Formatting instructions for Tackling Climate Change with Machine Learning: workshop at NeurIPS 2022

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Abstract

The abstract paragraph should be indented ½ inch (3 picas) on both the left- and right-hand margins. Use 10 point type, with a vertical spacing (leading) of 11 points. The word **Abstract** must be centered, bold, and in point size 12. Two line spaces precede the abstract. The abstract must be limited to one paragraph.

1 About the workshop

Many in the ML community wish to take action on climate change, but are unsure of the pathways through which they can have the most impact. This workshop highlights work that demonstrates that, while no silver bullet, ML can be an invaluable tool in reducing greenhouse gas emissions and in helping society adapt to the effects of climate change. Climate change is a complex problem, for which action takes many forms - from theoretical advances to deployment of new technology. Many of these actions represent high-impact opportunities for real-world change, and are simultaneously interesting academic research problems.

This workshop is part of a series (NeurIPS 2022, ICML 2021, NeurIPS 2020, ICLR 2020, NeurIPS 2019, and ICML 2019). For this iteration of the workshop, the keynote talks and panel discussions will be particularly focused on ML as an enabling technology for empowering decision-makers in tackling climate change, though submitted works may be on any topic of relevance at the intersection of climate change and machine learning.

2 Submission of papers

Electronic submissions are required, via this submission website:

    https://cmt3.research.microsoft.com/CCAINeurIPS2022/

Please read the instructions below carefully and follow them faithfully.

3 Tracks

There are three tracks for submissions: **Papers, Proposals, and Tutorial**s, each described in detail below. Submissions are limited to **4 pages for the Papers track**, and **3 pages for the Proposals track**. Tutorials do not have a page limit. References do not count towards this total. Supplementary appendices are allowed but will be read at the discretion of the reviewers. All submissions must explain why the proposed work has (or could have) positive impacts regarding climate change.

3.0.1 Papers

Work that is in progress, published, and/or deployed.

Submissions for the Papers track should describe projects relevant to climate change that involve machine learning. These may include (but are not limited to) academic research; deployed results from startups, industry, public institutions, etc.; and climate-relevant datasets.

Submissions should provide experimental or theoretical validation of the method presented, as well as specifying what gap the method fills. Authors should clearly illustrate a pathway to climate impact, i.e., identify the way in which this work fits into broader efforts to address climate change. Algorithms need not be novel from a machine learning perspective if they are applied in a novel setting. Details of methodology need not be revealed if they are proprietary, though transparency is highly encouraged.

Submissions creating novel datasets are welcomed. Datasets should be designed to permit machine learning research (e.g. formatted with clear benchmarks for evaluation). In this case, baseline experimental results on the dataset are preferred, but not required.

Submissions are limited to 4 pages. References do not count toward this total. Submissions are due Sept. 18, 2022.

3.0.2 Proposals

Early-stage work and detailed descriptions of ideas for future work.

Submissions for the Proposals track should describe detailed ideas for how machine learning can be used to solve climate-relevant problems. While less constrained than the Papers track, Proposals will be subject to a very high standard of review. Ideas should be justified as extensively as possible, including motivation for why the problem being solved is important in tackling climate change, discussion of why current methods are inadequate, explanation of the proposed method, and discussion of the pathway to climate impact. Preliminary results are optional.

Submissions are limited to 3 pages. References do not count toward this total. Submissions are due Sept. 18, 2022.

3.0.3 Tutorials

Interactive notebooks for insightful step-by-step walkthroughs.

