Simultaneous Paper Maximization and Minimization Through Reference List Side Channel Information Injection

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Appendix A: An actual paper

1 BACKGROUND

Paper minimization, the act of writing the shortest possible paper, is a subject with a long history of incremental improvements[2–6]. Recently, researchers have also started studying paper maximization[1], writing the longest possible paper that can still get published. However, to date as far as the authors are aware, no previous research investigates simultaneous maximization and minimization.

The key observation enabling our proposed method is that references are often not counted towards the length of papers, with several conferences and journal allowing extra space for references outside the normal page limit. In such settings, the proposed method produces papers which are both minimal, consisting only of a single short sentence in the body and maximal in the number of pages.

2 METHOD

In the interest of reproducibility[1] in science, the tool that was developed to generate the above reference list is open source and available for download[2]. The tool downloads a list of thousands of papers published to Arxiv, and then generates a formatted reference list based on a text file containing paper content.

3 RESULTS

As can be seen from the proof of concept, the body of the paper is 6 words or 39 characters long. Crucially, this does not change with the information content of the paper, which means that the non-references list information complexity per paper size of our method is $O(1)$.

For the purposes of maximization, our method uses around two lines of paper content per character of paper content. Comparing this to the state of the art in paper maximization is difficult, most previously proposed methods inject content via citation format expansion. Citation format expansion paper size is $O(nc)$ for c citations of length n, whereas our method grows by $O(m\bar{c})$ for a paper with $\bar{c}$ characters and citation meta-data of length m.

There are several reasons to prefer our method. Finding relevant references[3] is tedious, at least more so than simply writing random text and having a tool expand the text to take up more space on the page. For example, one can make heavy use of examples to exemplify proposed methods and claims.

4 THE REFERENCE LIST SIDE CHANNEL

The reference list side channel exploited for paper maximization can also serve other purposes, primarily injecting more content in papers for submissions where references are not counted towards the page limit. In the present work, this is of little use unless references are completely unbounded, due to the low information content per page area. For example, this paper used only 2 sentences to fill 3 pages.

In order to properly exploit this side channel, more work to increase the information content is required. For example, one might use the first word of paper titles as the information deliverable. However, one has to be careful not to devise a too complex scheme, as that risks using more space for the description of how to read the injected information, than is actually delivered via the injection.

5 FUTURE WORK

This work serves as a proof of concept, however, some issues remain. The main issue here is the formatting of the reference list. Some particularly picky publishers may object to using vertical space to mark sentences, leading to a rejection and undoubtedly, sadness. In order to mitigate this, one might exploit the fact that citations of multiple papers with the same authors replaces the author name with – in some reference styles.

Another issue is the lack of special characters, injecting something like an equation or actual citations require special characters such as [and ⊕. While it may be possible to find a select few papers published by people whose names start with those characters, finding enough to write a rigorous mathematical and well referenced paper may prove difficult.

6 CONCLUSION

We present a novel method to synthesise papers which are simultaneous maximal and minimal. To do so, we exploit a previously unexplored avenue for paper information injection via a side channel attack on the reference list. The proposed method is compared to the state of the art, both for maximization and minimization, a comparison which shows asymtotic surperiority in information content per character written.

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[1] And also to subject everyone to the cursed code which contains 100 lines of chained and nested iterator functions
[2] https://gitlab.com/TheZoq2/sigbovik2023
[3] Ignore the fact that we use random papers dumped from arxiv. Hopefully readers are lazy and don't actually look at the references