitutes sufficient anonymization:

- Authors' names must be omitted from the submission.
- All references to the author's prior work should be in the third person.
- Authors are encouraged to title their submission differently than preprints of the authors on ArXiV or similar sites. During review, authors should not publicly use the submission title.

If you encounter an egregious breach of anonymity, let the PC chairs know.

Desk Rejections

The PC chairs will review each submission for papers that violate anonymization requirements, ACM Formatting instructions, plagiarism policies, or out of scope papers. Authors of desk rejected papers are notified immediately.

We will work as hard as we can, but will not catch every issue. If you see something during review that you believe should be desk rejected, contact the chairs **before** you write a review. The chairs will make the final judgement about whether something is a violation, and give you guidance on whether (and if so, how) to write a review.

Review Assignment

Based on your bids and their judgement, the PC chairs in collaboration with the Area Chairs will **assign at least three PC members** for each submission. We will be advised by the HotCRP assignment algorithm, which depends on your bids.

Remember, for these assignments to be fair and good, your bids should **only** be based on your expertise. Interest alone is not sufficient for bidding on a paper. The chairs will review the algorithm's assignments to identify potential misalignments with expertise, but you are best positioned to assess your expertise.

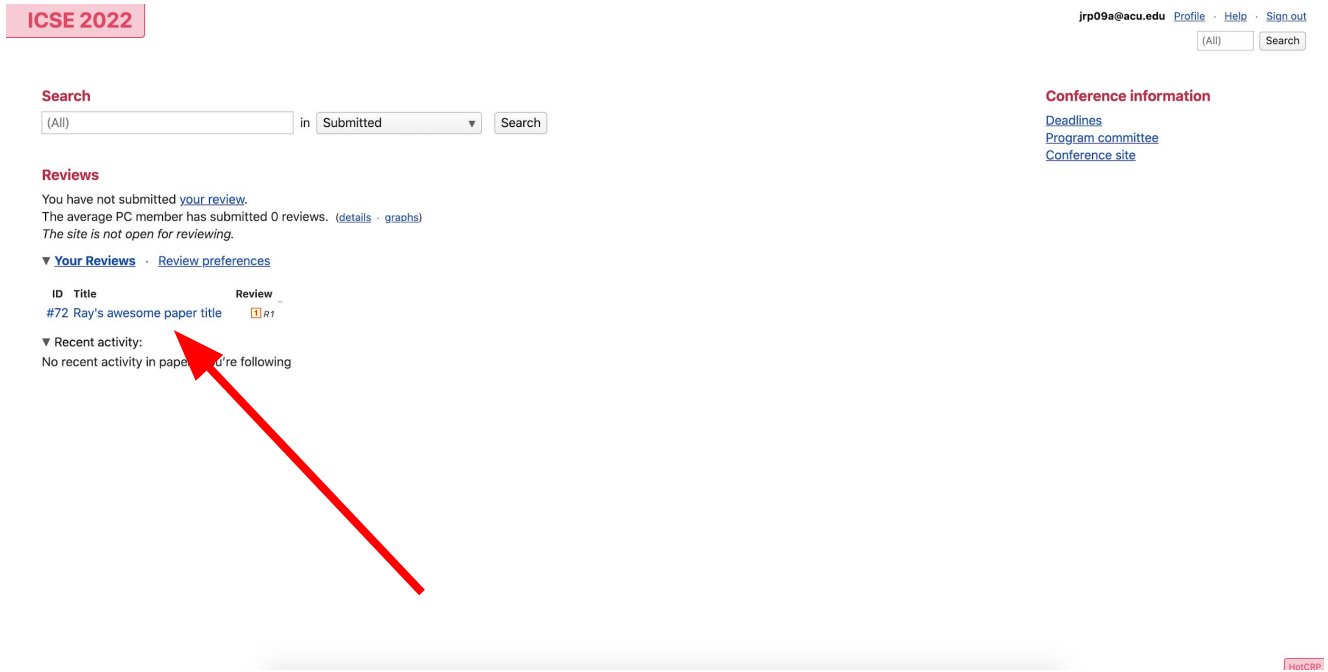
Review Assignment

You will get an email when your review assignment is available on HotCRP.

Please **check your assignment immediately** (including the PDF files of the papers) for possible conflicts of interest – for instance, if you recognize the paper as having been written by a person you have a conflict with.