Submissions for the Tutorials track should introduce or demonstrate the use of ML methods and tools such as libraries, packages, services, datasets, or frameworks to address a problem related to climate change. Tutorial proposals (due Aug 18) should take the form of an abstract and should include a clear and concise description of users' expected learning outcomes from the tutorial. Accepted submissions (to be notified by Aug 25) will be given about 3 weeks for the initial tutorial development (midterm deadline on Sep 18), after which tutorial creators will collaborate with the Tutorials Team, who will review the tutorials periodically and provide iterative feedback, while the creators continue to develop and improve their work over the course of another 8 weeks. Midterm tutorial submissions (due Sep 18) and Final tutorial submissions (due Nov 3) should be in the form of executable notebooks (e.g. Jupyter, Colab). Submissions will be reviewed based on their potential impact and overall usability by the climate and AI research community.

3.1 Style

Papers must be prepared according to the instructions presented here. Submissions are limited to **4 pages for the Papers track**, and **3 pages for the Proposals track**. Tutorials do not have a page limit. Papers that exceed these page limitswill not be reviewed, or in any other way considered for presentation at the workshop.

Authors are required to use the workshop style files (modified from the NeurIPS style files), obtainable on the website as indicated below. Please make sure you use the current files and not previous versions. Tweaking the style files may be grounds for rejection.

3.2 Retrieval of style files

The style files for this workshop are available on the World Wide Web at

> http://climatechange.ai/files/TCCML_NeurIPS_2022_Style_File.zip

The file `tackling_climate_workshop.pdf` contains these instructions and illustrates the various formatting requirements your paper must satisfy.

The file `tackling_climate_workshop.tex` may be used as a "shell" for writing your paper. Alternatively, the file `tackling_climate_workshop.docx` can be used as well. Replace the author, title, abstract, and text of the paper with your own. Please remember that at submission time your document should be anonymized and the only accepted format is PDF.

The only supported style file for LaTeX is `tackling_climate_workshop_style.sty`, rewritten for LaTeX 2_ε. **Previous style files for LaTeX 2.09, or NeurIPS conference style file, are not accepted.**

The LaTeX style file contains three optional arguments: `final`, which creates a camera-ready copy, `preprint`, which creates a preprint for submission to, e.g., arXiv, and `nonatbib`, which will not load the `natbib` package for you in case of package clash.

Preprint option   If you wish to post a preprint of your work online, e.g., on arXiv, using the workshop style, please use the `preprint` option. This will create a nonanonymized version of your work with the text "Preprint. Work in progress." in the footer. This version may be distributed as you see fit. Please **do not** use the `final` option, which should **only** be used for papers accepted to the workshop. Note that all workshops are non-archival; submission does not preclude future publication.

At submission time, please omit the `final` and `preprint` options. This will anonymize your submission and add line numbers to aid review. Please do *not* refer to these line numbers in your paper as they will be removed during generation of camera-ready copies.

The file `tackling_climate_workshop.tex` may be used as a "shell" for writing your paper. Replace the author, title, abstract, and text of the paper with your own.

The formatting instructions contained in these style files are summarized in Sections 4, 5, and 6 below.

4 General formatting instructions

The text must be confined within a rectangle 5.5 inches (33 picas) wide and 9 inches (54 picas) long. The left margin is 1.5 inch (9 picas). Use 10 point type with a vertical spacing (leading) of 11 points. Times New Roman is the preferred typeface throughout, and will be selected for you by default. Paragraphs are separated by ½ line space (5.5 points), with no indentation.

The paper title should be 17 point, initial caps/lower case, bold, centered between two horizontal rules. The top rule should be 4 points thick and the bottom rule should be 1 point thick. Allow ¼ inch space above and below the title to rules. All pages should start at 1 inch (6 picas) from the top of the page.

The version of the paper submitted for review should have "Anonymous Author(s)" as the author of the paper. For the final version, authors' names are set in boldface, and each name is centered above the corresponding address. The lead author's name is to be listed first (left-most), and the co-authors' names (if different address) are set to follow. If there is only one co-author, list both author and co-author side by side.

Please pay special attention to the instructions in Section 6 regarding figures, tables, acknowledgments, and references.

5 Headings: first level

All headings should be lower case (except for first word and proper nouns), flush left, and bold.

