How to write a research paper ...
... and get it published

Francisco Fernández Rivera
CiTIUS. Universidade de Santiago de Compostela

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Introduction

- Research means: *To contribute to the state of the art in a research topic*
  - Manufacturing and then selling. Research and then publishing.
  - Stages:
    1. Studying the state of the art
    2. Finding a piece of work that contributes
    3. Getting results
    4. Writing a paper
    5. Choosing where to publish
    6. Get the paper reviewed
    7. Get the paper published

Introduction

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    7. Get the paper published
- **This talk is about stages 1, 4, 5, and 6.**

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State of the art of a research topic

- Studying the state of the art is one of the first stages in the research work.
- Its importance is crutial.
- To find advances in the topic, open questions, research activity, reference research groups, ...
- A research paper should contribute to the state of the art, so it is important to introduce the behaviour showing previous contributions and similar works.
- The state of the art should be illustrated with a relevant set of references.
- In papers, references are analyzed in detail by reviewers.
- Publishers provide their papers that can be easily found on the Internet. Universities usually pay for this access if not openly accessible.

How to search

- Surveys or reviews are papers that show the state of the art in a specific topic. See the date.
- Search in bibliographic databases for key papers, not only their references but also papers that reference them.
- Google is a useful tool for finding papers. Google scholar.
- Other bibliographic databases:
  - CiteSeerX
  - dblp
  - ISI Web of knowledge
  - Scimago Journal & Country Rank (SJR)

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Writing a paper

A research paper ...

- Should transmit truth, originality and novelty.
- It must be convincing, precise, clear and brief.
- A research paper is **not** a diary nor a description of everything you made or everything that happened during the research.
- It must consider the reader and, most importantly, the reviewer.
- Publish when you have some real advance, but usually researchers publish when they need it.

There are too many published papers. Much more than required.

Publishing a paper

If the target reader is an expert:

- Use a specialized journal to publish it.
- Include a novel contribution to the field.
- More technical details and references.
- Rigorous and formal descriptions with precise terms and ideas.

If it is a general purpose dissemination paper:

- Use a generic journal to publish it.
- Does not need a novel contribution in the field.
- More context and background.
- More definitions and descriptions.
- Provide a basis to understand the need for the work and the results.

Writing a paper

- Try to reproduce the scientific method.
- Being clear and precise: Avoid long digressions and grandiloquent styles.
- Short but full sentences: subject + verb + predicate. At most one subordinate clause.
- Avoid redundancies and ambiguity.
- Read papers in the target journal to learn about structure, acronyms, typical expressions, ...
- Some minor hints:
  - Avoid the use of first-person pronouns.
  - Do not abuse using the passive form.
  - Avoid the use of equivalent adjectives.
  - Use the past tense when talking about results.
  - Use the present tense when talking about known terms or facts.
  - Known information at the beginning of a sentence.
- Read it again, trying to say the same with fewer words and more clearly... And find another reader.

The document

The title

- It should be very pondered and meditated.
- The use of each word should be thought.
- It should express the main contribution.
- Note that for many readers this is the only sentence they read.

The authors

- The order sometimes matters: alphabetic, importance in the work, first student and then supervisors, ...
- In our fields the standard number of authors is about 4. Being 6 is the maximum in some formal evaluations.
- Every author is responsible for the whole paper.

The document

The keywords

- Some words from the title include terms related to techniques, objectives, and context.

The abstract

- The whole paper should be summarized: descriptive.
- About 7 to 10 sentences including some hints concerning motivation, objectives, main contributions, tasks, results, and suggest future work.
- No references.
- Do not use inconsistent acronyms.

The document

The introduction

- Describing the problem with exhaustive references. Sometimes, the state of the art is a different section.
- There is a kind of paper called surveys or reviews that show the state of the art in great depth. They are extensively referenced.
- Briefly: method, obtained results and main contribution.

The contents

- No fixed structure. It can include a description of very relevant works.
- Detailed and precise description of our contribution, the method and the experiments.
- Reproducibility of results.
- Avoid no needed subsections. The global structure should be well-balanced.
- Adding a short paragraph among the titles of sections to link them.

The document

The results

- Usually, there is no need to include all the results.
- In-depth analysis with justifications.
- To hide adverse results is a Fraud!
- Order and organize results to show the main messages and conclusions.
- Use figures and graphs to show tendencies and tables to show precise results.

The conclusions

- Do start with a brief summary.
- Then, summarizing results.
- Then, enumerate conclusions.
- Practical applications if it is the case.
- New open lines and future work.

The document

The acknowledgements

- Financial support (projects) and personal grants.
- Equipment from centres, labs, departments, ...
- Technical help. Comments to improve that paper from other colleagues or reviewers.

The references

- All included in the text.
- Be careful with the format and style.
- Missing some works can be seen very negatively by reviewers.

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Impact of a publication

- It is challenging to establish the importance of a particular publication, the relevance of the contribution, and its impact on the community.
- This importance is quantified for a particular field in terms of the number of citations it received.
- Number of citations of each particular paper

  ..... but sometimes it is tricky, who does the citation?.
- Finally we get a number that several agencies use to meassure journals, researchers, projects, Universities, ...

  , i.e. ANECA and ACSUG

Types of publications

Journals

- Best considered by evaluation agencies in Spain (ANECA) and Galicia (ACSUG) that use the impact in terms of the number of citations.

Rankings: Journals (JCR): quartiles, deciles in categories. (Alternative SJR).

Conferences

- Invited talks or keynotes
- Round tables
- Parallel and plenary sessions
- Published in proceedings
- Workshops for specific topics (less importance)

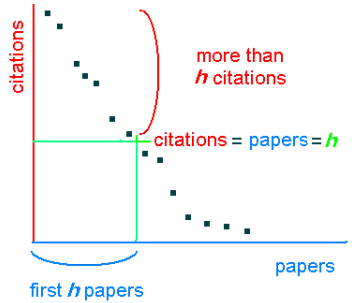
Rankings: CORE, GRIN.

Impact of a Journal

- JCR: In the Web of Scienece (WOS) platform
  - For Journals, not individual papers.
  - Updated every year by the Institute of Scientific Information (ISI).
  - #citations / #papers in 2 years.
  - The same journal can be classified in different fields.
  - Its position is organized in quartiles Q1, Q2, Q3 and Q4.
  - Two editions: Science and Social Sciences.
  - Access offered by FECIT through Clarivate for Universities in Spain.
- SJR: In the SCIMAGO platform by Scopus database (Elsevier)
  - For Journals, not individual papers.
  - Updated every year.
  - The index takes into account the category of the journals doing the citation in 3 years.
  - The same journal can be classified in different fields.
  - Its position is organized in quartiles Q1, Q2, Q3 and Q4.
  - It includes more journals than the JCR.
  - Free access through Scimago.

Impact of a researcher

- It considers the number of publications and the impact of each publication itself.
- h-index: h papers with at least h external references.



- Other indexes: g-index and i10-index.
- Declaration on Research Assessment (DORA).

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Peer review

- Sometimes very good papers are rejected.
- Reviews can be contradictory.
- Biased reviews (unwittingly).
- Conflict of interests.
- Double filter: editor + reviewers.
- New challenge for editors and reviewers: ChatGPT.
- **Results:** Accepted (highly unlikely), Rejected (very likely), Conditioned by Minor or Major Revision.

Thanks for your kind attention

.

Please take a moment to fill out the following form to provide your feedback on the training program: bit.ly/SatisfactionSurveyTP1