

Report Structure

- Abstract - *Sammanfattning*

Answers: *Why* is this worth reading?

Should be readable on its own and is *not a part of the text*. (so, no citations)

Is always “copy-right” free

(Good idea to take best bits of Introduction and Conclusions)

- Introduction - *Introduktion*

Do *not* start “In recent years...”

Do *not* start with a long description of the application (unless a pure application venue).

What has been done? - Why was it done (avoid platitudes!)?

What has been done before that this builds on?

What has been done before that is similar (but not as good)?

Ends with a short *description* of the contents, pointing to highlights (not a TOC).

- ? Motivation / Problem description - *Problembeskrivning*

A deeper description of the application that motivates the development of the described methods.

Theory and practice.

- ? Scientific Background - *Vetenskaplig bakgrund*

A deeper background description.

Short descriptions of known methods that are used, with references.

Explanation of used terms and notation.

- ? Data - *Data*

Description of how the data used where acquired.

- ? Theory - *Teori*

New theory, e.g., Theorems and Lemmas, with equations and proofs.

Also physical, psychological, biological, and medical theory, if applicable.

Derivation of algorithms from the theory.

- ? Method Description - *Metodbeskrivning*

Describe *exactly* what has been done.

All fixed “magic numbers” should be given and their sensitivity should be mentioned.

It’s a good idea to include pseudo-code.

The methods should be reproducible by a researcher in the area with reasonable time and effort.

But you can assume implementer have to read *a few* key references

- ? Experiments - *Experiment*

How has the methods been tested? Used? On which data? On how much data?

Who were the test persons and how were they selected?

What test protocol was followed?

Data dependent “magic numbers” should be given here, with sensitivity.

Examples of results.

Summary of the experiments, preferably as Diagrams. Avoid big Tables!

- Conclusions - *Slutsatser*

Discussion of the results. What has been achieved?

When do the methods work? Where are the limits?

Brief descriptions of approaches tries that did *not* work.

Experiences and conclusions.

(*Should not be a summary* of the paper - that’s the Abstract!)

- ? Future work - *Fortsättning*

What is to be done in the future? Visions?

(If this is short, it can be a part of Conclusions.)

? Acknowledgements - *Tack*

Thanks to financiers, supervisors, co-operation partners (that are not co-authors), supervisors (PhD students should **always** acknowledge all supervisors that are not co-authors), data collectors, and colleagues that has been involved in the work. The financiers (outside the university) must **never** be forgotten, even if they only supplied part of the money!

• References - *Litteraturförteckning*

? Appendix (A, B, C, ...) - *Appendix*

Long derivations

Data collections

Big and many diagrams and tables.

Program listings and pseudo-code.

(And everything else that is hard to read, but should be included.)

? Supplementary material – *Extramaterial*

(Some journals with page limits allow free supplementary material one line)

Images

Diagrams

Tables

Animations

Code

Etc.

Reference Standards

Reference lists can be written according to several different systems. It's important to be both consistent and correct. A number of data about each reference must always be present, but the order of them can vary quite a bit. You **must** conform to the standard used in the journal or proceedings you are submitting to.

References are either (preferably!) listed in alphabetical order according to the first author's last name or in order of appearance in the article.

References are either given a number (preferably!) and referred to in brackets in text [17], or given a symbol, usually the authors name and the year in parenthesis (Rosenfeld et al. 1996). In the latter case, the symbol should be the first part of the reference in the list, also in parenthesis.

If the reference is not in the language of the article, the title should be translated to the article's language, but the language should be given in parenthesis last in the reference.

If the reference is hard to find, e.g., an internal report, the address where it can be ordered should be given.

Below is a list of all data the **must** be included for various types of references.

Finally, it's a good idea to start using BibTeX as soon as possible – that will save you a lot of time!

Reference to BOOK:

A.N. Ybody, *Book title*, Publisher, City, Year, (Chapter n). =>

D.H. Ballard and C.M. Brown, *Computer Vision*, Prentice-Hall, Inc., Englewood Cliffs, 1982 (Chapter 5.3).

Reference to CHAPTER in edited book:

A.N. Ybody, Chapter title, in *Book title* (S. Omone, Ed.), Publisher, City, Year, pp. firstpage-lastpage. =>

C. Arcelli and G. Sanniti di Baja, Weighted distance transforms: A characterization, in *Image Analysis and Processing II* (V. Cantoni, V. di Gesù, and S. Levialdi, Eds.), Plenum Press, New York, 1988, pp. 205-211.