First level headings are in point size 12. One line space before the first level heading and ½ line space after the first level heading.

5.1 Headings: second level

Second level headings are in point size 10. One line space before the second level heading and ½ line space after the second level heading.

5.1.1 Headings: third level

Third level headings are in point size 10. One line space before the third level heading and ½ line space after the third level heading.

Paragraphs In LaTeX there is also a \paragraph command available, which sets the heading in bold, flush left, and inline with the text, with the heading followed by 1 em of space. If using this style option in a docx file, please follow these instructions accordingly.

6 Citations, figures, tables, references

These instructions apply to everyone, regardless of the formatter being used.

6.1 Citations within the text

Citations within the text should be numbered consecutively. The corresponding number is to appear enclosed in square brackets, such as [1] or [2]-[5]. The corresponding references are to be listed in the same order at the end of the paper, in the **References** section. (Note: the standard BIBTEX style unsrt produces this.) As to the format of the references themselves, any standard reference style is acceptable, as long as it is used consistently.

As submission is double blind, refer to your own published work in the third person. That is, use "In the previous work of Jones et al. [4]," not "In our previous work [4]." If you cite your other papers that are not widely available (e.g., a journal paper under review), use anonymous author names in the citation, e.g., an author of the form "A. Anonymous."

When using the LaTeX template, the natbib package will be loaded for you by default. Citations may be author/year or numeric, as long as you maintain internal consistency.

For LaTeX use, note that the documentation for natbib may be found at

> http://mirrors.ctan.org/macros/latex/contrib/natbib/natnotes.pdf

Of note is the command \citet, which produces citations appropriate for use in inline text. For example,

> \citet{hasselmo} investigated\dots

produces

> Hasselmo, et al. (1995) investigated...

If you wish to load the natbib package with options, you may add the following before loading the neurips_2020 package:

> \PassOptionsToPackage{options}{natbib}

If natbib clashes with another package you load, you can add the optional argument nonatbib when loading the style file:

> \usepackage[nonatbib]{tackling_climate_workshop_style}

6.2 Footnotes

Footnotes should be used sparingly. If you do require a footnote, indicate footnotes with a number[1] in the text. Place the footnotes at the bottom of the page on which they appear. Precede the footnote with a horizontal rule of 2 inches (12 picas).

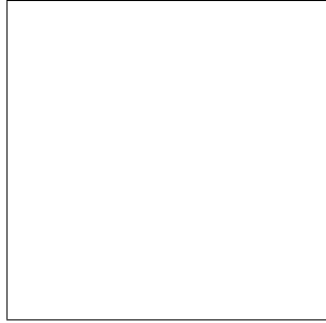---

[1]Sample of the first footnote.

Figure 1: Sample figure caption.

Table 1: Sample table title

	Part	
Name	Description	Size (μm)
Dendrite	Input terminal	$\sim$100
Axon	Output terminal	$\sim$10
Soma	Cell body	up to 10^6

Note that footnotes are properly typeset *after* punctuation marks.[2]

6.3 Figures

All artwork must be neat, clean, and legible. Lines should be dark enough for purposes of reproduction. The figure number and caption always appear after the figure. Place one line space before the figure caption and one line space after the figure. The figure caption should be lower case (except for first word and proper nouns); figures are numbered consecutively.

Make sure the figure caption does not get separated from the figure. Leave sufficient space to avoid splitting the figure and figure caption.

You may use color figures. However, it is best for the figure captions and the paper body to be legible if the paper is printed in either black/white or in color, and that colormaps consider accessibility to the visually impaired (e.g. red/green colorblindness).

6.4 Tables

All tables must be centered, neat, clean and legible. The table number and title always appear before the table. See Table 1.

Place one line space before the table title, one line space after the table title, and one line space after the table. The table title must be lower case (except for first word and proper nouns); tables are numbered consecutively.

