Paper Writing Workshop

UPM Cybersecurity Postgraduate School

whoami

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Why this workshop?

- A good research is not defined on whether it has been published on a journal/conference.

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- A good research is not defined on whether it has been published on a journal/conference.
- But it is the metric commonly used by the administration to measure it.

Why this workshop?

- Good experiment + bad manuscript → "Failure"
- Decent experiment + good manuscript → "Success"

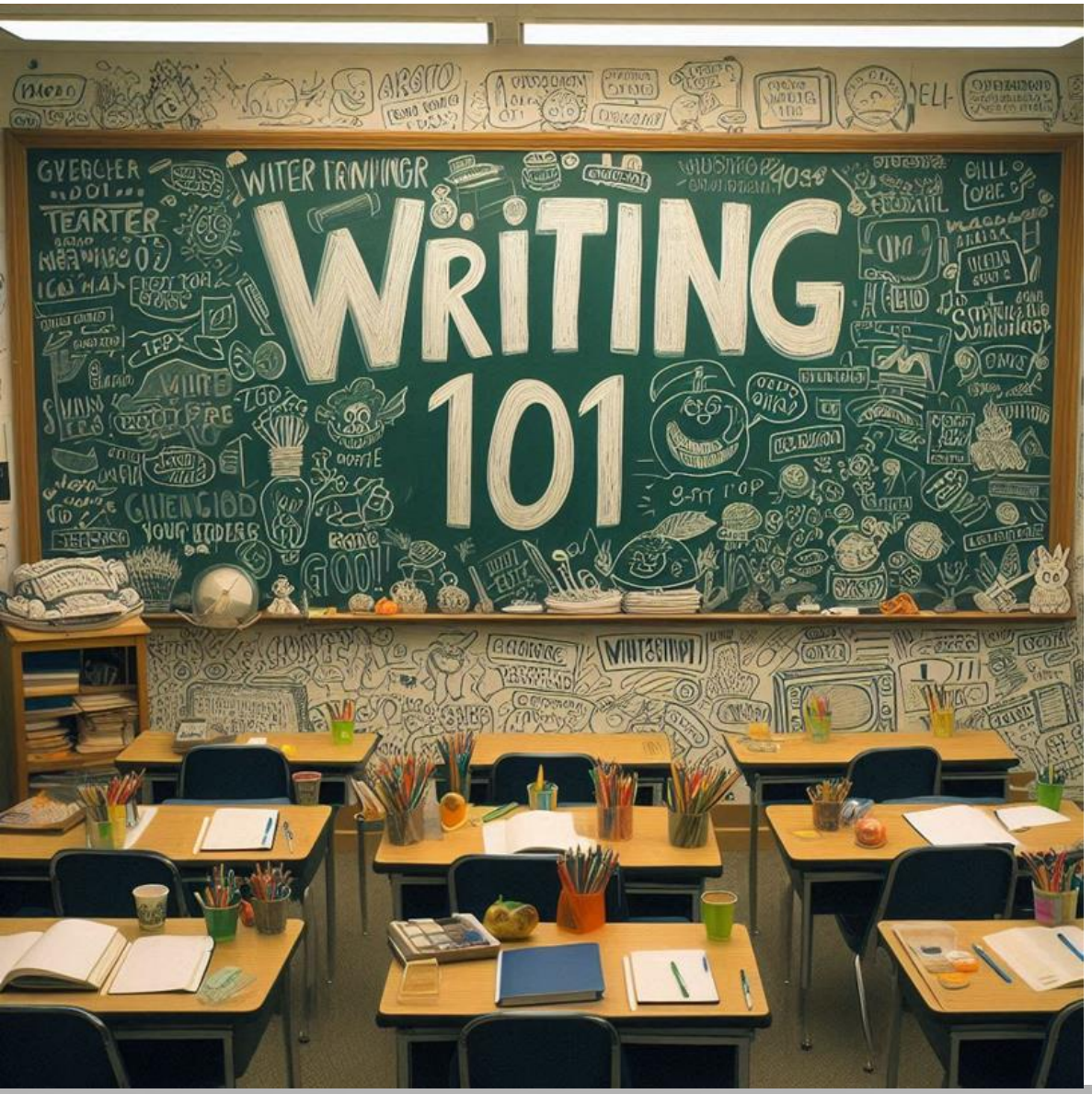
Why this workshop?

