
Week of —

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1. Summary of Discussions

Note: Use this section to quickly give context to this week's report. This should give the key points from the previous discussion you had with me and others (if relevant) and what is it that was decided as action points/outcomes. If the discussions were a long time ago, you can summarize the key points from the previous report here. Note that discussions could be either in person or remotely.

2. Papers Read

Note: List out the papers you read in the last week. Even if you made partial progress mention that here. For each paper, then give the reasons that made you read that paper. This could be "googled for keywords", "referenced from another paper", "wanted to learn more about xxx", etc. Then, in your own words, give a summary of the contributions of the paper/what you learnt from it. Also identify in what way the paper lacking and if you have any ideas on how to improve it. This could involve applying something from a different paper you read. Try to compare and contrast other papers that tackle similar problems or use similar techniques. Cite all appropriate papers.

I would recommend that researchers should pick up at least one new paper every week and try to read it carefully. One has truly comprehended the paper only when you can summarize the paper in your own words in 5-10 sentences. It is good practice to try and write down such a summary for every paper that you read. It is an exercise to improve oneself, hence there is no point in copying the abstract. List down strong and weak points of the paper as you see it. Put down at least one take home message, even if it is "do not write papers like this". :). Also write down questions that the paper leaves unanswered, either by explicitly raising them, or by not considering them. You can then try to find newer work that addresses these questions. If none exist, you have potential problems to work on!!

Maintain a bibtex file for all the paper that you read. Add

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to that every week when you put down papers here. Do not trust the web to give you the correct bibtex entry. Try to find out the details from the authors page or journal/conference page and add it to the bibtex file.

If you spend time revising some subjects you can mention that here, along with the reasons for doing so. A detailed study plan can be mentioned in the plan of action section.

3. Theoretical Results

Note: Describe any theoretical results developed this week. This can be algorithm specifications, experiment design, proof of theorems, statement of theorems, etc. Describe clearly all the aspects involved - Background results, why certain choices were made, what were the alternatives considered, why they were rejected, etc. For example, if you decided to use a L1-loss function, you should mention clearly what are the other options, why you chose to use L1 over the others. If there are papers on which you based these arguments, then cite them. Also add them to the bib file.

4. Experiments run

Note: Describe in as much detail as possible the experiments that you set up and ran over this week. These could have been exploratory ones to understand an algorithm/tool/package/domain/dataset/programming model, etc. These could have been proof of concept experiments run on synthetic data or small samples. The experiments could have succeeded or failed. But for each of the experiments, you should write down clearly why you decided to run the experiment. What was the set up? All the parameters used, no. of runs, etc. Document all the outcomes clearly. Which parameter settings did the experiment succeed, when did it fail. Why did you choose a certain setting? Tabulate things clearly.. and where possible, draw graphs/charts etc.

Clearly document your code as well. Keep around different versions, with comments describing what is different in each version. Try to follow some coding standards. In experiments that take a long time to run, save as much of the intermediate computation as possible. Do not write out only averages to the file. This might take slightly longer to run initially, but will save a lot of time when needing to re-

run the experiments. For example, if you want to do some feature computation and then run a classifier on some data, save the computed features also. That way when you want to run a new classifier you don't have to compute features again.

5. New Directions

Note: Put down any thoughts that you have on the problem. These might be extensions to ideas that were discussed earlier. Might be ideas that came from the papers that you read. Could be directions suggested by the outcome of the experiments. The form could also be varied. These could be vague ideas to serve as starting points for further discussions. These could be concrete experiment designs. These could be "theorems" that you would like to try and prove, etc. Try to put in as much detail as possible, including the thought process that lead you here.

6. Plan of Action

Note: List out all things that are planned for the near future, with appropriate time lines. Ideally there should be several things for you to work on next week, and some planned for the subsequent weeks and months. Again, try to be as detailed as possible. Make references to the text above, do not repeat unnecessarily. Do not say run new experiments. Say "Set up experiments described in Section `ref{new-section}`, in order to validate hypothesis 3" or something similar. These action points might be recounted in the next weeks report.

Importantly, identify conferences that you plan to communicate the work you are currently engaged in. Find out the submission deadlines and plan working backwards. "I have 8 weeks to work and this is what I can do each week." Plan on at least a week for writing. Often our work gets rejected due to bad presentation.

7. Random Thoughts

Note: Put down things that you do not think fit into the framework above, but those that you want to record for my information, or for future reference.

8. Bibliography

Note: Ideally this shd be generated by bibtex and not manually by you.

Other Guidelines: *You do not have to populate each and every section every week. But I expect at least one of the sections to have significant material. If you re-*

ceive any help from any one be generous in acknowledgements. These reports will help immensely when it comes to writing papers or at the very least when it comes to final thesis/reports. Mention your name clearly at the top. Use LaTeX. Name the file as follows: "WeeklyReport_yourname_ddmmyy.pdf", where ddmmyy is the date of the Monday of the corresponding week.

References

Langley, P. Crafting papers on machine learning. In Langley, Pat (ed.), *Proceedings of the 17th International Conference on Machine Learning (ICML 2000)*, pp. 1207–1216, Stanford, CA, 2000. Morgan Kaufmann.