
Generalized tensor response regression with multilinear covariates

Author 1
Institution 1

Author 2
Institution 2

Author 3
Institution 3

Abstract

The Abstract paragraph should be indented 0.25 inch (1.5 picas) on both left and right-hand margins. Use 10 point type, with a vertical spacing of 11 points. The **Abstract** heading must be centered, bold, and in point size 12. Two line spaces precede the Abstract. The Abstract must be limited to one paragraph.

1 Introduction

Many contemporary scientific and engineering studies collect multi-way array data, a.k.a. tensor, accompanied by additional covariates. For example, in neuroimaging analysis, researchers measure brain connections from a sample of individuals with the goal to identifying the brain edges affected by individual covariates. In social network analysis, explain the connection (communitiy) by attributable of both nodes. ... (add two pictures; one for estimating network population; another for estimating link prediction) In this article, we provide a general treatment to these seemingly different problems.

2 Model

Let $\mathcal{Y} = \llbracket y_{i_1, \dots, i_K} \rrbracket \in R^{d_1 \times \dots \times d_K}$ denote an order- K data tensor of interest. Each mode of the tensor corresponds a certain feature,

In addition, suppose we observe covariate $X_k = \llbracket x_{pi} \rrbracket \in R^{p_k \times d_k}$ on the mode- k , where x_{pi} i

2.1 Second Level Heading

Second level headings are initial caps, flush left, bold, and in point size 10. Use one line space before the

second level heading and one-half line space after the second level heading.

2.1.1 Third Level Heading

Third level headings are flush left, initial caps, bold, and in point size 10. Use one line space before the third level heading and one-half line space after the third level heading.

Fourth Level Heading Fourth level headings must be flush left, initial caps, bold, and Roman type. Use one line space before the fourth level heading, and place the section text immediately after the heading with no line break, but an 11 point horizontal space.

2.2 CITATIONS, FIGURES, REFERENCES

2.2.1 Citations in Text

Citations within the text should include the author's last name and year, e.g., (Cheesman, 1985). References should follow any style that you are used to using, as long as their style is consistent throughout the paper. Be sure that the sentence reads correctly if the citation is deleted: e.g., instead of "As described by (Cheesman, 1985), we first frobulate the widgets," write "As described by Cheesman (1985), we first frobulate the widgets."

2.2.2 Footnotes

Indicate footnotes with a number¹ in the text. Use 8 point type for footnotes. Place the footnotes at the bottom of the column in which their markers appear, continuing to the next column if required. Precede the footnote section of a column with a 0.5 point horizontal rule 1 inch (6 picas) long.²

2.2.3 Figures

All artwork must be centered, neat, clean, and legible. All lines should be very dark for purposes of reproduction, and art work should not be hand-drawn. Figures

Preliminary work. Under review by AISTATS 2020. Do not distribute.

¹Sample of the first footnote.

²Sample of the second footnote.

may appear at the top of a column, at the top of a page spanning multiple columns, inline within a column, or with text wrapped around them, but the figure number and caption always appear immediately below the figure. Leave 2 line spaces between the figure and the caption. The figure caption is initial caps and each figure should be numbered consecutively.

Make sure that the figure caption does not get separated from the figure. Leave extra white space at the bottom of the page rather than splitting the figure and figure caption.

This figure intentionally left non-blank

Figure 1: Sample Figure Caption

2.2.4 Tables

All tables must be centered, neat, clean, and legible. Do not use hand-drawn tables. Table number and title always appear above the table. See Table 1.

Use 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 initial caps and each table numbered consecutively.

Table 1: Sample Table Title

PART	DESCRIPTION
Dendrite	Input terminal
Axon	Output terminal
Soma	Cell body (contains cell nucleus)

3 SUPPLEMENTARY MATERIAL

If you need to include additional appendices during submission, you can include them in the supplementary material file.

4 INSTRUCTIONS FOR CAMERA-READY PAPERS

For the camera-ready paper, if you are using L^AT_EX, please make sure that you follow these instructions. (If you are not using L^AT_EX, please make sure to achieve the same effect using your chosen typesetting package.)

1. Download `fancyhdr.sty` – the `aistats2020.sty` file will make use of it.
2. Begin your document with

```
\documentclass[twoside]{article}
\usepackage[accepted]{aistats2020}
```

The `twoside` option for the class `article` allows the package `fancyhdr.sty` to include headings for even and odd numbered pages. The option `accepted` for the package `aistats2020.sty` will write a copyright notice at the end of the first column of the first page. This option will also print headings for the paper. For the *even* pages, the title of the paper will be used as heading and for *odd* pages the author names will be used as heading. If the title of the paper is too long or the number of authors is too large, the style will print a warning message as heading. If this happens additional commands can be used to place as headings shorter versions of the title and the author names. This is explained in the next point.

3. If you get warning messages as described above, then immediately after `\begin{document}`, write

```
\runningtitle{Provide here an alternative
shorter version of the title of your
paper}
\runningauthor{Provide here the surnames
of the authors of your paper, all
separated by commas}
```

Note that the text that appears as argument in `\runningtitle` will be printed as a heading in the *even* pages. The text that appears as argument in `\runningauthor` will be printed as a heading in the *odd* pages. If even the author surnames do not fit, it is acceptable to give a subset of author names followed by “et al.”

4. Use the file `sample_paper.tex` as an example.
5. The camera-ready versions of the accepted papers are 8 pages, plus any additional pages needed for references.
6. If you need to include additional appendices, you can include them in the supplementary material file.
7. Please, don’t change the layout given by the above instructions and by the style file.

Acknowledgements

Use the unnumbered third level heading for the acknowledgements. All acknowledgements go at the end of the paper.

References

References follow the acknowledgements. Use an unnumbered third level heading for the references section. Any choice of citation style is acceptable as long as you are consistent. Please use the same font size for references as for the body of the paper—remember that references do not count against your page length total.

References

- J. Alspector, B. Gupta, and R. B. Allen (1989). Performance of a stochastic learning microchip. In D. S. Touretzky (ed.), *Advances in Neural Information Processing Systems 1*, 748–760. San Mateo, Calif.: Morgan Kaufmann.
- F. Rosenblatt (1962). *Principles of Neurodynamics*. Washington, D.C.: Spartan Books.
- G. Tesauro (1989). Neurogammon wins computer Olympiad. *Neural Computation* **1**(3):321–323.