- A badly written manuscript means:
  - Bad feedback from reviewers.
  - Misundertanding the purpose of the research and the results.
  - Difficulty to be relevant in the field.

Why this workshop?

- And let's be honest.

The Basics



How do I start?

How do I start?

- First of all, we need to decide which word processor to use.

LaTeX

How do I start?

- DO. NOT. USE. WORD.

- LaTeX is the best option because:
  - Easy to manage references. (THIS IS KEY!)
  - Better placement of figures and tables and their captions.
  - Free to use.
  - Most journals provide templates for LaTeX, not that often they do so with Word.
  - LaTeX collaborative tools work better.
  - Better community assistance.

Tools for Writing in LaTeX

Tools for Writing in LaTeX

- LaTeX is easy to learn, but there are some caviats.
  - Journals/conferences might use their own template which changes.
    - The way in which figures are tables are inserted.
    - The way in which references are cited.
  - Tables and figures are sometimes difficult to place in the exact page or position that we want to.
  - Making tables manually can be extremely annoying.
  - Using packages will solve most of our problems, but we need to know which one to use.

Tools for Writing in LaTeX

- Read the "Author Guidelines", you'll find information regarding:
  - Title page.
  - Abstract.
  - Keywords.
  - Affilations.
  - Tables.
  - Figures.
  - Funding.
  - References.

Tools for Writing in LaTeX

- Which software do I use to produce LaTeX documents:
  - Webapp:
    - Overleaf
  - Local (open-source, free, and multi-platform):
    - TeXmaker
    - TexStudio
- Bear in mind that source files need to be compiled if you chose to use it locally.

Tools for Writing in LaTeX

Tools for Writing in LaTeX

- It's free to use. Some institutions provide wokers with access to the premium benefits.

- Features:
  - Version tracking.
  - Real-time collaboration.
  - Review features.
  - Integration with Dropbox and GitHub.
  - Integration with Zotero and Mendeley.
  - Access to journal and conference templates.

Tools for Writing in LaTeX

- Packages that I recommend using:
  - \usepackage[british]{babel} \sloppy
  - Correctly handles word syllable division when overfilling a margin.
  - \usepackage{hyperref}
  - Handles hypertext links
  - \usepackage{url}
  - Converst URLs into links. Key to handle references

Tools for Writing in LaTeX

- Packages that I recommend using:
  - \usepackage{breakurl}\def\UrlBreaks{\do\/\do-}
  - Splits URLs so that they don't overfill the margins.
  - \usepackage{graphicx}
  - Facilitates the use of images and their placement
  - \usepackage{pifont}
  - Allows the use of symbols.

Tools for Writing in LaTeX

- Other interesting ones:
  - \usepackage{subfigures}
  - \usepackage{longtable}
  - \usepackage{xcolor}