Note that publication-quality tables *do not contain vertical rules.* We strongly suggest the use of the `booktabs` package, which allows for typesetting high-quality, professional tables:

https://www.ctan.org/pkg/booktabs

This package was used to typeset Table 1.

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[2]As in this example.

7 Final instructions

Do not change any aspects of the formatting parameters in the style files. In particular, do not modify the width or length of the rectangle the text should fit into, and do not change font sizes (except perhaps in the **References** section; see below). Please note that pages should be numbered.

8 Preparing PDF files

Please prepare submission files with paper size "US Letter," and not, for example, "A4."

Fonts were the main cause of problems in the past years. Your PDF file must only contain Type 1 or Embedded TrueType fonts. Here are a few instructions to achieve this.

- For MSWord users: from the print menu, click the PDF drop-down box, and select "Save as PDF...".

- For LaTeX users: you should directly generate PDF files using `pdflatex`.

- You can check which fonts a PDF files uses. In Acrobat Reader, select the menu Files>Document Properties>Fonts and select Show All Fonts. You can also use the program `pdffonts` which comes with `xpdf` and is available out-of-the-box on most Linux machines.

- The IEEE has recommendations for generating PDF files whose fonts are also acceptable for NeurIPS. Please see http://www.emfield.org/icuwb2010/downloads/IEEE-PDF-SpecV32.pdf

- `xfig` "patterned" shapes are implemented with bitmap fonts. Use "solid" shapes instead.

- The `\bbold` package almost always uses bitmap fonts. You should use the equivalent AMS Fonts:

    `\usepackage{amsfonts}`

    followed by, e.g., \mathbb{R}, \mathbb{N}, or \mathbb{C} for $\mathbb{R}$, $\mathbb{N}$ or $\mathbb{C}$. You can also use the following workaround for reals, natural and complex:

    ```
    \newcommand{\RR}{I\!\!R} %real numbers
    \newcommand{\Nat}{I\!\!N} %natural numbers
    \newcommand{\CC}{I\!\!\!\!C} %complex numbers
    ```

    Note that `amsfonts` is automatically loaded by the `amssymb` package.

If your file contains type 3 fonts or non embedded TrueType fonts, we will ask you to fix it.

8.1 Margins in LaTeX

With LaTeX most of the margin problems come from figures positioned by hand using `\special` or other commands. We suggest using the command `\includegraphics` from the `graphicx` package. Always specify the figure width as a multiple of the line width as in the example below:

```
\usepackage[pdftex]{graphicx} ...
\includegraphics[width=0.8\linewidth]{myfile.pdf}
```

See Section 4.4 in the graphics bundle documentation (http://mirrors.ctan.org/macros/latex/required/graphics/grfguide.pdf)

A number of width problems arise when LaTeX cannot properly hyphenate a line. Please give LaTeX hyphenation hints using the `\-` command when necessary.

References

References follow the acknowledgments. Use unnumbered first-level heading for the references. Any choice of citation style is acceptable as long as you are consistent. It is permissible to reduce the font size to `small` (9 point) when listing the references. **Note that the Reference section does not**

count towards the pages of content that are allowed; 4 pages for Papers track and 3 pages for Proposals track.

[1] Alexander, J.A. & Mozer, M.C. (1995) Template-based algorithms for connectionist rule extraction. In G. Tesauro, D.S. Touretzky and T.K. Leen (eds.), *Advances in Neural Information Processing Systems 7*, pp. 609–616. Cambridge, MA: MIT Press.

[2] Bower, J.M. & Beeman, D. (1995) *The Book of GENESIS: Exploring Realistic Neural Models with the GEneral NEural SImulation System.* New York: TELOS/Springer–Verlag.

[3] Hasselmo, M.E., Schnell, E. & Barkai, E. (1995) Dynamics of learning and recall at excitatory recurrent synapses and cholinergic modulation in rat hippocampal region CA3. *Journal of Neuroscience* **15**(7):5249-5262.