
Formatting Instructions For NeurIPS 2023

Anonymous Author(s)

Affiliation

Address

email

Abstract

1 Chloe

2 The abstract paragraph should be indented 1/2 inch (3 picas) on both the left- and
3 right-hand margins. Use 10 point type, with a vertical spacing (leading) of 11 points.
4 The word **Abstract** must be centered, bold, and in point size 12. Two line spaces
5 precede the abstract. The abstract must be limited to one paragraph.

6 A short description of your goals, task, model, and (for the final report) results.
7 The abstract should make the motivations and the scope of your project clear so
8 that readers can decide whether they are interested in reading your work.

9 1 Introduction

10 Gabriel

11 A description of the motivation behind your work, why the task you chose is interesting/important,
12 and a summary of your (proposed) approach. The problem that you want to solve should be clearly
13 stated in the introduction: especially the input and output of your model and the format of the input
14 and output. This section should also make it clear why your deep learning approach is reasonable for
15 this problem.

16 2 Background and related work

17 Chloe

18 A summary of the background material that students of CSC413 would not already be familiar with.
19 A description of related work done in the area, and how your approach compares with theirs.

20 If your project builds on previous work, clearly distinguish what they did from what your new
21 contribution is. Also, include a 1-2 sentence summary of other closely related papers. We realize you
22 might not know about all related papers (or have time to carefully read all related papers), and that's
23 OK for this project. Using bibtex is annoying at first, but Google Scholar can give you the bibtex
24 entries.

25 3 Data

26 Taha

27 The dataset used in your model. Include any key exploratory figures that will help readers evaluate
28 the difficulty of your problem and interpret the performance of your model.

29 <https://www.kaggle.com/datasets/mathurinache/math-dataset> [1]

30 TODO: Find another dataset with proofs/numerical data

31 **4 Model architecture**

32 Everyone

33 A description of your (proposed) model architecture. Please propose an architecture during the
34 proposal phase, but it's okay to change your architecture. In the final report, this section should have
35 enough details to reproduce the work, including all hyperparameters and 3 training settings that you
36 used.

37 Selected model: PaLM2

38 Google PaLM2 = transformers + modifications: <https://arxiv.org/pdf/2204.02311>

39 Attempt to combine this with PaLM2:

40 SympyGPT: Transformers for symbolic integration proofs: <https://arxiv.org/html/2410.02666v1>

41 Better with word problems? Architecture: PaLM, GPT4: [http://research.google/blog/minerva-solving-](http://research.google/blog/minerva-solving-quantitative-reasoning-problems-with-language-models/)
42 [quantitative-reasoning-problems-with-language-models/](http://research.google/blog/minerva-solving-quantitative-reasoning-problems-with-language-models/)

43 We could also combine the two models (unlikely but look into it):

44 Standard Transformers Architecture: <https://arxiv.org/abs/1706.03762>

45 **5 Model architecture figure**

46 Takia

47 A figure that helps show the overall model or idea. The idea is to make your paper more accessible,
48 especially to readers who are starting by skimming your paper. You must create a new figure, not
49 just use someone else's, even with attribution. Be careful that all figure text are legible, and are
50 approximately the same size as the main text.

51 **6 Ethical considerations**

52 Taha

53 Potential ethical issues posed by the use or misuse of your model. Your report should transparently
54 communicate the known or anticipated consequences of building and using machine learning models
55 on this task.

56 <https://neurips.cc/public/EthicsGuidelines>

57 **7 Work division**

58 A description of how the work will be divided between the team members, and how the team members
59 will be working together (e.g. meet every week Tuesday 4-5 pm).

60 Chloe - Background and Related Work, Abstract, Model Architecture

61 Takia - Model Architecture Figure, Model Architecture

62 Gabriel - Introduction, Model Architecture

63 Taha - Data, Ethical Considerations, Model Architecture

64 The team will work on each part, and meet every weekend for additional discussions.

65 **References**

66 [1] Dan Hendrycks, Collin Burns, Saurav Kadavath, Akul Arora, Steven Basart, Eric Tang, Dawn
67 Song, and Jacob Steinhardt. Measuring mathematical problem solving with the math dataset.
68 *arXiv preprint arXiv:2103.03874*, 2021.

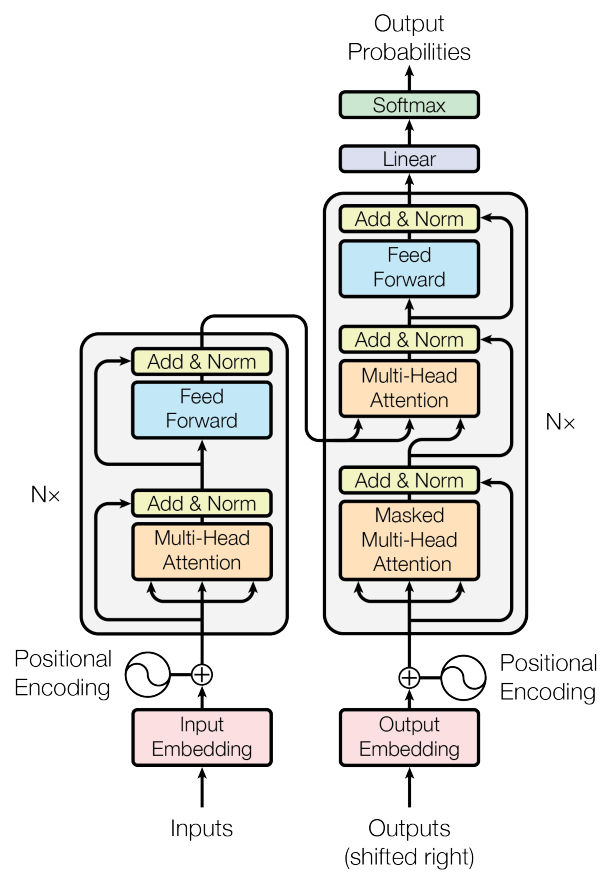


Figure 1: The Transformer - model architecture.