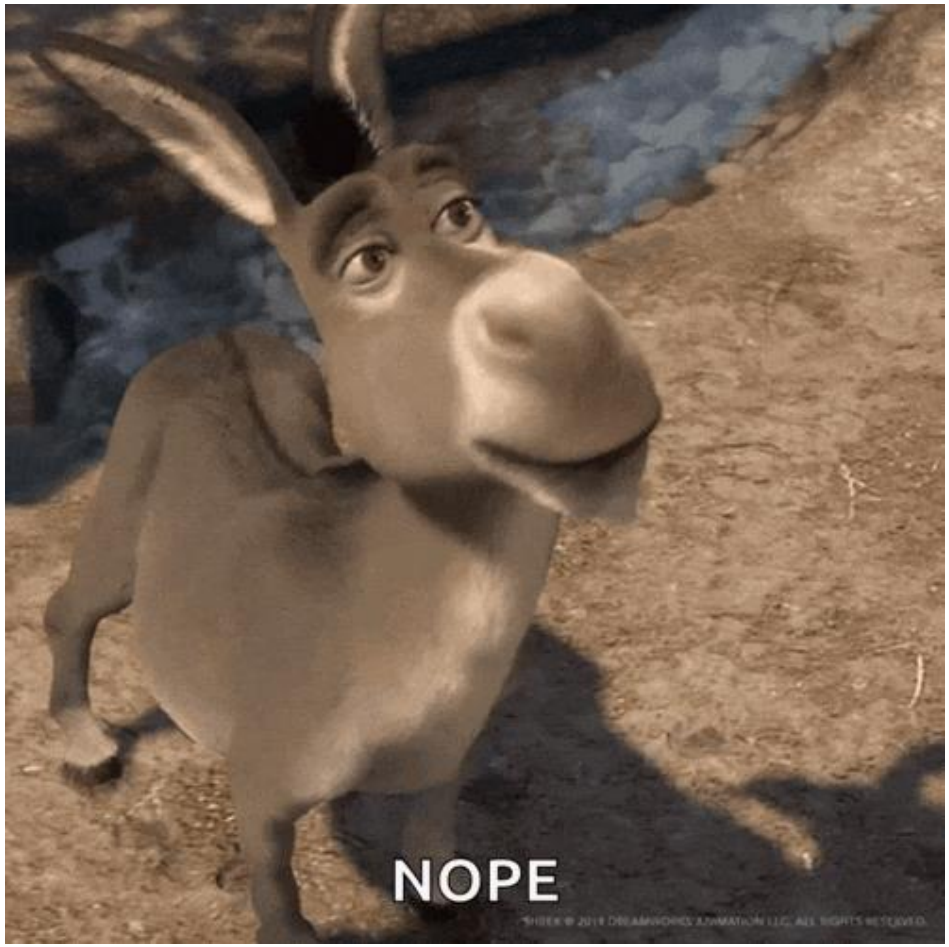
Tools for Writing in LaTeX

- Relevant tools:
  - https://www.tablesgenerator.com/
  - https://truben.no/latex/table/
  - Makes it easier to create tables.
  - https://detexify.kirelabs.org/classify.html
  - Helps you find the code for symbols.
  - https://editor.codecogs.com/
  - For creating formulas.

Tools for Writing in LaTeX

- Some tips:
  - Always have a list of packages to use prepared, so you can easily paste it into any template.
  - Place images and tables in reference to the margins. This can be done with \width=\textwidth and \height=\textheight
  - Always check if your custon commands or packages can be are allowed in the guidelines.

Got the tool, got the topic! Time to start writing, right?


NOPE

How do I start?

- First of all, we need to understand many things about our manuscript.
  - What are the main ideas behind the experiment?
  - Where lies its novelty?
  - What aspects are necessary to emphasize so that the purpose of the research is clear?
  - What are the main contributions?
  - What are its limitations?

