## Checkpoint 2 – Review of Selected Research Papers + Implementation Update

The focus of this checkpoint is for you to review all 3 selected papers and provide an update to your implementation. See course project description for requirements of the 3 papers you select. They should be related papers. The most natural is picking papers that cite your main paper (forward citation) or pick a paper that the is referenced in your main paper (backward citation). See Google Scholar for forward citations.

Note: You are allowed to switch papers or change your implementation plan as much as you want before the final project deliverables. But you will need to turn in something for this checkpoint that satisfies all requirements to receive credit.

You should submit a PDF for peer review to Circuit that follows the ICML 2023 LaTeX guidelines. overleaf.com is recommended for LaTeX compilation. The structure must follow the template below and the section/paragraph headings should match the template.

The outline is provided below. You will be required to do a review of 3 papers and provide an update on your implementation work. Note: **The "Critique and Discussion" section is now required**. Feel free to reuse your review for the first paper but you will need to add the Critique and Discussion paragraph.

Top-level should use `\section{}`, e.g., `\section{Implementation}`
Second-level should use `\section{}`, e.g., `\subsection{Storyline}`
Third-level SHOULD use `\paragraph{}`, e.g., `\paragraph{Research Gap}`
[ ] - notes that should not be included in the PDF.

[Following ICML format (5 points) and overall quality (5 points)]

1) Review of paper to implement or extend (25 points)
   a) Storyline (10 points)
      [A summary of the whole storyline is usually in the introduction. The storyline puts research into a logical rather than chronological framework. The ideas should flow logically from one to another in a narrative form.]
      i) High-level motivation/problem
         [What is the larger goal/vision for this research? Or, how could it be useful for accomplishing something larger or more important beyond this particular paper?]
      ii) Prior work on this problem
         [How has prior research attempted to tackle this problem?]
      iii) Research gap
         [What is the gap in research, either in knowledge, experiments, theory, etc.?]
      iv) Contributions
         [What are the main contributions of the paper? Usually, the paper ends the introduction with a summary of contributions.]
   b) Proposed solution (5 points)
      [How does this paper fill the research gap or answer the research question? What are the key ideas in the paper (e.g., new algorithm, new objective, new theory, new regularization, new perspective, new framework)? At least 1 paragraph + equations/algorithms if helpful.]
   c) Claim-Evidence structure (5 points)
      [The experimental results section of the paper should have a structure of giving claims and empirical evidence for the claims. Sometimes the evidence is first (e.g., the figure is presented and then interpreted) and sometimes the evidence is second (e.g., a claim/hypothesis is made and then the evidence to support the claim is given). These could be primary claims (usually only 1 or 2 per paper) or subclaims (often at least 2-3).]
      i) Claim 1
         [e.g., The proposed method is more stable than previous methods.]
      ii) Evidence 1
         [e.g., Figure 1 shows the convergence behavior of our method is smoother and faster than ___ and ___ baselines.]

iii) Claim 2
[e.g., The proposed method is insensitive to the choice of hyperparameters.]
iv) Evidence 2
[e.g., Over a wide range of parameter values, the performance change is with 1% of the ideal hyperparameters.]
v) Claim 3
vi) Evidence 3

d) **(Required)** Critique and Discussion (5 points)
[This section is used to critique and discuss the contents of the paper. *Examples:* Discuss what you thought was most interesting or insightful. Explain what you think was unclear. Discuss whether you think the paper's claims matched the corresponding evidence. Discuss whether you think the assumptions or experimental setup was correct.]

2) Review of 2nd paper (25 points)
[Same structure as 1st paper]
3) Review of 3rd paper (25 points)
[Same structure as 1st paper]
4) Implementation
a) Implementation update (15 points)
[What have you changed since your preliminary implementation? What new code or setup have you tried? More generally, provide an update on any of the items below. If you have changed your implementation completely, you could simply summarize the sections below here. The other sections are not required for this checkpoint, but you can feel free to keep them from your checkpoint 1. This section is the only one that will be graded though.]
b) (Optional) Implementation motivation
[What do you hope to learn by your implementation? If you are doing new experiments, what will those experiments tell you (if successful)? If you are re-implementing the paper, what do you hope to learn from re-implementation? Or, if you are only (re-)implementing one component, why that component? What do you expect will happen in the experiments?]
c) (Optional) Implementation setup and plan
[What is your specific implementation plan? Give concrete experiments. Which code base? Which datasets? Which methods? What will be the series of experiments you will perform? Which evaluation metrics will you use? What code will you reuse? Which code will you write yourself? Also, specify the priority of your implementation efforts. Connect this with your motivation above—i.e., how will this implementation or experimental plan answer the motivating questions above?]
d) (Optional) Preliminary results and interpretation
[Provide a result table/figure on your preliminary results and interpret them. Ideally, you would make initial claims and point to the evidence similar to the claim-evidence structure above. If you have the code running but no results, please explain what is running and how you plan to mitigate this in your project. If you do not have any results, you should give an detailed explanation of what you have tried so far, what has happened, and what you plan to do to get it to work.]
e) (Optional) Code snippet
[Provide ¾ -1 page code snippet in the PDF as a figure (screenshot is fine) showing some part of your implementation efforts. For example, this could be your setup code for re-running the paper's experiments or your implementation of the paper's model/algorithm. This may simply be the setup code including loading the appropriate libraries, preparing the dataset, loading a pretrained model, and evaluating your metric on test data. Please use `\being{figure*}[!ht]` to create a double-column figure. You can also use `\clearpage` to start a new page before showing your screenshot. Please provide an explanation in the figure caption about what the code is.]