Reference to JOURNAL article

A.N. Ybody, Paper title, *Journal* vol, No. nn, year, pp. firstpage-lastpage. =>

G.K. Kiremidjan, Radar image-to-map registration, *Optical Engineering* **20**, No. 6, 1981, pp. 899-906.

Reference to CONFERENCE PROCEEDINGS

A.N. Ybody, Paper title, in Proc. Conference title, Place, (S. Omone, Ed.), year, pp. firstpage-lastpage. =>

L. Dorst, Pseudo-Euclidean Skeletons, In Proc. 8th Int. Conf. on Pattern Recognition, Paris, France, 1986, pp. 286-288. or

G. Borgefors, I. Nyström, G. Sanniti di Baja, A surface skeletonization algorithm for volume objects, In: Advances in Structural and Syntactical Pattern Recognition, Eds. P. Perner, P. Wang, A. Rosenfeld, Lecture Notes in Computer Science 1121, Springer-Verlag, Berlin 1996, pp. 251-259.

Reference to internal REPORT (avoid if possible!)

A.N. Ybody, Report title, Organisation, Report number, Year. (Possibly address) =>

L. Westlinder and A. Lauberts, A method for model based matching of occluded objects, National Defence Research Establishment, Linköping, Sweden, Report C 30651-3.4, 1992 [in Swedish].

Reference to WEB

At.home/~page, Date =>

<http://linnaeus.nrm.se/flora/mono/lilia/friti/fritmel.html>, Accessed 2 Oct. 2004.

Reference to COMMUNICATION (when someone gave you very important information orally)

A.N. Ybody, Personal communication, year. =>

A. Montanvert, Personal communication, 2007.

My (ideal) work scheme

0. Keep a continuous "diary" of your research. It will save weeks of time when its time to start writing.
1. Decide *what* should be included and *what is the message*? Decide what should *not* be included. Make a list of key points that must be included. Discuss this with your supervisors. And preferably also with other colleagues.
2. Decide provisionally *where* the paper is to be submitted and investigate the rules used there. How long should the paper be?
3. Who should be the authors? Keep the number as small as possible and put the rest in the Acknowledgements. There is *no rule* that says that all supervisors have to be co-authors of all your papers! (But they should always be mentioned in the Acknowledgements while you are PhD students.)
4. Decide which illustrations that should be included (figures, images, diagrams, and tables). (Preliminary)
5. List all references that should be cited (Preliminary). A short paper should not have huge numbers of references. Only cite those you actually use or compare with. In a long paper, the old, key, references should be included, together with the latest ones.
6. Decide the subsections in the middle: number, preliminary headings, and contents.
7. Think about the paper for a few days.
8. Write the middle sections quickly and without too much thinking. Leave space and a short notice of what should be written in it if you get stuck, and then go on to write another part. *Forget layout!*
9. Write "Conclusions" and "Introduction" (in that order) in the same way.
10. Produce the illustrations. Take much care making nice diagrams and other graphics and *avoid big tables*. Do not make nano-figures even if space is limited. All characters in figures should be at least as big as the running text.
11. Read it though, in the correct order, when all text exists in some version. Fill in spaces. Move paragraphs that are in the wrong position. Remove repetitions. Remove repetitions.
12. Let the paper "mature", preferably for some days. Use the time to read relevant literature, find errors in the methods and do all the experiments you discovered were missing. (Writing it down almost always leads to discoveries of new questions and missing material.)
13. Read and revise till you are reasonably satisfied. Do not forget to revise headings! A good source for finding good expressions for scientific papers is <http://www.phrasebank.manchester.ac.uk/>
14. Write the abstract and decide on the title.
15. Give the paper to your supervisors and some colleagues to read and comment. The more the better! Note that *ALL* co-authors should read and comment on the whole paper.
16. Revise from the comments you got. (But don't accept all advice uncritically – it is your paper!)
17. Make a nice layout, according to the relevant rules. (It's a waste of time to even think about this before now.) Put "floats" only at top or bottom on the pages and avoid "widows and orphans."
18. Let your supervisors (and possibly a language expert) read the paper again. Use a spelcheker and a grammars controller.
19. Make a last control. Check that *all* rules for the submitted journal/proceedings are followed. Note that some journals no longer accept LaTeX manuscripts but demand Word (sighhhh!)
20. Send the paper at once! (It does no get better by sitting in the computer being worried about.)

Consider putting the paper in ArXiv. Then wait.

Wait some more. If nothing happens, gently remind the Editor.