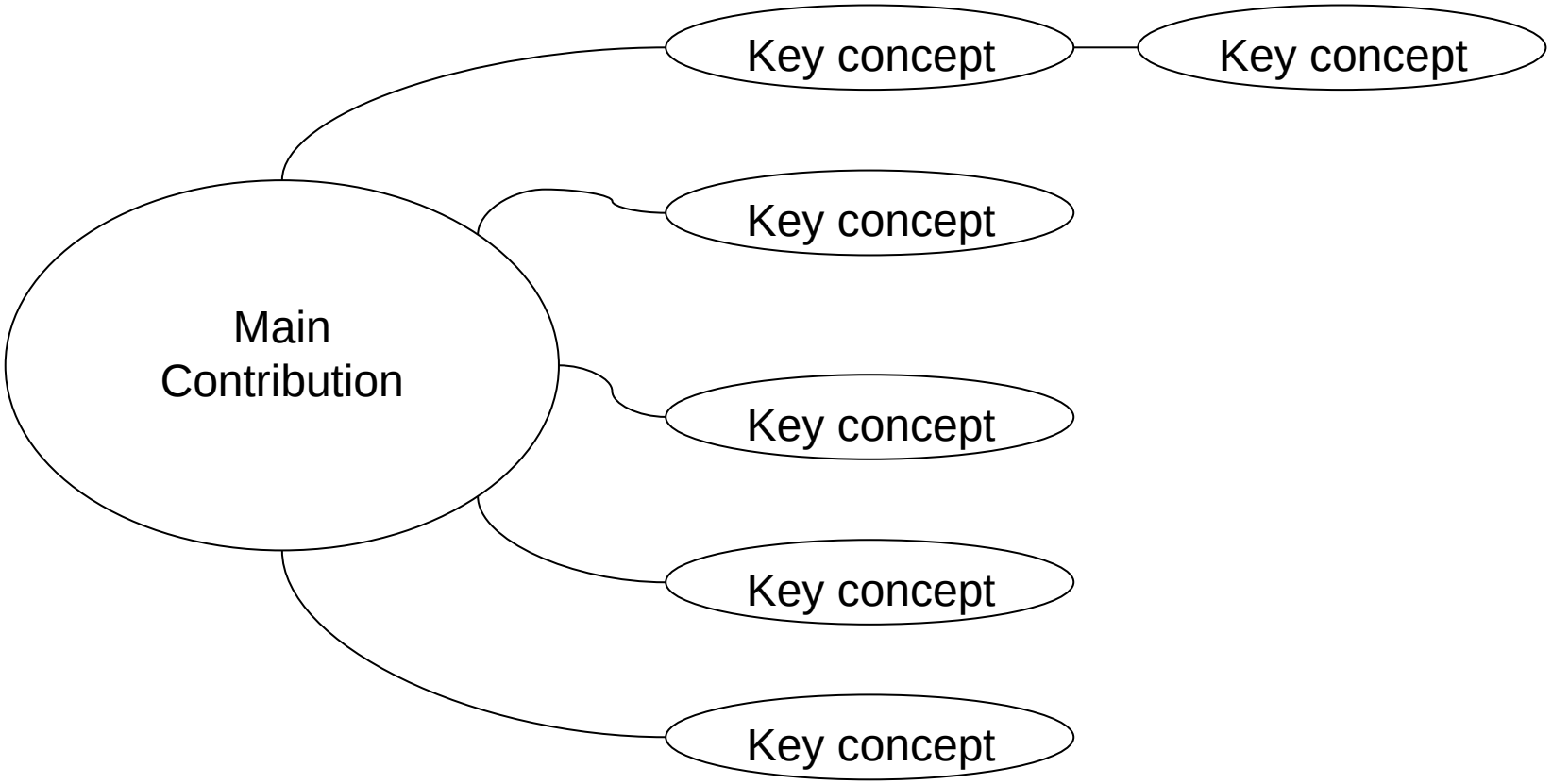
How do I start?

- Just writing without following a structure is quite difficult if you have no experience.

How do I start?

- How can we start organizing ideas then?
- A good idea is to create a mind map.
- We start with our main contribution in the middle and link it with words that define our research.

How do I start?



How do I start?

Exercise

- Think about a research idea or some future work that you'd like to do in the future, and let's create a mind map starting from that.

How do I start?

- We have our mind map, now we can use it to:
  - Create our title.
  - Define our keywords.
  - Know which words we need to use more often on the manuscript to emphasize aspects such as its novelty and purpose.