You will be required to do a **peer review other students' checkpoint submission** *and* perform a **self-review** of our own work. This will be due one week after the deadline for checkpoint submission (this should become available on Monday after the due date). The basic rubric for the peer review is given below including the next page. *You are also strongly encouraged to write additional constructive comments to the author.* Politeness is required but constructive feedback is encouraged.

The basic rubric for peer review is given below. Scoring is based on your content as well as your reviews + self-review.

1. [Storyline 1] Does the submission contain all components of the Storyline section (i.e., high-level problem, prior work, research gap, contributions)?

| 0 points | 2 points | 4 points | 6 points | 10 points |
|---|---|---|---|---|
| Did not include storyline. | Includes 1 part. | Includes 2 parts. | Includes 3 parts. | Includes all 4 parts. |

2. [Proposed Solution 1] Does the submission include at least one paragraph on the proposed solution?

| 0 points | 2 points | 5 points |
|---|---|---|
| Did not include. | 3 sentences or less. | One paragraph or more. |

3. [Claims-Evidence 1] Does the submission contain 3 claims and 3 corresponding evidence statements?

| 0 points | 1 point | 3 points | 5 points |
|---|---|---|---|
| Did not include. | Only 1 claim+evidence. | Only 2 claims+evidence. | All 3 claims and all 3 corresponding evidences. |

4. [Critique and Discussion 1] Does the submission contain a critique and discussion section?

| 0 points | 2 points | 5 points |
|---|---|---|
| Did not include. | 3 sentences or less. | One paragraph or more. |

5. [Storyline 2] Does the submission contain all components of the Storyline section (i.e., high-level problem, prior work, research gap, contributions)?

| 0 points | 2 points | 4 points | 6 points | 10 points |
|---|---|---|---|---|
| Did not include storyline. | Includes 1 part. | Includes 2 parts. | Includes 3 parts. | Includes all 4 parts. |

6. [Proposed Solution 2] Does the submission include at least one paragraph on the proposed solution?

| 0 points | 2 points | 5 points |
|---|---|---|
| Did not include. | 3 sentences or less. | One paragraph or more. |

7. [Claims-Evidence 2] Does the submission contain 3 claims and 3 corresponding evidence statements?

| 0 points | 1 point | 3 points | 5 points |
|---|---|---|---|
| Did not include. | Only 1 claim+evidence. | Only 2 claims+evidence. | All 3 claims and all 3 corresponding evidences. |

8. [Critique and Discussion 2] Does the submission contain a critique and discussion section?

| 0 points | 2 points | 5 points |
|---|---|---|
| Did not include. | 3 sentences or less. | One paragraph or more. |

9. [Storyline 3] Does the submission contain all components of the Storyline section (i.e., high-level problem, prior work, research gap, contributions)?

| 0 points | 2 points | 4 points | 6 points | 10 points |
|---|---|---|---|---|
| Did not include storyline. | Includes 1 part. | Includes 2 parts. | Includes 3 parts. | Includes all 4 parts. |

10. [Proposed Solution 3] Does the submission include at least one paragraph on the proposed solution?

| 0 points | 2 points | 5 points |
|---|---|---|
| Did not include. | 3 sentences or less. | One paragraph or more. |

11. [Claims-Evidence 3] Does the submission contain 3 claims and 3 corresponding evidence statements?

| 0 points | 1 point | 3 points | 5 points |
|---|---|---|---|
| Did not include. | Only 1 claim+evidence. | Only 2 claims+evidence. | All 3 claims and all 3 corresponding evidences. |

12. [Critique and Discussion 3] Does the submission contain a critique and discussion section?

| 0 points | 2 points | 5 points |
|---|---|---|
| Did not include. | 3 sentences or less. | One paragraph or more. |

13. [Implementation update] Did the submission include an update on the implementation efforts?

| 0 points | 5 points | 10 points | 15 points |
|---|---|---|---|
| Did not include. | 3 sentences or less. | 5 sentences or less. | 6 sentences or more. |

14. [Formatting] Does the paper adhere to the anonymized ICML 2023 double-column format?

| 0 points | 3 points | 5 points |
|---|---|---|
| Incorrectly formatted (e.g., single column, wrong font sizes, etc.) | Not anonymized but correct double-column ICML 2023 format. | Correct anonymized and double-column ICML 2023 format. |

15. How would you rank the quality of this submission relative to other submissions in the class?

| 1 point | 3 points | 5 points |
|---|---|---|
| Below average (lower 20%) | Average (20%-80%) | Above average (upper 20%) |