Result of review

- No changes (a miracle that never happens!)
- Minor revision => repeat 15-19
- Major revision => repeat 7-19
- Reject => try to understand why (wrong place? wrong reviewer? not good enough?)

Most reviewers actually *want* to help you write a better paper. Be grateful for constructive critiques instead of becoming upset. (Then there *are* nasty reviewers, but they should not be considered too much.) If you do not follow the reviewers' advice, explain why.

When the reviewer wants citations from a previous article, consider if it is really relevant. If it is (or at least marginally relevant), include it. If not, explain why.

The revised article should always include a list of the reviewers' suggestions and what you did about them. Or why not.

For most – but not all! – conference proceedings the revision of the paper will not be checked. Even so, do make the most use of the reviews you get!

If more than one author

1-6 should be done together.

If the text is written by several persons, the different styles should be homogenized. The best way is usually that everybody reads all the text and change those formulations that feel are most strange to them. Then the more obvious differences disappear.

It's important that all authors accept all text. Remember that you really are responsible for *every* word in a paper where you are a co-author!

Sine qua non

"Minor" things make that all Editors see red:

- Do not use acronyms in the title.
- All figures and tables should be numbered in separate series and have captions. The caption is placed *under* figures and *above* tables. Don't have very many sub-figures. Don't use very long captions – write “see the text” and give the information there instead.
- All figures, tables, and references must be mentioned in the main text.
- Place figures and tables at top or bottom on the page and *never* on a page before where they are first mentioned.
- Equations and expressions should be numbered in a series of their own. It's better to always use a number, even if not all are referred to. Expressions *in* the text should be very small and use / for division.
- Write complete references according to the prescribed system.
- Any references in the Abstract must be written exactly as in the reference list.

"Minor" things make that all reviewers see red:

- Not describing the methods or experiments well enough for reproducibility.
- Omitting the values and sensitivity of all thresholds ("magic numbers"). Give the values you used in the experiments and a sensitivity analysis.
- Testing on very small data sets. The more the better.
- Using big tables when a diagram could describe the results much better.
See <https://www.crisluengo.net/index.php/archives/730#more-730>
- Don't forget to cite the seminal papers in the area. They are often written by the reviewers...
- Spelling and elementary grammar (e.g., singular/plural of verbs) must be correct. (But it's not a catastrophe if it is visible that the author is not an English native.)

General advice on writing

- Use at most one level (n) of subsections in conference proceedings and at most two (n.n) in journal articles. Three (n.n.n) should only be used in books.
- Don't write "I" even if you are the only author. "We" is the standard. In most cases where Swedish uses "*man*", "you" is better than "one" in English.
- Use normal, polite style. No slang and not too stilted ("kanslispråk").
- Don't write very long sentences, but neither use "telegraph" style.
- Passive verbs are allowed in scientific text (despite what grammar correction programs may tell you). But try to limit the use for when necessary.
- Put your apostrophes correctly: possessive, quantity, time, or omission of letters and figures.
- Remember that "e.g." and "i.e." are always surrounded by commas and that citation marks should be “sixes and nines.” (And outside punctuation marks.)
- English is less sensitive to repetitions of words and expressions than many other languages. "Firstly we checked that ...", "Secondly we checked that ...", and "Thirdly we checked that ..." is acceptable, even desired.
- You are not writing a novel. Write more "straightforwardly" than they told you to in school.
- Use British **or** American English consistently. Mixing will alienate both.
- A well-chosen Latin or Shakespeare quotation is never wrong. (In fact, it is almost impossible to write a piece of English of any length without quoting old Bill.)
- And finally: DO use the spel-chekker!

NEVER put your name as author of a paper unless you are absolutely sure that the contents are correct and ethically produced. Never put anybody as author on your own paper unless they have agreed to be an author *and* have both read and commented the paper. *Remember the plant hormone scandal in Umeå of 2005! Or the Macciarini affair at KI.*

NEVER cite a paper you have not read, even if it is “usually” cited. This may lead to embarrassment and down very strange back alleys!

Do not take large chunks of text from other sources – including your own – even if relevant and well formulated. First there are copy-right issues, but second – and worse for you – all good publishers now check all papers for plagiarism. Reusing other’s texts *is* plagiarism and such papers will be rejected without review. The exception is arXiv where you *can* put your manuscript if you tell both arXiv and the conference/journal.

NEVER try to publish the same stuff in different places. It is NOT allowed to send a slightly different version of a conference paper to a journal. If you extend one or several conference papers to a journal paper, you MUST list the conference(s) in the references and explain the relation between papers in the Introduction. Publishers keep blacklists of plagiarists! At least 50% of an extended paper must be new.