How do I start?

- Creating a title:
  - Be careful with what your acronym or name of the proposal might mean in English. Not all people might find funny the same things that you do!
  - Be concise and clear. Use the words extracted from the mind map to express:
    - What you are proposing
    - What is the most novel aspect of the proposal

How do I start?

- Useful tools:
  - Acronymify
  - https://acronymify.com
  - For finding acronym suggestions for your title

  - Writefull
  - https://x.writefull.com/title-generator/
  - Suggest you an article based on your abstract

How do I start?

- Tips:
  - Try to give it a little bit of flair

How do I start?

- Tips:
  - Try to give it a little bit of flair
  - Don´t be like me.

FORENSIC ANALYSIS OF THE IOT OPERATING SYSTEM UBUNTU CORE

Juan Manuel CASTELO GÓMEZ

How do I start?

- Tips:
  - For example: A platform for storing IoT evidence using blockchain
  - Can become
  - A blockchain-based platform for IoT evidence preservation

How do I start?

- Tips:
  - Write around 8-15 words.
  - If in doubt, keep it simple.
  - Don't oversell it, it may mislead them from the purpose of the article.

How do I start?

Exercise

- Write a title and a few keywords for your manuscript using the ideas from the mind map.

Writing a manuscript

Writing a manuscript

- Bear in mind that articles are usually more than 8 pages long. If we don't make them easy to read and follow, there is a high chance that the reader won't understand what we're trying to say.
- Explaining the research is as important as making it.

Writing a manuscript

- Conciseness
  - Overflowing the manuscript with long senteces will make it very dense to read.
  - Sometimes less is better. A straight, simple, and to-the-point sentence is crucial to present an idea in a clear way. They are very useful for result evaluation or conclusions.

Writing a manuscript

- Tools:
  - Use a regular expression to detect long sentences.
  - (?:\b\w+\b[\s,]*){25}[.!?]
  - A long sentence can be considered one around 25-30 words.

Writing a manuscript

- Tips:
  - There's no problem on having sentences that long, but do not have them very close to each other. Otherwise the text becomes dense to read.
  - Similarly, don't use only short and simple sentences.
  - Long senteces are more convenient to be used for the introduction and motivation, which are sections that are fresh for the reader and call for detail. Then, it's better to use them less frequently.

Writing a manuscript

- Linking ideas
  - We have established that there are crucial aspects of our research that need to be translated into text and be added to the manuscript.
  - Linking these ideas will be the key for a well-written manuscript.
  - It'll also allow readers to understand its content better and easier.
  - We cannot be always using: "This.... That...Also"

Writing a manuscript

- Tools:
  - Diagrams
  - https://app.diagrams.net/
  - A very good tool for creating diagrams (duh!)
  - Free to use, with web-based and desktop versions
  - Allows directly exporting the diagram to PDF, PNG, JPEG or SVG (among others)
  - It also allows modifying a diagram once it has been exported to another format

Writing a manuscript

- Tools:
  - https://www.smart-words.org/linking-words/transition-words.html
  - https://canvas.hull.ac.uk/courses/371/pages/signposting (very interesting read)

  - Any website with a list of cohesive and linking words will become very useful to know how to link sentences as well as for adding variety to the text

Writing a manuscript

- Variety
  - We tend to use the same words over and over again, especially when trying to present results or explain a methodological process
  - Same applies to sentence structure and length.

