**STAT 990 Research (Independent Study), 2020 Fall**

**Instructor: Prof. Miaoyan Wang (miaoyan.wang@wisc.edu)**

**Prerequisite: PhD students in Statistics**

**Enrollment cap: 8**

**Paper Reviews**

Writing paper review is an integrated part of scholarly activity. The reviews also serve as the starting seed for class discussion. Anything you write in your review will be brought up in class, so write as though all of your fellow students can see your reviews.

**Reviews are due every week in class.** You are welcome to meet in small groups to discuss papers, but each student must submit his or her own review. We have over 15 papers on the reading list; however, you need to submit paper reviews for only 10 of them.  Though you are not required to submit reviews for all the papers, you are still required to read the papers for class discussions. In terms of selecting papers for reviews, you must select one from a set of papers to be discussed for the next one week from due date.

**Review Guidelines**

Keep the following questions in mind and actively try to answer them as you read. If you cannot answer those questions by the time you are through, you have not truly read the paper. Try again or use the class mailing list to ask your classmates for help or clarification.

You can follow this format if you like. You will write four short paragraphs addressing the following points. Long reviews are not necessarily good reviews. Please limit your review to one page at most.

1. **Stated goals and solution.** What problem are the authors trying to solve? What are the limitations on this problem, i.e., what are they not trying to solve? What techniques or tools do the authors offer to solve the problem at hand? How do the authors know they have solved the problem? Do the authors test or validate their approach experimentally? Does the solution meet the stated goals, or does it fall short in some way? Avoid simply quoting the authors’ own abstract. Restating in your own words demonstrates your understanding.
2. **Significant ideas**. What is new here? What are the main contributions of the paper? What did you find most interesting? Is this whole paper just a one-off clever trick or are there fundamental ideas here which could be reused in other contexts?
3. **Fallacies and blind spots.** Did the authors make any assumptions or disregard any issues that make their approach less appealing? Are there any theoretical problems, practical difficulties, implementation complexities, overlooked influences of evolving technology, and so on? Do you expect the technique to be more or less useful in the future? What kind of code or situation would defeat this approach, and are those programs or scenarios important in practice?
4. Note: we are not interested spelling errors or confusing notations when reviewing a paper. However, if you have a great idea on how some concept could be presented or formalized better, mention it.
5. **New ideas and connections to other work.** How could the paper be extended? How could some of the flaws of the paper be corrected or avoided? Also, how does this paper relate to others we have read, or even any other research you are familiar with? Are there similarities between this approach and other work, or differences that highlight important facets of both?

Please take the time to edit your reviews. Unclear or unnecessarily long prose will be graded accordingly.

**Review Formatting**

Please compose your review as plain ASCII text: no Microsoft Word, no PDF, just plain text. **In terms of length, about 400 to 800 words.**

**Review Submission**

Submit reviews in hand before each time we meet.

**Review Grading**

**4 points:**

Clear and concise, demonstrating understanding of the key concepts of the paper. Ideas presented in your own words. Some evidence that the paper has been considered in the context of larger issues and themes of the course.

**2 points:**

Shallow, minimally-sufficient, or needlessly wordy. Key concepts misunderstood or missing. Author’s words echoed back to me with little effort to reinterpret or paraphrase.

**0 point:**

Late, incomplete, or never submitted at all.

You may occasionally receive bonus points if your review demonstrates exceptional insight about the paper or related work. Noteworthy effort above and beyond just reading the assigned paper. Few if any bonus points will be awarded for each paper.

**Additional resources:**

1. Template

I personally find the following template useful when drafting reviews. This template will give you a guidance, but you are not required to use it though.

Title:

Authors:

Published in:

Reviewer’s Name:

• What is your take-away message from this paper?

• What is the motivation for this work, and its distillation into a research question? What are the previous solutions and why are they inadequate?

• What is the proposed solution (hypothesis, idea, design)? Why is it believed it will work? How does it represent an improvement? How is the solution achieved?

• What is the author’s evaluation of the solution? What logic, argument, evidence, artifacts (e.g., a proof-of-concept system), or experiments are presented in support of the idea?

• What is your analysis of the identified problem, idea and evaluation? Is this a good idea? What flaws do you perceive in the work? What are the most interesting or controversial ideas? For work that has practical implications, ask whether this will work, who would want it, what it will take to give it to them, and when might it become a reality?

• What are the paper’s contributions (author’s and your opinion)? Ideas, methods, new proofs, software, experimental results, experimental techniques...?

• What are future directions for this research (author’s and yours, perhaps driven by shortcomings or other critiques)?

• What questions are you left with? What questions would you like to raise in an open discussion of the work (review interesting and controversial points, above)? What do you find difficult to understand? List as many as you can.

**2. checklist for note taking while reading.**

[Bill Griswold](http://www.cs.ucsd.edu/%7Ewgg/), a first-rate computer science researcher, has some excellent advice on how to take note while reading a research paper:

