Computer Science related scientific journal article writing practices

(based on my personal experiences)

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Short overview of the process

FROM THE FIRST THOUGHT TO THE SHEETS OF PAPER
Before writing #1

• Conceptionalization of the idea
  – Start with a five line discussion
  – Create flowcharts, then present and discuss the idea for your research team
  – Identify your possible contributions to science
  – Compare your idea to the state of the art – might involve literature review tasks for months

• Choose the target journal corresponding to the idea (detailed later)

• Select the way you are going to present your work:
  – Theoretical approach:
    • Formal description
    • Formal proof
  – Experimental
    • Measurement methodology
    • Proof of concept implementation
    • Case study – only as a last resort, considered a bad approach in most journals.
Before writing #2

• Partial publication in conferences
  – Offers independent feedback from the beginning
  – Ensures that you have the background for your idea when needed for the article
  – Content ideas:
    • Partial proof with smaller amount of measurements
    • Concentrate only on smaller separable parts of the idea
    • Provide the overview of the idea and place it in the context of the state of the art
    • Offer a taxonomy as a problem statement
      – Hard to do well: you should have several tens or even hundreds of articles reviewed and classified
Choosing the right journal

- Review the state of the art
  - Where did the state of the art articles got published? Which journal(s) has/have the most articles from your scoop of the state of the art?

- Based on their classification
  - SciMago, Core journal ranking (for links see below)

- Narrowing down the potential journals
  - Identifying the relevant field
    - Check the journal’s scope on its webpage your article should fit in
    - The level of practicality (some journals specialize on theoretical articles while others require more practical results) – to decide, check the already published articles in the journal
    - How many well known authors [published articles/are members of the editorial board] in the particular journal? How many taxonomies cite the journal? How many highly cited (>100 independent citations) articles appeared in it?

  - Ranking
    - Core journal ranking – [http://www.core.edu.au/](http://www.core.edu.au/)
    - Norwegian journal ranking – [http://dbh.nsd.uib.no/kanaler/?search=advanced](http://dbh.nsd.uib.no/kanaler/?search=advanced)

  - Based on the similarity of past published content
Article writing #1

• Always ensure that your article meets the length, formatting and language requirements of the target journal (follow the structure and presentation approaches found in previous articles)

• Structuring your idea:
  – Background
  – State of the art overview
  – Problem statement
  – Solution
  – Conditions on applicability
  – Proof for the solution (experimental articles prove their solution with measurements)
  – Evaluation
  – Future work

• Practical article writing tips in details
  – Short, CS focused:
    • Ivan Stojmenovic: “Editor’s Note: How to Write Research Articles in Computing and Engineering Disciplines”, IEEE Transactions on Parallel and Distributed Systems, Vol 21, No 2, pp. 145-147
  – Long, for all kinds of research articles:
Article Writing #2

• Text to speech
  – You can find the unnaturally long sentences or improper punctuation
  – You can discover how your article from a third party point of view

• Reread the text after not touching it for 1-2 weeks
  – You can discover the problematic, hard to understand parts on your own
  – Corrections on train of thought, improving/revising the too complex parts
  – Overcomplicated sentences hamper the reader’s understanding on your idea

• Iterative improvements before submission
  – Find independent reviewers for your work
    • They should be willing to review your article several times before submission
    • They should be offering you suggestions to improve
    • Ideally they should not be one of your co authors
  – After all reviews are in create a new version (this is a good opportunity for the deferred rereading mentioned earlier)
  – Simplify! Simplify! Simplify!
  – Iterate for at least 3 times
Submission and the official review

• Submission
  – If you have not done so, transform your article according to the formatting guidelines of your target journal

• Wait for the review (2+ months)

• Result of the review
  – Accept/Minor revision
    • Success your article is about to be published!
  – Major revision.
    • Why did you receive a major?
      – Because the article is almost out of scope and the reviewers checked it from other perspective. If so, you should choose another journal and submit there.
      – You have improperly presented your results – find someone who has a new perspective on reviewing and involve him/her in the iterative improvement process
  – Reject
    • You should go for another journal if you think your article is scientifically sound
Article writing #3

• Reflecting on the reviews:
  – Identify tasks to be done with your coauthors
  – Detail your idea to better match the recommendations from the reviewers
    • Refine how the readers will perceive your idea
    • Provide new measurements, proofs
  – Start new text improvement iterations (see the slide titled “Article writing #2”) – by now you have a deadline so make sure your own reviewers are prompt
  – Prepare the detailed description of your improvements on the article (response to the reviewers)
    • You should present what actions did you take for every critique you have received – you can pinpoint the exact location in the article where the correction was applied

• Resubmission
  – Keep good faith, your reviews will come earlier this time.
After acceptance (hurray!)