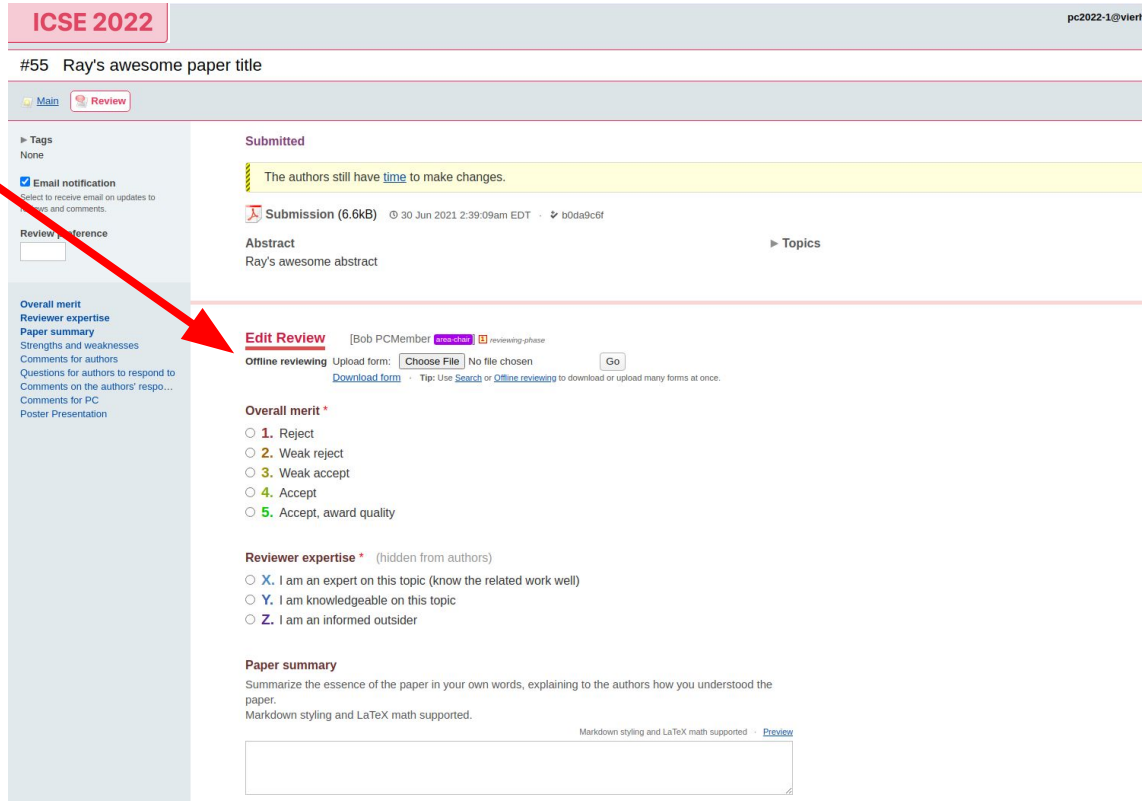
HotCRP – *Homepage After Reviews Assigned*

After papers have been assigned to reviewers, you can see your assigned reviews on the homepage. Click each one to see the submission and review it.



HotCRP – *Offline Reviewing*

There is an option to review offline. Click “Download form”, fill it out, and then upload it using the “Choose File” button. If you do offline review, DO NOT delete the word “ready”.



6. Reviewing

September 13–November 8

Review — *A Strategy*

1. Remember to refer to this slide when reviewing. Bookmark it!
2. Before reading a paper, remember the **reviewing criteria** by reviewing these slides.
3. Read the paper, and as you do, note **positive and negative aspects** for each of the five criteria.
4. Use your notes to **outline a review organized by the five criteria**, so authors can understand your judgments for each criteria.
5. **Draft your review** based on your outline.
6. Edit your review, making it as **constructive and clear as possible.** Even a very negative review should be respectful to the author(s), helping to educate them.
7. Based on your review and your assessment of the individual criteria, choose a **recommendation score**.

Review Criteria

At ICSE, we evaluate papers against *five criteria*, as independently as possible.

- Soundness
- Significance
- Novelty
- Verifiability and Transparency
- Presentation

All these are defined in the call for papers (read!) and the associated Q&A (read!). Both are ground truth for evaluating papers; but let's go a bit further into details.

Review — *Soundness*

> *The extent to which the paper's contributions and/or innovations address its research questions and are supported by rigorous application of appropriate research methods*

The paper should answer the questions it poses, and it should do so with rigor in its research methodology (including choosing an appropriate research methodology and procedures). This is an important difference between research papers and other kinds of knowledge sharing (e.g., experience reports), and the source of certainty researchers can offer.

Review — *Soundness*

Note that **soundness is relative to claimed research contributions**. For example, if a paper claims to have provided evidence of causality, but its methods did not do that, that would be grounds for critique. But if a paper only claimed to have found a correlation, and that correlation is a notable discovery that future work could explain, critiquing it for not demonstrating causality would be inappropriate.

In general, the **extent of evaluation required** is relative to the novelty of the ideas:

- A novel idea with great potential can make a very valuable paper even with only preliminary evaluation, whereas
- An incremental idea might need more support.

Review — *Soundness*

Because soundness is relative to claimed contribution and research methodology:

- **Avoid** applying criteria for quantitative methods to qualitative methods or industrial studies (e.g., critiquing a case study for a “small N” makes no sense; that is the point of a case study).
- Every contribution has limitations with respect to generalizability. **Welcome** contributions from studies where generalizability is not possible or is not the goal, and that clearly explain assumptions and scope of contribution.
- **Formal claims of soundness** are appropriate if the assumptions are clearly stated.

Review — *Soundness*

Because soundness is relative to claimed contribution and research methodology:

- **Avoid** critiquing a lack of a statistically significant difference for case study research, or if the study demonstrates sufficient power to detect a difference; a lack of statistical difference can be a discovery, too.
- **Avoid** asking for the paper to do more than it claims if the demonstrated claims are sufficiently publishable (e.g., “I would publish this if it had also demonstrated knowledge transfer”).
- **Avoid** relying on inexpert, anecdotal judgements (e.g., “I don’t know much about this but I played with it once and it didn’t work”).
- **Do** take into account the **effort** it took to run the study; this contributes to the value of results.

Review — *Significance*

The extent to which the paper's contributions can impact the field of software engineering, and if needed, under which assumptions

This definition of significance is **new for ICSE 2022**, and stronger than in previous ICSEs. (Hint: we take this seriously.)

