

Seminar
High-Performance
Computing with FPGAs
How to Review Scientific Papers

SS 2018

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- purpose of the peer review process
 - the task of the referee
 - the referee report
 - evaluating a research paper
 - making recommendations
 - reviewing tutorials and surveys
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- acknowledgement
 - the contents of this lecture builds on the article: Alan Jay Smith, *The Task of the Referee*, IEEE, 1990.

The Peer Review Process

- countless research papers are written and submitted to conferences and periodicals
- peer review process
 - used to determine, which submissions are accepted
 - publications are reviewed by impartial, external reviewers
 - several reviewers write an evaluation report for each submission
 - evaluation report is used as basis for deciding which submissions are accepted for publication
- peer reviewers
 - assigned/recruited by journal editors and conference program chairs
 - participate in process as a public service

The Task of the Referee

- decide whether a paper makes a sufficient contribution to the field, i.e. evaluate if it presents
 - new and interesting research results
 - a new and insightful synthesis of existing ideas
 - a useful survey or tutorial on a field
 - ... or a combination of the above
- read paper carefully
 - try to be open minded and as objective as possible
 - make no assumptions about quality of the work
- write a review report
 - suggest acceptance or rejection of work
 - list necessary and suggested changes
 - this report will be (anonymously) forwarded to the authors

- should be structured into several parts
 1. brief statement of the reviewer's recommendation and the reasons for it
 2. brief summary of the point of the paper to show the editor that the reviewer has actually understood the paper
 3. evaluation of the validity and significance of the research goal
 4. evaluation of the quality of the work (methodology, techniques, accuracy, and presentation)
 5. final recommendation + suggestions for improvement
- if the recommendation is
 - accept: list necessary and recommended changes
 - reject, hopeless case: clearly state why
 - reject, paper can be salvaged: suggest how authors could improve their paper
 - unsure: try to avoid this case
- important: be fair and polite to the authors

Evaluating a Research Paper

- ask yourself the following questions
 - is the paper submitted to the appropriate publication?
 - what is the purpose of the paper?
 - is the goal significant?
 - is the method and approach valid?
 - is the actual execution of the research correct?
 - are the correct conclusions drawn from the results?
 - is the presentation satisfactory?
 - what did you learn?

Making Recommendations

- compare paper with appropriate standard, e.g. average paper in the journal/conference concerned
- typical categories
 - major results, very significant (<1% of papers)
 - good, solid, interesting work, a definite contribution (<10% of papers)
 - minor, but positive contribution to knowledge (10-30% of papers)
 - elegant and technically correct but useless
 - neither elegant nor useful, but not actually wrong
 - wrong and misleading
 - so badly written that technical evaluation is impossible
- justify your recommendation

Reviewing Tutorials and Surveys

- differ from research papers since most of the work is not new
- tutorial (closest to seminar theses)
 - introduces one particular topic, maybe even only from point of view
 - target audience: novices
 - issues
 - does the paper present the material promised by the title?
 - is the amount and level of detail of the information reasonable for the audience (neither too simple, nor too sophisticated)?
 - is the material correct?
 - is the paper well written?
- survey
 - provides a broad and thorough coverage of a field
 - target audience: novices – near-experts
 - issues, similar to tutorial, additionally
 - is the coverage balanced and thorough?
 - does the paper provide new insights and not just a commented bibliography?

Review Form for our Seminar

- Provide a short summary of the paper
- What aspects of the paper did you like?
- What aspects could be improved (please elaborate these points to help your fellow student improving the paper)
- How do you judge the language and presentation? Is the paper easy to read, correct, comprehensible?
- Further comments