Sell me this pen.
It's AI powered.
EVERY COMPANY
RIGHT NOW

- Tools:
  - DeepL Write
  - https://www.deepl.com/en/write
  - Limited to 2,000 words
  - Rewrites a text to a specific tone and writing style

  - WriteFull
  - https://www.writefull.com/
  - Recommends changes to the text and allows text regenetation
  - Is integrated into Overleaf

- ChatGPT
- https://chatgpt.com/
- You need to write a prompt asking. Limited number!
- Useful for finding synonyms or antonyms

- Thesaurus
- https://www.thesaurus.com/
- Holy grail for finding synonyms and antonyms

Writing a manuscript

- Tips:
  - Switch length and complexity among sentences.
  - Use the passive and make use of pronouns!
  - Be careful! If you use an AI-writing-assiting tool, check the manuscript before submitting it.
  - Pay attention to fancy words that may not be commonly used. These tools use them very often to sound more academic.
  - Don't just use the find and replace option, see if the replaced word actually makes sense in the sentence.

Looking for References

Looking for References

- Having updated references is crucial to justify that our work is relevant, that the community finds it interesting, and to compare ourselves with the latest works.
- A poor review of the related work will be highly detrimental for our proposal. Remember that we're supposed to be making improvements on the field!

Looking for References

- Tools:
  - Google Scholar
  - https://scholar.google.com/
  - The most popular one, but tends to miss out on many articles.

  - BASE
  - https://www.base-search.net/
  - The most complete for performing an advanced search.

Looking for References

- CORE
- https://core.ac.uk/
- Very good keyword search tool. Good as a complement to other ones

- ArXiv
- https://arxiv.org/search/advanced
- There is a plethora of articles in ArXiv that many engines miss

Looking for References

- AI-powered ones (because why not?)

- SemanticsScholar (AI-powered)
- https://www.semanticscholar.org/
- Claims to find connections between papers using AI

- Rdiscovery
- https://discovery.researcher.life/
- Similar purpose, but also allows keyword search

Looking for References

- Tips:
  - Don't use only one source. Combine at least three of them.
  - Look for highly cited articles. These are the ones that set the standard in the topic.
  - Literature reviews and surveys can be very useful to find a curated list of articles for one specific topic.

How do I start?

Exercise

- Find a couple of references for your article idea using one of the tools mentioned before.
- You can use the terms from the mind map to help you filter out results.

Managing References

Managing References

- As mentioned before, having a complete and detailed review of the related work is pivotal for our manuscript.
- Both Word and LaTeX work by handling references one by one, which requires filling all the fields for each one of them.
- Doing so for 30+ references for a single paper is a nightmare. Imagine doing so when you've worked on several articles!

Managing References

- This neverending task can be facilitated using a reference manager.

- Tools:
  - Jabref
  - https://www.jabref.org/
  - Free, open source, and multi-platform
  - Desktop app
  - Very good tool to manage bibliographies and export them to different formats
  - Has a browser extension for saving references

Managing References

- Zotero
- https://www.zotero.org/
- Free and multi-platform, with desktop and web versions
- Allows account synchronization
- Can be integrated with some word processors

Managing References

- Zoterobib
- https://zbib.org/
- Allows creating a short bibliography file using the web browser
- It acceps papers and websites
- Very useful for quickly adding a couple of elements to a bibliography

