

How to write a research paper?

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Objective of this lecture

Present simple and obvious (but efficient) rules for writing a scientific paper and preparing an oral presentation.

Content

- 1 Writing rules for a paper targeting a conference or a journal?
- 2 How to avoid a bad talk?
- 3 Going behind the peer review process.

Preliminary: some helpful references

The writing is different for papers (reading) and for slides (listening). However, in any case, it is important to keep a good level of language (spelling, avoid grammatical errors, use precise terms).

Some examples

- Use the right syntax: distinguish *will do* vs. *have done* and prefer active form than passive one.
- Ambiguous use of pronoun "This" to summarize sense of previous sentence.
- Avoid single numbered subsections
- Referring to Chapters, Figures, Tables with capitals
- Numbers spelled out vs. numerical

Let read for instance:

The elements of style. from Strunk and White

Strengthen the content:

- Do not hide drawbacks
- Mention actual performances
- Refer to related works
- Any counter-intuitive result is interesting!

<https://people.eecs.berkeley.edu/~pattarn/talks/writingtips.html>

Overview of the main syntactic elements

- List of authors: use a simple rule (alphabetic order as the standard)¹
- Title (short, synthetic, fun, controversial)
- Abstract (anyone should be able to read it). Not too detailed, often limited space.
- Introduction/context/motivation.
Make explicit and clear your contribution(s).
- Main result(s), don't hesitate to present the paper as a *story*.
Most papers are incremental or suggest an improvement of an existing result.
- Conclusion (should differ from the introduction), it should contain a clear message.

¹it may depend on the community

Choose the (right) target

Each workshop/conference has its own style and rules:

You should first target the spot to disseminate your work. Then, the writing can start.

h-index is as important as the number of papers!

Read several issued papers on the same venue to get an idea of the type of results and style.

The five universal pillars

Be aware of the evaluation criteria

- Relevance
- Originality
- Related works
- Technical soundness
- Writing style and Organization

There are a lot of conferences. Target the *best* possible venue (the most famous one according to the quality of the results).

Adequacy to the Call for Papers: Don't focus on a wrong spot.

Take a look at the Programme Committee and previous editions of the conference.

Some points should be new

However, don't use too much the word *new* results/algorithms/ or *novel* approach/methodology...

Don't oversale your results!

Presenting different approaches solving your problem or related studies allows to emphasize your contributions and to stress how timely is your problem.

Don't put too many self-references.

Carefully check the bibliography (all details should be written in order to be able to find the referenced paper).

There are two ways to consider related works: just after the introduction or just before concluding.

Concern both theoretical and practical sides.

Decompose the results in Lemma, Claims, Propositions and Corollaries.
Use an appendix (if it is allowed), or write a companion paper (Arxiv).

Describe precisely the experimental protocols and analyze the results.
The figures should be commented and self-contained.

Make the results and experiences visible (see the talk of Arnaud Legrand)

Take the time to choose the right notations: simplicity and clarity (don't use the same index in different contexts and be consistent within the whole paper).

The structure should be solid and clearly understandable.

Summary: Process of writing

- Define terms and acronisms before using them.
- Mention drawbacks, actual performance.
- Reference related approaches and other papers.
- Use one topic/idea per phrase/sentence per paragraph.
- Use figures instead of tedious descriptions.
- Use Tables to contain facts that make prose dreary.
- Grammar check (technical for style), short sentences with subject-verb-complement.
- Get feedback from colleagues and friends (Proofs, runs, core of the contributions), improve the paper.

- Allocate 1 or 2 minutes per slide, leave time for questions
- Story telling: start by a pitch.
- Don't over animate
- Do dry runs with friends/critics for feedback
- Read aloud (remember *le Gueuloir de Flaubert*)
- If you have time, record a practice talk (video)
- Don't memorize speech, but have notes ready