In all generality, impact relates to advances in the practice of software engineering (including making software less costly, more maintainable, more reliable, more reusable, safer, more secure, more usable … – this is not an exhaustive list)

Note that it is the **authors' responsibility** to explain and interpret the significance of their contributions, why they matter, what their potential impact will be, and under which assumptions.

Review — *Significance*

We expect papers to be *significant*. Hence, you should evaluate how their contributions can **impact software engineering practice** (which can also be indirectly, e.g. through research contributions). Therefore:

- **Take the perspective of the targeted stakeholder**: How would this advance our knowledge? How could this impact my work? Under which assumptions?
- **Do** assess technical contributions in light of **all** involved costs and risks. Weigh reported utility against required effort for setup and maintenance.
- **Assess** technical contributions not only by their evaluation results, but also by the **potential impact** of the underlying ideas.
- **We welcome insights** about the **practice of software engineering**, notably in industry.

Review — *Significance*

We expect papers to be *significant*. Hence, you should evaluate how much their contributions *can* impact software engineering. Therefore:

- **Do** consider that the path towards impact may be **long and winding**, and subject to several assumptions.
- **Do** consider that impact can also result through **methodological contributions.**
- **Be cautious about** accepting a paper that has little significance.
- **But dare to fight** for papers that can be significant, even if they may have other weaknesses – no novel work is perfect from the beginning.

Review — *Novelty*

The extent to which the contributions are sufficiently original with respect to the state-of-the-art

Grounded in adequate review of prior work in a respective topic, it is up to the authors to convince you that the discoveries advance our knowledge in some way, whether it sheds more light on prior work, or adds a significant new idea.

Secondarily, there should be **someone who might find the discovery interesting**. It does not have to be interesting to you, and you do not have to be 100% confident that an audience exists. **A possible audience** is sufficient for publication, as the PC does not necessarily perfectly reflect the broader audience of readers.

Review — *Novelty*

Because advances can come in many forms, there are many critiques that are inappropriate in isolation (if many of these apply, they may justify rejection). But:

- **We welcome original ideas** that have a clear potential of impacting the field of Software Engineering.
- **Avoid** penalizing a paper because a single paper was already published on the topic. Discoveries accumulate over many papers, not just one.
- **Avoid** penalizing "immature" work that contributes a really new idea for not yet having everything figured out about it. That can require multiple papers.
- **Avoid** penalizing work because you don't think the results are generalizable enough or were only done in a specific context. Generalizability takes time, and some types of qualitative work don't intend generalizability.

Review — *Novelty*

Because advances can come in many forms, there are many critiques that are inappropriate in isolation (if many of these apply, they may justify rejection). But:

- **Avoid** dismissing investigations of phenomena you personally don't like (e.g., "I hate object-oriented languages, this work doesn't matter").
- **Avoid** penalizing papers because they add only a few data points to our base of knowledge. Such data points can be difficult to obtain and thus be valuable.
- **We welcome independent replications** of previous work, because they shed more light into certainty and validity of important previous research.
- Therefore, avoid penalizing work for "only" being a replication.

Review — *Novelty*

Because advances can come in many forms, there are many critiques that are inappropriate in isolation (if many of these apply, they may justify rejection). But:

- **Do not** reject papers just because it has **negative results**. Check whether they are original with respect to the state-of-the-art.
- **Do not** reject papers because the **novel idea is simple.** "Simple" does not equate with "trivial" – some of the best ideas are simple. Assess their novelty.
- **Do not** reject papers because you can **imagine another (yet nonexisting) technique** that could have solved the problem.

Review — *Novelty*

Papers should both cite **relevant related work** and explicitly show how it relates to the paper's questions. After reading the paper, you should feel more informed about the related literature and how that literature is related to the paper's contributions.

- Identify related work the authors have missed and include it in your review.
- Missing a paper that is relevant, but would not dramatically change the paper, is not sufficient grounds for rejecting a paper. Such citations can be added upon reviewers' request prior to publication.
- Focus on missing related work that would significantly alter research questions, analysis, or interpretation of results.

Review — *Novelty*

Published work that is **not peer-reviewed** ("grey literature" including arXiv preprints, theses, blog posts, or tech reports) cannot be taken into account for judging novelty.

- **Do not** downgrade or reject papers because there is some non peer-reviewed paper the authors do not adequately cite or compare against.
- **Do** ask authors to **point to these works,** as they would be informative for readers (and for tracing back the history of a concept).
- However, if the published technique already is in **widespread use** (e.g. as a tool, method, or product), the submission must be novel with respect to this state of practice.

Review — *Novelty*

Because related work should be sufficiently but not completely covered:

- **Don't** critique work for missing 1 or 2 peripherally related papers. Just note them, helping the authors to broaden their citations.
- **Don't** critique authors for not citing your own work, unless it really is objectively highly relevant.
- **Don't** critique work for *where* in a paper they address related work. Sometimes a dedicated section is appropriate, sometimes it is not. Sometimes related work is better addressed at the end of a paper, not at the beginning.
- **Do** critique work for simply listing papers ("[1, 2, 3, 4, 5]") without meaningfully addressing their relevance to the paper's questions or innovations.

Review — *Verifiability and Transparency*

The extent to which the paper includes sufficient information to understand how an innovation works; to understand how data was obtained, analyzed, and interpreted; and how the paper supports independent verification or replication of the paper's claimed contributions.

