Guideline for the Paper Reading and Analysis Assignment

CAP4613, Introduction to Deep and Reinforcement Learning, Spring 2025
Department of Computer Science, Florida State University

Points: 100

Maximum Team Size: 2 (In other words, this can be a two-person team project or an individual project; you need to enter the group information on "Paper Reading and Analysis Sign Up Sheet" via the pages in Canvas**)**

Due: Brief Proposal, 11:59pm, Wednesday, April 9th, 2025
      Final Report, 5:00PM, Friday, May 2nd, 2025

Submission: You need to submit electronically via Canvas by uploading a) a pdf file (named "**paper-reading-proposal-Lastnames.pdf**") as your proposal on April 9th, 2025, b) a pdf file (named "**paper-reading-report-Lastnames.pdf**") report (including analysis and experimental results) on May 2nd, 2025, and c) the program(s) you have used (named as "**paper-reading-prog-Lastnames.???**") on May 2nd, 2025; if there are multiple program files, please zip them as a single archive. Here replace "Lastnames" using your last names of the group members in the file names. Only one submission is required for each group.

Purpose: Understanding the advantages and disadvantages of deep and recurrent neural networks, reinforcement learning models, and related techniques requires comparisons and analyses of underlying mechanisms as accuracy and performance metrics alone are not sufficient.

Background: There is very rich literature on various deep neural networks and many authors make the code available with their papers. Therefore, it would benefit all of us and also the community if we could reproduce the results in important papers and analyze their advantages and disadvantages.

Assignment: There are several suggested reading assignment topics available in the "Paper Reading and Analysis Sign Up Sheet". Your group needs to identify the topic first and then find a paper on that topic with code available. While more than one group can choose the same topic, the paper must be different from other ones specified in the table already.

- You need to make sure the dataset(s) used in the paper are available to you and you are able to run the code.
- You need to insert the links to the paper and the code in the sign-up sheet along with your group name.
- You then need to read the paper and replicate the results reported in the paper. As some experiments require the resources not available to you, please explain how you have adjusted the experiments.

Then you need to submit a brief proposal about the paper you have chosen and your plan to replicate the results.

After you have finished replicating the experiments in the paper, you need to prepare a report that documents your effort, the difficulties you have overcome, your replicated results, comparisons with the results in the original paper, analyses, and findings.

Grading
- **Brief Proposal** - 10 points

- **Report** – 30 points
- **Experiment results and analyses -** 60 points
  - Significance of the problem(s)
  - Significance of the dataset(s)
  - Correctness and significance of your experiments
- **Extra Credit option: online or offline video presentation** – 10 points
  - Your presentation should include the following components:
    - It should include a quick summary of the problem and methods in the paper, the original results, and the results you were able to reproduce.
    - Performance analysis: you need to analyze the results and provide insights and support your findings.
    - It should include critical analyses of the paper and suggestions for further improvements and future work.
  - You can either record the presentation and share the link of your recording or give an in-person presentation. In case that you like to give an in-class presentation, all the presentations will be given on Saturday, April 26th, 2025 starting 1:00pm in LOV 353 with term project presentations.

Additional Information

Please note that copying of others' work without proper references is a violation of the academic honor code and is an example of plagiarism. To avoid this, you must cite references properly. Note your team will be graded based on the work you have done, which includes replicated results.

Here is a screenshot of the sign-up sheet.

Paper Reading and Analysis Signup Sheet

Group ID	Members	Topic	Proposed Date for Presentation if applicable; please leave it blank for offline recording	Links to the paper and code and comments
PaG1		Adversarial Attacks on Convolutional Neural Networks		
PaG2		Adversarial Attacks on Large Language Models		
PaG3		MetaFormer		
PaG4		Spiking Neural Networks		
PaG5		Deep Reinforcement Learning		
PaG6		Deep Learning for Science		
PaG7		Deep Learning for Medical Image Analysis		
PaG8		Deep Learning for Medical Diagnosis		
PaG9		In-context Learning		
PaG10		Prompt Engineering		
PaG11		Retrieval Augmented Generation		
PaG12		Multimodal Models		