A look at the Peer review process



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164	FSTTCS2019	Foundations of Software Technology and Theoretical Computer Science
163	SBAC-PAD 2019	31st International Symposium on Computer Architecture and High Performance Computing
162	PPAM 2019	13th International Conference on Parallel Processing and Applied Mathematics
161	IESM 2019	International Conference on Industrial Engineering and Systems Management
160	ESA 2019	27th Annual European Symposium on Algorithms
159	MAPSP2019	Workshop on Models and Algorithms for Planning and Scheduling Problems
158	SPAA19	ACM Symposium on Parallelism in Algorithms and Architectures
157	CCGRID 2019	19th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing
156	IPCO 2019	The 20th Conference on Integer Programming and Combinatorial Optimization
155	Euro-Par 2018 Workshops	24th International European Conference on Parallel and Distributed Computing Workshops
154	ESA 2018, Track A	26th Annual European Symposium on Algorithms, Track A
153	STACS 2019	36th International Symposium on Theoretical Aspects of Computer Science
152	Euro-Par 2018	24th International European Conference on Parallel and Distributed Computing
151	HIPC'18	25TH IEEE INTERNATIONAL CONFERENCE ON HIGH PERFORMANCE COMPUTING, DATA, AND ANALYTICS
150	ECCO2018	European Chapter on Combinatorial Optimization
149	MPP 2018	7th Workshop on Parallel Programming Models – Special Edition on Edge/Fog/In-situ Computing
148	Compas2018	Conférence d'informatique en Parallélisme, Architecture et Système
147	SPAA '18	30th ACM Symposium on Parallelism in Algorithms and Architectures
146	CDER-Book-16	CDER Book Project – Volume 2
145	CCGrid 2018	18th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing
144	IPDPS 2018	32nd IEEE International Parallel & Distributed Processing Symposium, 2018
143	ISPD2018	International Symposium on Parallel and Distributed Computing
142	Euro-Par 2017 Workshops	23rd International Conference on Parallel and Distributed Computing Workshops
141	MISTA 2017	Multidisciplinary International Scheduling Conference: Theory and Applications

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#	Authors	Title
1	Veli Mäkinen and Gonzalo Navarro	Implicit Compression Boosting with Applications to Self-Indexing
2	Hajar Niamehr and Mohammad Ghodsi	Online multi-unit demand auctions with expiring items
3	Gonzalo Navarro	Compressing Web Graphs like Texts
4	Daniel Andersson	HIROIMONO is NP-complete
6	Guohui Yao and Daming Zhu	Approximating Degree-Bounded Minimum Spanning Trees of Directed Acyclic Graphs
7	Barnaby Martin	On the Complexity of a Derivative Chess Problem
8	Anna Bernasconi , Chiara Bodei and Linda Pagli	Knitting for fun: a recursive sweater
9	Markus Holzer and Oliver Ruppert	The Troubles of Interior Design---A Complexity Analysis of the Game \heyawake

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#	title	scores	average	decision
31	[REDACTED]	2 (4), 2 (4), 0 (4)	1.3	ACCEPT
19	[REDACTED]	1 (4), 0 (3), 2 (4)	1.0	ACCEPT
40	Web Marshals Fighting Curly Link Farms	-1 (4), 1 (3), 1 (4), 2 (4)	0.8	ACCEPT
16	[REDACTED]	-1 (3), 2 (4), 1 (3)	0.7	ACCEPT
14	[REDACTED]	1 (3), -2 (4), 0 (3)	-0.3	REJECT

Reviews and Comments on Submission 40

Submission

Submission:	Fabrizio Luccio and Linda Pagli. Web Marshals Fighting Curly Link Farms
Conflict of Interest:	[REDACTED]
File:	
Current decision:	ACCEPT (accept)

Summary of Received Reviews and Comments

Reviews superseded by other reviews are shown in the grey color in the table. All times are GMT.

	date	PC member	subreviewer	Total score	Reviewer's confidence	Overall evaluation	Presentation	Originality	Technical Depth	FUN level
Review 1	Feb 16	[REDACTED]		-1	4	-1	2	3	2	2
Review 2	Feb 25	[REDACTED]		1	3	1	4	4	3	3
Comment 1	Feb 25	[REDACTED]								
Review 3	Feb 26	Denis Trystram		1	4	1	2	4	4	3
Comment 2	Feb 26	Geppino Pucci								
Review 4	Feb 28	[REDACTED]		2	4	2	3	4	3	3
Comment 3	Feb 28	Geppino Pucci								

Concluding remarks

Don't forget deontology, apply ethical rules!
A talk on fraud will be presented by Cyril Labbé on friday.

Concluding remarks

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You are now ready for submitting a paper!
Good luck.