Managing References

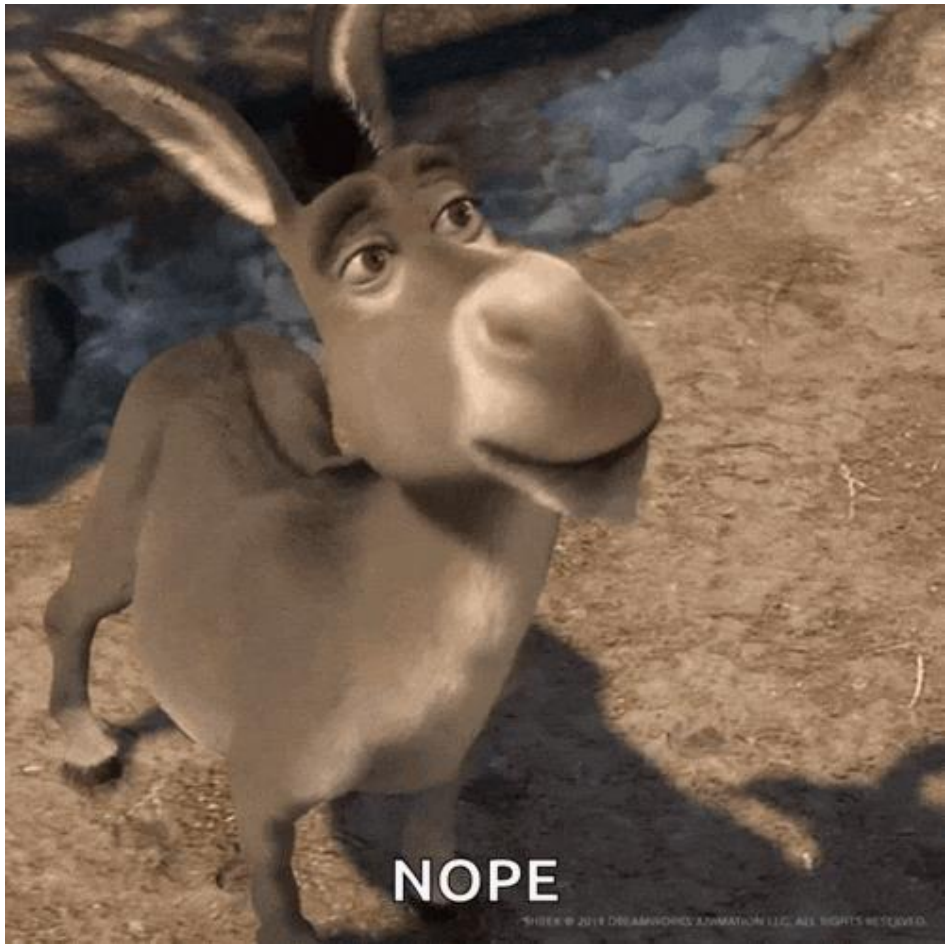
- Mendeley
- https://www.mendeley.com/
- Free and multi-platform, with desktop and web versions
- Allows account synchronization
- Can be integrated with some word processors
- Very similar to Zotero. Using one or another becomes (IMO) personal preference.

Managing References

- Tips:
  - It's useful to save the reference together with the manuscript file and any comments that we may have on the paper.
  - Referencing websites can be tricky. Remember to try to find the author (if not, use the company or website name) and save the access date.
  - Have a backup of your bibliography. You don't want to write it over again.
  - Use the citation option that journals and conference provide to export citations.

We did it! We have a manuscript!
We are done, right?

Right?


NOPE

Proofreading a manuscript

Proofreading a manuscript

- The final step is to make sure that everything is right and that we don't have any typos, repeated sentences, bad numbered sections...
- It's very painful to see that you messed up a (or multiple) sentences once you've sumitted the manuscript.

Proofreading a manuscript

- Tools:
  - Read Aloud
  - Feature present on most PDF readers and word processors
  - Useful to detect mistakes and to check the text flow.

  - Virtual Writing Tutor
  - https://virtualwritingtutor.com/
  - These types of grammar checkers can be useful to detect some mistakes
  - Limited to 1000 word per submission

Proofreading a manuscript

- LanguageTool
- https://languagetool.org/
- Browser extension that can be used while you write the manuscript.
- Checks whether a word has been written correctly. Also catches some big errors such as plurals not matching the subject.

Proofreading a manuscript

- Tips:
  - It may be annoying to check the manuscript all over again once we've finished writing it, but its essential for it to be in a presentable and tidy.
  - Check for missing links and references. It's quite common to insert a reference a forget to label it after.
  - It's easier if you do it once you've finished writing a section and know that will suffer slight changes, and not once you've finished the whole article.

Final thoughts

Final thoughts

- Respect your research.
  - Be critical
  - Be objective
  - Be mindful of its flaws and strengths.

- … and expect the same from the rest of researchers/reviewers/editor.

Thank you!

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