This aims to check whether the described research is *recoverable*. You should be able to understand most of the key details about how the authors conducted their work, how they made their invention possible, or how the research findings were inferred from the collected evidence. This is key for replication and meta-analysis of studies underpinned by the positivist or post-positivist approaches. For interpretivist works, it is also key for evaluating qualitative work. Focus your critiques on omissions of research process or innovation details that would significantly alter your judgement of the paper's validity, or the *credibility* of results for research that uses qualitative methods.

Review — *Verifiability and Transparency*

Because there are always more details a paper can describe about its methods:

- **Welcome tools and data** that are available and usable at reviewing time.
- If the **paper contains sufficient detail** then data is secondary
- Welcome work whose authors have made extra efforts to make it **replicable and verifiable.**
- **Avoid** penalizing a paper for not describing *every* detail, recognizing that some details are more important than others and space is limited.
- **Avoid** asking authors to write substantially new method details *unless* there is space to add those details within the length restrictions.
- **Avoid** penalizing papers only because their data is not available. (More on that in the Open Science Policies slides.)

Review — *Presentation*

The extent to which the paper's quality of writing meets the high standards of ICSE, including clear descriptions, as well as adequate use of the English language, absence of major ambiguity, clearly readable figures and tables, and adherence to the formatting instructions provided below.

Papers also need to be clear and concise, and comprehensible to diverse audiences.

We recognize that not all authors are fluent English writers. But if the language issues make the paper not comprehensible, it is not yet ready for publication.

Review — *Presentation*

Because submissions should be clear *enough*:

- **We welcome honest discussions** on the assumptions, limitations, and novelty of an approach
- **We welcome detailed explanations** that will allow others to build on the given work

Review — *Presentation*

Because submissions should be clear *enough*:

- **Avoid** penalizing a paper for having easily fixable spelling and grammar issues.
- **Avoid** penalizing a sufficiently clear paper because it could be clearer. All writing can be clearer in some way!
- **Avoid** penalizing a paper for not using all of the available page count. It is okay if a paper is short but significant!
- **Avoid** asking for more detail unless you are certain there is space; if there is not enough space, provide concrete suggestions for what to cut.
- **Avoid** penalizing a paper for not following a particular paper structure or order of sections.

Review – *Recommendation*

"Based on the criteria above, this paper should be published at ICSE."

Based on all of the previous criteria, decide how strongly you believe the paper should be accepted or rejected, assuming authors make any modest, straightforward minor revisions you and other reviewers request before publication.

- Papers that meet all of the criteria should be *strongly accepted* (though this does not imply that the paper is perfect).
- Papers that fail to meet most of the criteria should be *strongly rejected*.

Review – *Scores*

For scoring, we follow the common "Identify the Champion" scores:

- 4. **Accept** – this paper should be accepted
- 3. **Weak accept** – this paper may be accepted, but I will not fight for it
- 2. **Weak reject** – this paper may be rejected, but I will not fight against it
- 1. **Reject** – this paper should be rejected

To get the paper accepted, **at least one reviewer will have to champion the paper.** An explicit "Accept" score is not required; it can also emerge in the discussion.

Scores are revealed to the authors during the author response period, so they can focus their response appropriately.

Review – *Scores*

Because each paper should be judged on its own:

- **Don't** recommend accepting a paper because it was the best in your set. It is possible that none of your papers sufficiently meet the criteria.
- **Don't** recommend rejecting a paper because it falls under some assumed quota.

There is no set quota: Your job is not to "find the best paper(s) in your pile**".** The PC chairs will devise a program for *however* many papers sufficiently meet the criteria, whether that is 50 or 300. Your job is to find **all** submissions worthy of archiving and sharing for the community to build upon – which includes none or all of your papers.

Review – *Expertise*

Additionally, we ask for your **expertise** on the paper's topic:

- **X.** I am an **expert** on this topic (know the related work well)
- **Y.** I am **knowledgeable** on this topic.
- **Z.** I am an **informed outsider**.

Note that X/Y/Z denotes your *expertise*, not your *confidence* in your judgment. If you lack confidence, *state this in a comment for your co-reviewers*, pointing out possible reasons. Your co-reviewers may clarify things for you – or chime in.

Your X/Y/Z expertise is not sent out to authors.

Review – *Expertise*

It is not necessary that all reviewers be experts – it can be useful to have some non-expert reviews to evaluate a paper's accessibility to a general audience.

If *all* reviewers are non-experts, though, chances of finding a champion are low. Area chairs and PC chairs will assess the case and may assign extra reviewers.

In case of **interdisciplinary research**, it is common to have reviewers who do not cover all disciplines. Be sure to discuss with co-reviewers as soon as possible and let us know if additional expertise is needed.

Review — *Extras*

ICSE has a number of rules in place regarding

- Open Science Policies (Sharing Data)
- Double-Anonymous Submissions
- Plagiarism
- Awards

Let’s discuss each of these in detail.

Review — *Open Science Policies*

With ICSE 2022, authors are expected to *share data or justify if they do not*.

- **Welcome** significant tools and data sets.
- **Welcome** research with industry and users. Be aware of the respective challenges, and value the efforts made by authors to overcome these.
- **Avoid** penalizing papers only because their data is not available.
- **Respect** reasons for not sharing data such as confidentiality or privacy. Assessing credibility in qualitative research is facilitated by transparency into researcher's decisions and procedures for data collections and analysis.
- **Do** consult provided data sets and replication packages if you have questions. Authors go to great lengths preparing these, so show them you cared.

Review — *Tools*

A **tool** can be interpreted as the embodiment of all experimental data.

