Journal Club Workshop

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Finding Papers

One must find a system that exposes you to as many papers as possible on a daily basis.

* myADS Personal Notification Service / Archive Service
* Vox Charta
* Supervisor (not a long term solution)

I use the Archive Service as it means I have an unread email every day so I know once I have checked it. Others prefer Vox but this requires a level of self-discipline to log in each day. Your supervisor may want to email you relevant papers, more at the beginning of your PhD and less by the end. The important thing is regularity and quality of exposure.

The next step is to evaluate the papers based off title. Read though the titles and identify which ones sound relevant/interesting to you, becoming just discerning enough is a skill here opening everything is a waste of time and will make this process more arduous, however, opening too few will result in you missing results or papers you would have otherwise been interested in. Open each paper in a browser or make a reading list without reading anything more.

At this point you can stop if you don’t have any time left for the day or don’t feel in the mood to read papers. Times when you are distracted by deadlines, stress, or simply thinking about dinner is not a good time to read your mind will wander.

**Activity:** Before the JC workshop find 3-5 papers that interest you based on title alone. Bring these papers to the workshop.

Deciding what to read

Once the tabs are open most websites such as ADS then show the full Author list and the abstract.

The author list is helpful if there are many names you recognise it will more than likely be a good paper, but this does not mean that papers from authors you don’t know will be bad.

The abstract is the key to making the decision to invest the time on a paper, if the abstract sounds uninteresting or trivial you can close the paper and never read it, if you can remember the topic in relation to the authors this may help down the line if you ever did need to find something on that topic again. However if the abstract seems good download the full PDF. Good papers take many forms but for the purposes of Journal club we can think of a few categories:

* Papers that present an interesting result clearly in a nice linear way.
* Papers that present a complex result well and in detail that takes many pages and figures and close reading of the text.
* Papers that present a necessary result well with little new additions to method.

The first category is a JC ideal paper it will be easy to present and make for good comprehension and following of the group. The second should be thought about they can be done but you probably want to select a very particular aspect to view, you don’t have time to do a 20 page paper in all its glory, save that for presenting at a group meeting. The final category, read it, remember it, refence it, but don’t present it, it’s not new it’s not exciting and it won’t add much to our discussions, but it is still a good paper worth your time post it to the JC slack or your groups slack or email chain.

**Activity:** Either before or during the first 10 munities of the workshop read the abstracts of the papers you have found and sort them into junk you won’t read and the three categories listed above.

Starting to read (and present)

Re-read the abstract, highlight ~5 key points: 1-2 Intro, 2-3 Method, and 1-2 Findings/Conclusion. You should now know 75% of what you will remember about this paper long term.

**Activity:** Explain what the paper is about a partner, try to talk them though the ~5 highlighted points adding exposition from your general knowledge where necessary. Have them ask 1-2 questions about the paper that you may or may not be able to answer. (Switch jobs and repeat)

**Presenter:** Ask the room if they think they have about as much understanding as they would after a full JC presentation. Most people should agree this is true, if not ask what they are missing.

A well written abstract contains all the most important information about the paper. During a JC presentation this is most of the information you will want to aim to convey, furthermore, you will want to say a lot of this up front if you tell people why, how and the result before the first figure they will stay more engaged and look for those things in your paper and be more resilient to complicated methods graphs and conclusions.

Figures

The next thing to do is look at the figures and read the figure captions if you are not sure what’s going on. The figures should give you a good idea of the quality of the results and in my opinion the best papers contain cartoons or abstracted plots that also explain the method.

**Activity:** Go through the figures now note down any you don’t understand completely.

The figures that don’t make sense are often statistical tests or results figures near the end of the paper. Its normal to not understand these, try to ‘ctrl f’ the figure number in the text and read the context of where it is first introduced. Sometimes this will involve understanding subtle differences between two figures.

**Activity:** For the figures you noted earlier go through the text and make some notes about what the figure shows and why it’s important.

It’s tempting to think that all the figures are important but 9 times out of 10 the MCMC corner plot is just fitting garbage and not interesting to anyone not deeply invested in the method. For a JC presentation 4-5 Figures is more than enough, this will give you 1-2 munities for each figure, don’t do 10 it will be rushed and messy.

**Activity:** Decide on which figures best tell the ‘story’ of your paper. With a new partner go through the paper and try to explain the main results simply using these figures and what you know from the abstract. The person should ask 1-2 questions about the work.

Introduction (optional)

If you know this area of the field extremely well you can skim read or skip the introduction. The introduction take the wider context and funnels the reader into the work, you should naturally do this when starting a presentation but reading introductions is a great place to get inspiration on what to say or how to do this if you are unfamiliar.

Conclusions

Read the conclusions see if you have figured out everything the authors were trying to say, if you haven’t then why not did you miss interpret a figure or is it simply not clear what is going on. Remember it’s fine to be critical of others work, use your criticism to reflect on how you write and how you could make your work clearer.

Discussion (optional)

The discussion is where the Authors try to take they work and talk about caveats and apply it to a wider context. For new researchers this is often the hardest part of reading, you may not understand how the work relates to the wider field. If the work is very close to your research it is an excellent opportunity to find other related work that you may not yet know about.

Method

Unless you are specifically presenting a methods paper it is unusual to present a substantial amount of the method. However, reading the method in enough detail to field questions is essential. For early researchers it is highly likely that there will be members of the audience who will be more familiar with the methods, and their shortcomings, than you so you should expect for them to probe what methods have been used. In my experience the method is best left to near the end of reading a paper, when reading the method it will then be clear what results they are working to and be combined with some ‘ah ha’ moments. Reading the method before the rest of the paper, especially the results, can simply be tedious unless it is exceptionally well written, or a method paper where the method is the result.

Presenting Tips

1. **Never** start a sentence ‘Does everyone understand/know…’, they don’t, and even if they do explain it anyway. There are several reasons for this: usually anybody who doesn’t is to shy to say, this will break the flow of your presentation starting with the basics will improve your confidence and keep everyone on board, and if you explain it wrong (possible) you may get help from the audience.
2. **Start** your presentation with a description of what the audience can expect from this paper use the whiteboard to sketch they key result. This is especially helpful if the main result plots are messy or subtle (think SEP time series) if you have explained simply what to look for people when presented with the full (scary) plot will begin to look for it and not switch off immediately. Giving the conclusions/main result early will improve the flow of the paper to the audience they will know the destination and follow along.
3. **Make notes** watching people read off the text is slow and dull a side or two of crib notes of your talking points will improve your flow. To answer a question going to the text is often correct and the chair will happily ‘ctrl f’ for you but don’t do it to present.
4. **It is all about you** at the end of the paper if nobody has listened or got a thing from your paper but you feel you understand it better that is not a failure. Presenting papers will massively improve your scientific literacy and that is why we do it.
5. **Don’t worry** this is a very friendly group even Matt Middleton who will shout at your AGN paper, it’s not you it’s the paper. People are here to support you and JC is a good way to increase professional interactions in a friendly environment, if you feel anyone is inappropriate or attacks you and not the paper you can have a word with them after or if you don’t feel confident to do that ask a member of staff (Your supervisor, Poshak or Christian) for advice.