Beware of the words OPTIMAL and SIGNIFICANT. If you use “optimal”, you must also say according to which optimality criterion. If you use “significant” you must prove this statistically, with computation and significance level.

NEVER EVER USE SOMEONE ELSE'S RESULTS WITHOUT CITING THEM. A SINGLE SUCH "MISTAKE", EVEN MINOR, CAN SPOIL YOUR ENTIRE FUTURE CAREER AS A RESEARCHER. THIS IS TRUE ALSO FOR UNPUBLISHED MATERIAL!

Finally

Good writing starts with “good” reading. When you read scientific papers, do so attentively, noting not only contents, but also what is good and bad with the presentation. Imitate the former and avoid the latter! In fact, read good papers a second time just noting presentation!

Reviewing

Reviewing

Reviewing is part of being a scientist. It is rather thankless, but developing for you and an ethical must.

Things to check

Originality – use Google!

Good paper – easy

Revision paper – Includes good things, but a revision is needed. Be precise about what must be done. (Bad example “You must improve the results.”) Point out:

errors

imprecise descriptions and confusing explanations

“magical numbers” without motivation or sensitivity analysis

unproven claims

reproducibility, that is, can the reader do the same (possibly also using a few key references)?

insufficient experiments

insufficient comparison to previous results

same symbol used for different things or different symbols used for same thing

language quality

Also point out what is good.

Bad paper – explain *politely* what the main problems and errors are. But it is *not* your task to tell the authors what they should have done instead. If you say “this has been done before” you *must* give some references where.

Show your first reviews to your supervisors.

Review task: ask one of your supervisors for a paper they recently reviewed and do an independent review yourself, either using the original review form or the one on the next page. Give it to me (and your supervisor).

Deadline: 3 May

REVIEW FORM (FROM PATTERN RECOGNITION LETTERS)

Comments to Editor (and Authors)

1) *Type of contribution:*

- Commentary or review
- New proposal of methodology
- Major improvement of a known method
- Minor improvement of a known method
- New application area
- Major development of a known application
- Minor development of a known application
- None of the above, but acceptable (explain)
- None of the above, unacceptable (explain)

2) *Potential impact:*

- High reference value for wide readership
- High reference value for limited readership
- Marginal reference value for wide readership
- Marginal reference value for limited readership
- No reference value

3) *Overall quality:*

- Excellent
- Good
- Average
- Fair
- Poor

4) *Originality:*

- Excellent
- Good
- Average
- Fair
- Poor
- Cannot determine (explain)

5) *Technical correctness:*

- Correct
- Probably correct, convincing
- Probably incorrect or unconvincing
- Incorrect
- Cannot determine (explain)

6) *Experimental evaluation:*

- No such need
- Thorough and convincing
- Limited but convincing
- Unconvincing
- Cannot determine (explain)

7) *Clarity of presentation:*

- Excellent
- Good
- Average
- Fair
- Poor

8) *Adequacy of references to literature:*

- Adequate
- Mostly adequate, with some omissions (explain)
- Inadequate references (explain)

9) *Length:*

- Appropriate
- Should be extended (explain)
- Should be shortened (explain)

10) *Linguistic quality:*

- Excellent
- Good
- Average
- Fair
- Poor

11) *Quality of illustrations:*

- Excellent
- Good
- Average
- Fair
- Poor

12) *Keywords:*

Adequate Inadequate (explain)

Recommendations as to publication (please mark one category):

- Reject for the reasons given below.
- Reconsider after a major revision as described below.
- Accept subject to a minor revision as described below.
- Accept in its present form.

Comments to Authors (and Editor)

Confidential comments to Editor

Confidence of review:

- Highly confident
- Confident
- Somewhat confident
- May need additional review in some areas (explain)

If paper is to be revised:

- You would prefer seeing the paper again after revision.
- You do not think it necessary to check the revision yourself.

Additional remarks for editors only:

Gunilla Borgefors
Mars 2019

Paper skeleton task

Write the skeleton of your next paper, using the report structure presented at Lecture 2.

The skeleton should include the message of the paper and a brief summary. Also list of authors with motivation for each, Section headings, ideas for illustrations, diagrams and Tables, the most important references and a summary of the contents.

Discuss the skeleton with your supervisors and any intended co-authors.

NOTE: The skeleton is no promise to actually write the paper later, it is an exercise in paper planning. But of course it is very nice if it does become a paper!

Deadline: 30 May