- We **welcome** publicly available and usable tools that can be applied by researchers and/or practitioners.
- However, **sharing a tool is secondary** with respect to sharing data – data is far easier to archive, inspect, and process.
- **Do not** penalize a paper for not making its tool publicly available. But keep encouraging authors to do so.
- **Do not** penalize a paper if you could not use its tool. But do ask authors the questions you wanted to answer using the tool, and detail your troubles.

Review — *Double-Anonymous Submissions*

ICSE 2022 uses double-anonymous (formerly known as double-blind) submissions

- **Do** focus on paper content rather than authors.
- **Do** assume that third-party work described by the authors comes from third parties.
- **Do not** actively attempt to guess author identities (e.g., by googling paper titles or key phrases).
- **Do not** reveal your identity as a reviewer. Do not "sign" reviews.
- When looking up links, **cloak your identity**: use "private browsing" and/or a VPN
- **Do not** discuss papers outside of the HotCRP channel devoted to the paper.
- **Do** report potential violations to the PC chairs.

Review — *Plagiarism*

If after reading a submission, you suspect that it has in some way plagiarized from some other source, do the following:

- Read the ACM guidelines on Plagiarism, Misrepresentation, and Falsification
- If you think there is a potential issue, **write the PC chairs to escalate the potential violation**, and share any information you have about the case.
- The chairs will investigate and decide as necessary prior to the acceptance notification deadline.

Review — *Awards*

Reviewers should recognize papers that **best illustrate the highest standards of Software Engineering research**. This includes papers that

- meet **all of the review criteria** in exemplary ways (e.g., research that was particularly well designed, executed, and communicated), or
- meet **specific review criteria** in exemplary ways (e.g., discoveries are particularly significant or sound).

To nominate a paper for a distinguished paper award, reviewers can give a paper an **"Accept, award quality"** score (one notch above "Accept").

Up to 10% of accepted papers can get a distinguished paper award.

Review Balance

You have five weeks to complete your initial set of reviews.

We recommend reviewing around **two papers per week** to avoid fatigue.

Add reminders to your to do list, one for each paper. Tick each off when you're done. Spread your reviews out to be a happier, more constructive evaluator :-)

The earlier you start, the better. **Let us know *immediately* if you see any difficulties.**

Review – *You are in Charge*

We selected **you** because of **your** expertise and **your** ability to write **high-quality reviews.**

- Write your review **personally** and in **your own words.**
- Identify the **decisive** factors that lead towards your score.
- Identify **clarification questions for the authors** that help in making decisions.

You **can** get **assistance** by PhD students and Postdocs in your group (assuming no conflicts) – and **merge** their reviews into yours. Still, you remain responsible.

Review Form – *Scores*

Review form

Authors cannot see reviews at the moment.

▶ **Overall merit** *

Present on reviewing-phase reviews

- **1.** Reject
- **2.** Weak reject
- **3.** Weak accept
- **4.** Accept
- **5.** Accept, award quality

▶ **Reviewer expertise** * (hidden from authors)

Present on reviewing-phase reviews

- **X.** I am an expert on this topic (know the related work well)
- **Y.** I am knowledgeable on this topic
- **Z.** I am an informed outsider

Review Form – *Summary*

▶ **Paper summary**

ⓘ Present on reviewing-phase reviews

Summarize the essence of the paper in your own words, explaining to the authors how you understood the paper.

(Text field)

▶ **Strengths**

ⓘ Present on reviewing-phase reviews

Please provide a short bullet-point list of the paper's key strengths.

(Text field)

▶ **Weaknesses**

ⓘ Present on reviewing-phase reviews

Please provide a short bullet-point list of the paper's key weaknesses.

(Text field)

Review Form - *Comments for Authors*

▶ **Comments for authors**

ⓘ Present on reviewing-phase reviews

Please provide constructive feedback to the authors for justifying your score. Please consider the following five criteria, as detailed in the ICSE 2022 Call for Papers at https://conf.researchr.org/track/icse-2022/icse-2022-papers as well as the reviewer guidelines [link to be provided], notably slides NN-MM.

- **Soundness:** The extent to which the paper's contributions and/or innovations address its research questions and are supported by rigorous application of appropriate research methods.
- **Significance:** The extent to which the paper's contributions can impact the field of software engineering, and under which assumptions (if any)
- **Novelty:** The extent to which the contributions are sufficiently original with respect to the state-of-the-art
- **Verifiability and Transparency**: The extent to which the paper includes sufficient information to understand how an innovation works; to understand how data was obtained, analyzed, and interpreted; and how the paper supports independent verification or replication of the paper's claimed contributions
- **Presentation:** The extent to which the paper's quality of writing meets the high standards of ICSE, including clear descriptions, as well as adequate use of the English language, absence of major ambiguity, clearly readable figures and tables, and adherence to the formatting instructions provided below.

Feel free to structure your review along these criteria.

(Text field)

Review Form – *Questions and Comments*

▶ **Questions for authors to respond to**

ⓘ Present on reviewing-phase reviews

Specific questions that could affect your accept/reject decision. Remember that the authors have limited space and must respond to all reviewers. *Please number your questions: 1., 2., 3., ...*

(Text field)

▶ **Comments on the author's response** (hidden from authors until decision)

ⓘ Present on reviewing-phase reviews

After the authors provide their response, please provide your comments on the authors' response, e.g.,

- which questions have been satisfactorily answered by the authors; and
- which questions have *not* been satisfactorily answered by the authors (and why not)

(Text field)

▶ **Comments for PC** (hidden from authors)

ⓘ Present on reviewing-phase reviews

If you update the review, please state here what changes you made.

