**How to Write Papers**

**Writing process**

From a time-management perspective, writing is the central activity of a scientist. Therefore, becoming a better writer should be a top priority during the first few years of training. Like any skill, improving in writing requires the following pre-conditions:

1. **A good writing mentor**. This should be someone you write a few papers with. A perfect mentor is: (1) someone who can think about writing clearly, (2) who will be willing to process the structure of papers with you in meetings **before** you start writing, and (3) who is willing to provide thorough feedback at a timely manner. Point 3 is very important because it would be a major factor in determining the time it would take you to publish your papers.
2. **A routine.** In order to be a good writer you have to write multiple times a day, preferable multiple week days for at least an hour a day (but often more). This should be a time in which all you do is write, not look up references, read papers or multi task in any way. Writing time should be chosen when you are sharpest, to lead to maximal production. Binge writing is not a good way to write papers and in most cases would be inefficient and not sustained for long term. Writing routine will help you fall in love with writing.
3. **Interest.** Write ONLY things you care about. An average paper takes about 4-6 months to write from start to submission, and an additional year to get published. The best thing you can do to improve your life, well-being and writing is to NOT things that would discourage you to write. This includes:
4. Papers you are writing because you feel guilty but that you don’t think are interesting.
5. Papers that you know are not going to be good but you think are “not going to take too much of your time.”
6. Unimportant and uninteresting side projects.
7. Writing about other people’s data that in topics that are not directly related to you.
8. Book chapters unless they are really important to you.

Writing things that excites you is the best advice for good writing.

**Writing Stages:**

Most good papers are written not to be completely read, but to allow a reader the ability to clearly understand what the paper is about and the ability to choose what to skip while still keeping a general understanding of what is going on. In order for that to happen a good writer needs to provide a clear map of the goals and the structure of the paper right at the get go and to follow this structure throughout. This is not only true for the paper as a whole but for each paragraph.

These are the stages required to write a good paper:

1. **Read**. Unless you know the literature very well, any process of writing should start with at least 2-3 days of reading and choosing references. While reading, its good to start thinking about the sections of the paper and which citations should go where.
2. **Outline.** Spending at least a day or two on building an outline is key to writing a good paper. This can be hard and boring but can also save a lot of time.

The stages for the outline are:

1. Divide the paper into sections. Sections are the most basic units and they should be well thought of. In papers that integrate two fields, the sections are often (1) intro (2) field 1, (3) field 2 (4) integration. In papers that describe a known phenomenon in a new domain the sections are often (1) intro (2) phenomenon in general (3) new context.
2. **Intro**. Introduction should start in a way that attracts the reader, which is usually a story or an example. Try to come up with the opening during the outline stage. Following the opening, a few paragraphs should provide the reader a gist of the central argument of the paper and the sections of the paper. It should be thought of AFTER one understands that sections of the paper and the central argument and not before.
3. Paragraphs. The paragraph level is the most important level. Each paragraph should say one main thing and this should be said in the first or second sentence of the paragraph. When you build the outline try to think of that main message in each paragraph. If its helpful (it is to me) list all the references that you plan to use in this paragraph.
4. Ordering. It is very important to think why paragraphs are ordered in the way that they are. For each paragraph ask – why is it here. And make sure that the reader knows as well.
5. **Write.** Once the outline is complete all you have left is to fill out the blanks. This may not be as easy as it sounds but it will surely be easier if you already have a well thought of outline. In an optimal case, you will get your mentor to comment on the outline and explain to them the general structure of the paper.

Here are a few more specific comments about writing (that were not mentioned in the outline stage):

1. **Paragraph**. As mentioned, build your paragraphs in a way that will make it easy for the reader to skip it if its not important to them. This means that the general message of the paper should be given in the beginning. The end of the paragraph should naturally lead the reader to the next paragraph.
2. **Transitions**. The transition between paragraphs should be clear to the reader. If you are providing a list of mechanisms/explanations/consequences and every par is a different item on that list, make sure that the first paragraph prepares the reader for that list. Lists should be ordered in a thematic way, for example from older to later or from individual to collective. Try to avoid starting a paragraph with the word “another” or “next”. Papers are not laundry lists.
3. **Introductions of new ideas in the middle of the paper**. Try to avoid as much as possible from introducing new thoughts and ideas in a middle of a paper, especially in empirical papers. For example, mentioning a moderator of the results in the third section of a paper is a mistake. The reader should be prepared for big changes and pivot points that are about to come, otherwise they get confused.
4. **References**. Use a reference software. Because it’s the 21 century.