• Last, minor corrections
  – It is not always possible to do any further modifications without the editor’s consent

• Proofing at the publisher
  – You will only have review rights here

• Signing the copyright transfer forms (if necessary)
  – Check what are the conditions to publish your article on your own webpage. Publish everything you are allowed to (this increases your chances on independent citations)

• Your article appears online on the publisher’s website
  – It can be bought – if the journal is not open-access
  – You will receive a DOI with which others can cite your article

• Assignment to an issue
  – Your article is finally published
    • All the publication details are available
    • You finalize its listing in your publication list
  – The publisher starts to post it to subscribers

• Follow your citations – they might come handy for future work or career development
Examples

Timescale and interactions between my articles
Journal articles that I co-authored

• EDGeS: Bridging EGEE to BOINC and XtremWeb
  – Authors: Urbach, Etienne; Kacsuk, Peter; Farkas, Zoltan; Fedak, Gilles; Kecskemeti, Gabor; Lodygensky, Oleg; Marosi, Attilat; Balaton, Zoltan; Caillat, Gabriel; Gombas, Gabor; Kornafeld, Adam; Kovacs, Jozsef; He, Haiwu; Lovas, Robert
  – Published in: Journal of Grid Computing 7(3), 2009
  – IF – 2010: 1.5
  – I have written only one section based on a development work, details will not follow

• An Approach for Virtual Appliance Distribution for Service Deployment
  – Authors: Gabor Kecskemeti, Gabor Terstyanszky, Peter Kacsuk, Zsolt Nemeth
  – Published in: Future Generation Computer Systems 27(3), 2011
  – IF – 2011: 1.978

• Virtual Appliance Size Optimization with Active Fault Injection
  – Authors: Gabor Kecskemeti, Gabor Terstyanszky, Peter Kacsuk
  – Published in: IEEE Transactions on Parallel and Distributed Systems 23 (10), 2012
  – IF – 2011: 1.402

• An Interoperable and Self-adaptive Approach for SLA-based Service Virtualization in Heterogeneous Cloud Environments
  – Authors: Attila Kertesz, Gabor Kecskemeti, Ivona Brandic
  – Published in: Future Generation Computer Systems 2013
## Overview

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<thead>
<tr>
<th>Year</th>
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<tr>
<td>JOGC2009</td>
<td>Jun-06</td>
<td>Idea+Devel</td>
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<td>FGCS2011</td>
<td>Aug-06</td>
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<td>TPDS2012</td>
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Details later
An Approach for Virtual Appliance Distribution for Service Deployment

- Idea: Summer 2006
- 1\textsuperscript{st} paper: Sep 2007 (1 section)
- 1\textsuperscript{st} infrastructure at the University of Westminster (UoW): Jun 2008
- Proof of concept implementation: Aug 2008
- Dissolution of the 1\textsuperscript{st} infrastructure
- Selection of the journal: Dec 2008
- 1\textsuperscript{st} submission: Apr 2009
- Review: Jul 2010
- Serious shortening: reduced to 2/3s of the original. Using experiences from the TPDS article (next slide)
- 2\textsuperscript{nd} submission: Sep 2010
- Acceptance: Sep 2010
- Published: Mar 2011
Virtual Appliance Size Optimization with Active Fault Injection

• Idea: Jun 2007
• 1st paper: Sep 2007 (1 paragraph)
• 1st Cloud of UoW: Sep 2009
• Journal selection: Oct 2009
• Proof of concept implementation: Nov-Dec 2009
• 2nd Cloud of UoW: Jan 2010
• Article’s 1st internal review: Feb 2010
• Proprietary cloud development to support experiments: Mar-May 2010
• Final experiments (~550MB of traces on the optimalizálási process): Jun 2010

• 1st Submission: Jul 2010
• 1a) version: small clarifications, notation update (unification among multiple papers)
• Dissolution of the 2nd UoW cloud: Sept 2010
• 1. review: Jan 2011
• 1b) version – small corrections based on the revision: 2011. febr
• 2nd Submission: Apr 2011
• 2nd review: Aug 2011
• 3rd Submission: Nov 2011
• Accepted: Dec 2011
• Published: Oct 2012
An Interoperable and Self-adaptive Approach for SLA-based Service Virtualization in Heterogeneous Cloud Environments

- Idea: Feb 2009
- 1st paper: Jun 2009 (conceptual foundations – Workshop)
- 1st journal submission
  - Conceptional extension, empirical validation
  - Feb 2010 (to a special issue, IEEE TSE, IF 4+) – got rejected
- 2nd paper: Jul 2010 (detailed concept – Workshop)
- Proof of concept: Oct 2010
- 3rd paper: Feb 2011 (Implementation details, first measurements)
- Measurement methodology development, conceptual clarifications
- 2nd Journal selection: Aug 2011 (CFP for another special issue)
- 1st Submission: Oct 2011
- 1st Review: Feb 2012
- 2nd Submission: Apr 2012
- Accepted: Maj 2012
- To appear.
Thank you for your attention! Questions?