(Text field)

Review Form – *Meta-Review*

▶ **Poster presentation** * (hidden from authors)

ⓘ Present on reviewing-phase reviews

In case of rejection, this paper should be considered for the Poster Track as it can promote discussion of scientific challenges, visions, and disruptive ideas within the community attending the conference.

- **1.** No
- **2.** Yes

▶ **Metareview** (hidden from authors until decision)

ⓘ Present on metareview-phase reviews

Summarize the discussions and the key reasons to accept / reject

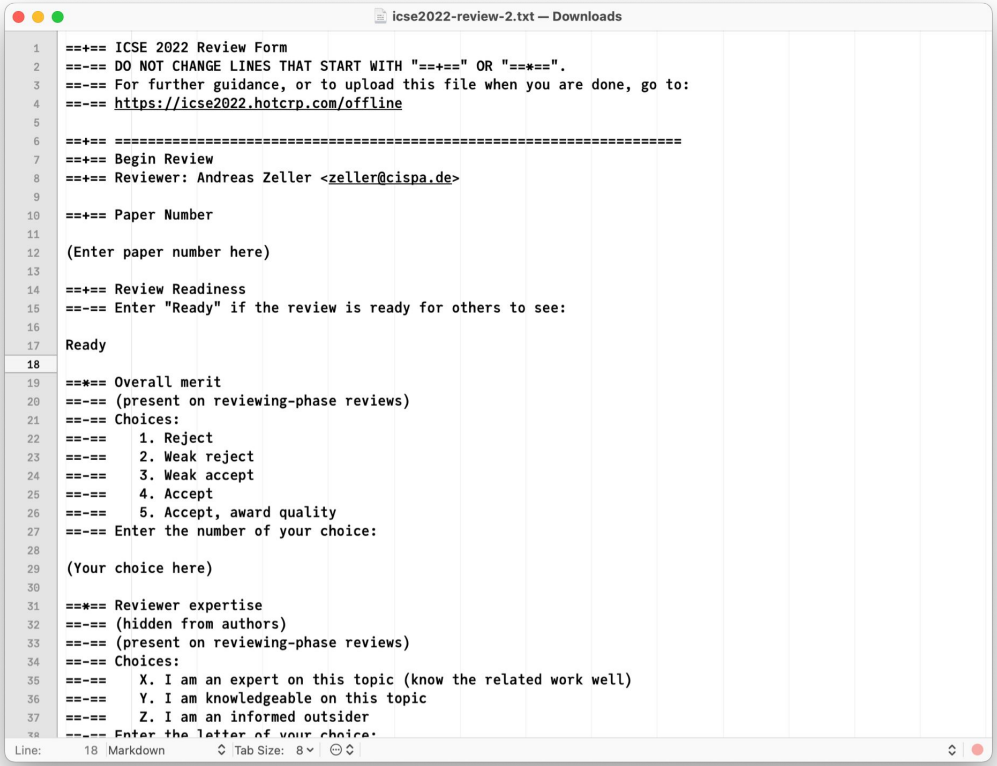
(Text field)

▶ **Metareview recommendation** * (hidden from authors)

ⓘ Present on metareview-phase reviews

- **A.** Accept
- **B.** Undecided
- **C.** Reject

Review Form – *Offline Version*



This is a generic form. If you download offline review forms, they will come with paper numbers and titles prefilled.

7. Authors' Response

November 10–November 13

Authors' Response – *Preparation*

Paper authors are invited to comment on your reviews in an **authors' response.**
In your review, **guide authors towards the crucial points** by

- Providing a **summary** that states how you see the paper
- Identifying central **strengths and weaknesses** of the work as you see them
- Stating **important questions** that may change your stance

Put the **most important questions first**, such that authors can prioritize.

If there are no questions that could change your stance on the paper, leave the form field blank. (You can still ask those questions as part of your "main" review)
However, **do** ask questions whose answers may help support the paper.

Authors' Response – *Preparation (cont'd)*

After seeing the other reviews,

- agree with co-reviewers on the **crucial points** that help towards a decision and
- ensure your questions to authors capture these and revise if necessary.

Authors' Response

In their response, authors will focus on

1. the questions you asked
2. weaknesses as you see them, as well as
3. factual errors.

Authors' responses are **not limited in length**. However, they are encouraged to start with the most important issues, as you need not read beyond the **first 750 words**.

Authors' Response – *Reviewer Reaction*

Authors spend considerable time on their responses, and it is crucial that their arguments be taken into account:

- **Reassess** your views on strengths (and weaknesses) of the paper.
- **Update your reviews** (and possibly **scores**) in light of the response.
  The review form has a special field for addressing the authors' response.
- While you do not *have* to read more than the first 750 words, you certainly can!

8. Discussion

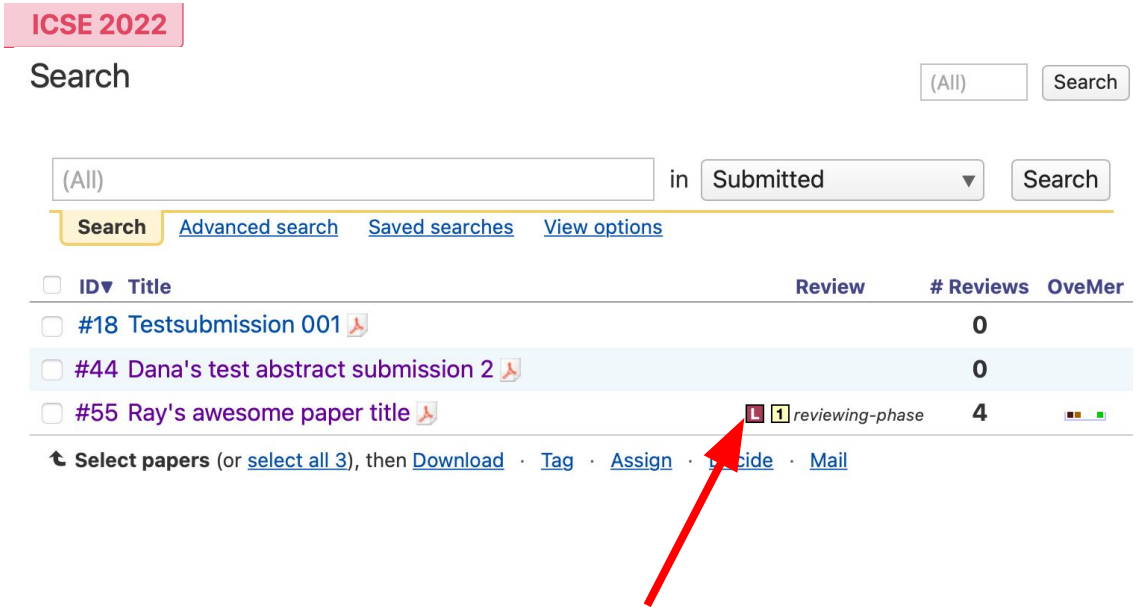
November 13–November 30

Discussion

After all reviews and the authors' response are in, the **discussion lead** (one of the three reviewers) asks the reviewers to begin a discussion about any disagreements. All reviewers should:

- **Read all the reviews** of all papers assigned (and re-read your reviews).
- **Read the authors' response** and **reassess** strengths (and weaknesses).
- **Engage** in a **discussion** about sources of disagreement.
- **Use the review criteria** to guide your discussions.
- Be **polite, friendly, and constructive** at all times.
- Be **responsive** and react as soon as new information comes in.
- Remain **open** to other reviewers shifting your judgements.
- **Update your review** to reflect your new views if your judgement does shift

Discussion - *Discussion Leads in HotCRP*



If you are the discussion lead, you will notice an “L” icon next to a review. Discussion leads are assigned when all reviews are in.

Discussion – *Be responsive*

You will be notified as soon as new information about your paper comes in – another review, a new discussion item, the authors' response.

It is important that you **react to these**, and as **soon as possible**. The earlier we can finalize the decision for a paper, the better.

Remember we have strict deadlines. Do not let your colleagues wait for days when all that is needed is some short statement from your side.

Discussion – *Reasons for Acceptance*

No paper is perfect. There will always be room for improvement in any of the review criteria – and pointing these out will help the authors make a better paper.

However, imperfection is no reason for rejection. If you can trust the authors to fix things in the final version, that's great. If you don't find a paper exciting, but someone else does, that's great, too.

- Discuss weaknesses **and strengths**
- **Focus on why the paper should be accepted**, rather than rejected.

Area Chairs will help ensuring that all papers in their area will be held to similar standards.

Discussion – *Be willing to move*

Discussing a paper **is not about who wins or who is right**. It is about how, in the light of all information, a group of reviewers can find the best decision on a paper.

All reviewers (and the authors!) have their unique perspective and competence. It is perfectly normal that they may have seen things you haven't, just as you may have seen things they haven't.

The important thing is to accept that **the group will see more than the individual**. Therefore, you can always (and are encouraged to!) **shift your stance** in light of the extra knowledge.

9. Final Decisions

December 1–3 (or whenever consensus is reached)

Decisions

As soon as consensus is reached, the **discussion lead** uses the reviews, the authors' response, and the discussion to write a **meta-review** and **recommendation** (accept or reject).

The Area Chair will follow discussions and check the meta-reviews to ensure papers are being held to the same standards.

As an exception, **conditional accepts** are possible when very specific changes are required that do not alter the paper's main message. Conditional accepts have to be suggested by Area or PC Chairs.

Meta-Reviews

As discussion lead, your meta-review should

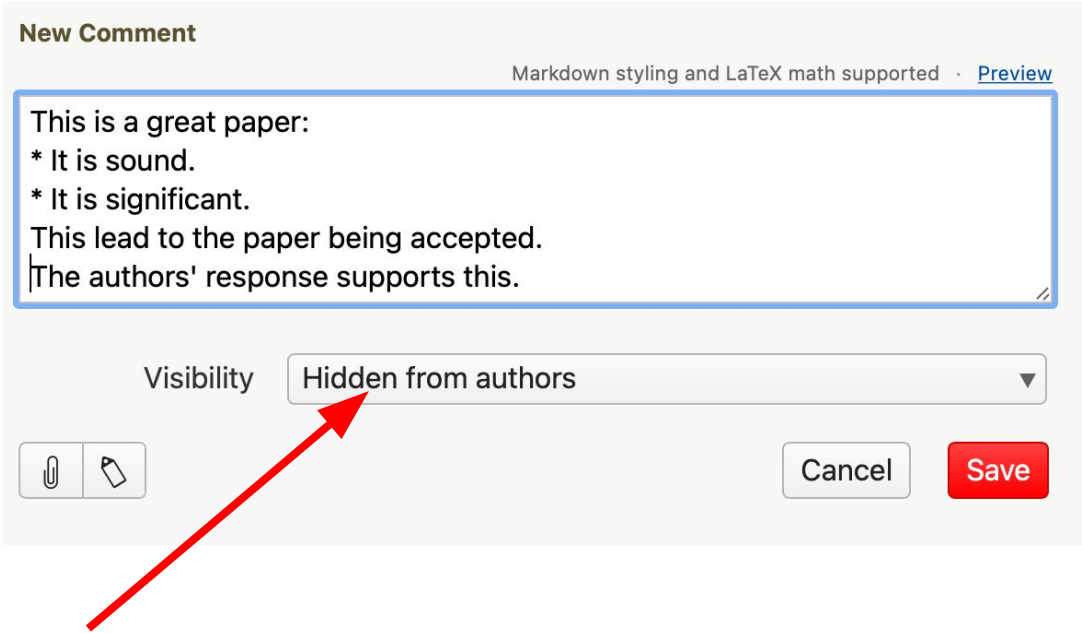
- summarize the **key strengths and weaknesses** of the paper, in light of the review criteria
- explain how these **led to the decision**
- explain how the **authors' response** was taken into account

The summary and explanation should help the authors in revising their work.
A **generic meta-review** ("After long discussion, the reviewers decided that the paper is not up to ICSE standards, and therefore rejected the paper") is not sufficient.

HotCRP - *Entering Meta-Reviews*

As discussion lead, **draft your meta-review as a comment** and invite your co-reviewers to comment on it.

When everybody has agreed, tag the paper with **#metareview-ready** so the Area Chair can pick it up.

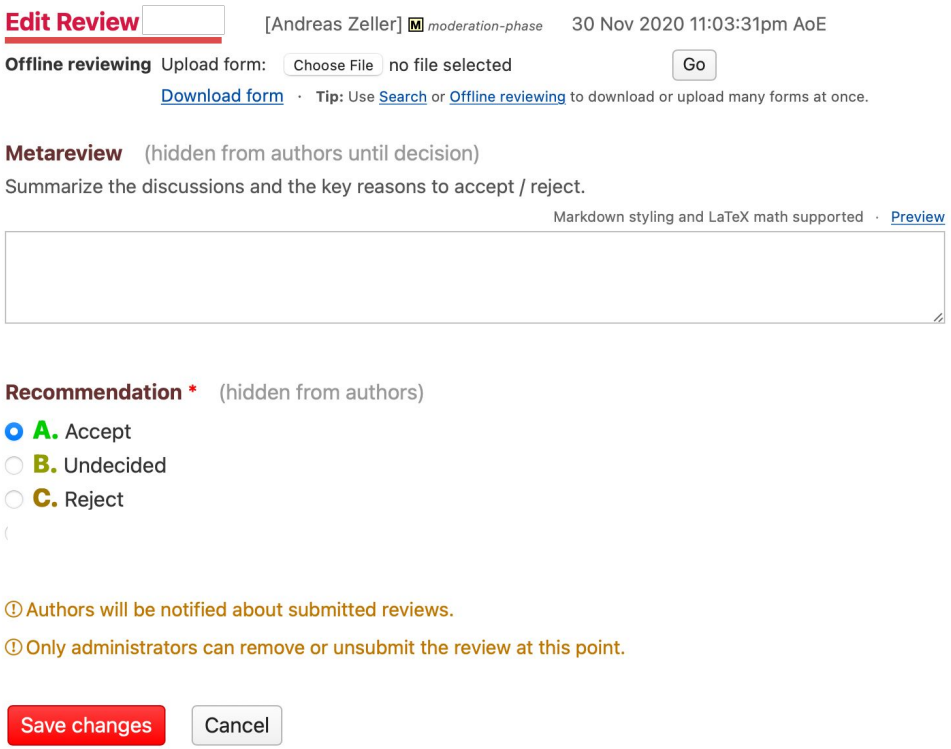


Leave the "visibility" field as "Hidden from authors" (the default)

HotCRP - *Final Meta-Reviews*

The Area Chair will pick up the draft and use it to compose the **final meta-review** including a **recommendation**.

The meta-review becomes the fourth review, and as such will eventually be sent to the authors.



Review Quality and Consistency

The PC chairs and Area Chairs will review all meta-reviews to ensure that reviews are **constructive and consistent**, and request discussion leads to revise their meta-reviews as necessary.

The PC chairs will make the final decision based on the recommendation from the Area Chair.

Excellent Reviews

Excellent reviews are:

- **Constructive**, explicitly identifying the merits of the work, as well as feasible ways of addressing any of its weaknesses.
- **Insightful**, demonstrating expertise on the topic and methods in a work.
- **Organized**, helping the authors clearly understand the reviewer's opinions of strengths and weaknesses of the work.
- **Impartial**, demonstrating a commitment to the reviewing criteria of the conference, and not personal interests, speculation, or bias.

Outstanding reviewers will be recognized with an *ICSE Distinguished Reviewer Award* from the program chairs after the PC's work is complete.

Decisions Announced

After all meta-reviews are in and all decisions taken, the PC chairs will notify all authors of the decisions about their papers.

Authors of papers that are **accepted** will be encouraged to make recommended changes.

Papers that are **conditionally accepted** will be checked by a PC or Area chair before final acceptance.

All authors – and all reviewers! – will be invited to join us at ICSE in Pittsburgh :-)

Thank You!

Looking forward to a great ICSE 2022 – *Dana + Andreas*