

# Neural Network and Deep Learning Project Report

## Comparison Between Different Convolution Neural Network for EEG 4-class Motor Classification.

YaoHsing Tseng  
*Mechanical engineer, UCLA.*  
*Westwood, CA, US*  
*Tseng7733@gmail.com*

Second Author Name  
*Dept. Affiliation,*  
*School/Corp.*  
*City, State, Country*  
*email address@net.com*

Third Author Name  
*Dept. Affiliation,*  
*School/Corp.*  
*City, State, Country*  
*email address@net.com*

### Abstract

In this project we aim to classify EEG data provided by the BCI competition. The EEG data can be classified into four different motor tasks (i.e. left hand, right hand, both feet, and tongue.) We select several neural networks to accomplish this task and compare their performance. Also,

### 1. Introduction

The proceedings are the records of the conference. ACM hopes to give these conference by-products a single, high-quality appearance. To do this, we ask that authors follow some simple guidelines. In essence, we ask you to make your paper look exactly like this document. The easiest way to do this is simply to down-load a template from [1], and replace the content with your own material.

### 2. Page Size & Page Limit

All material on each page should fit within a rectangle of 18x23.5 cm (7"x9.25"), centered on the page, beginning 1.9 cm (.75") from the top of the page and ending with 2.54 cm (1") from the bottom. The right and left margins should be 1.9 cm (.75"). The text should be in two 8.45 cm (3.33") columns with a .83 cm (.33") gutter. Camera-ready submissions must be 8 pages in length or less.

### 3. Text & Headings

For body text, please use a 10-point Times Roman font, or other Roman font with serifs, as close as possible in appearance to Times Roman in which these guidelines have been set. The goal is to have a 10-point text, as you see here. Please use sans-serif or non-proportional fonts only for special purposes, such as distinguishing source code text. If Times New Roman is not available, try the font named Computer Modern Roman. On a Macintosh, use the font named Times. Right margins should be justified, not ragged.

The following is an example of what a bulleted list should look like:

- All bullets should start at the same point.
- Spacing between the bullets can vary to produce good column and page breaks.
- The use of hanging indent is recommended.

- Numbered lists should follow similar layout

### 3.1. Title and Authors

The title (Times New Roman<sup>1</sup> 14-point bold), authors' names (Times New Roman 12-point) and affiliations (Times New Roman 12-point italics) run across the full width of the page. We also recommend e-mail addresses for all authors. See the top of this page for three addresses. If only one address is needed, center all address text. For two addresses, use two centered columns, and so on. If more than three authors, you may have to improvise.<sup>2</sup>

### 3.2. Subsequent Pages

For pages other than the first page, start at the top of the page, and continue in double-column format. The two columns on the last page should be as close to equal length as possible.

**Table 1. Table captions should be placed above the table**

Graphics	Top	In-between	Bottom
Figures	Good	Body text for the tables should be Times Roman 10 pt.	
Text	Graphs		

### 3.3. References and Citations

Footnotes should be Times New Roman 8-point, and ragged right. Ragged right was decided because of many web addresses being used.

A numbered list at the end of the article, ordered alphabetically by first author, and referenced by numbers in brackets [1]. See the examples of citations at the end of this document. Within this template file, use the style named references for the text of your citation. The body text of the citation/references section should be 10 pt. Times New Roman.

<sup>1</sup> If Helvetica is not available on your machine, Arial may be used as a substitute.

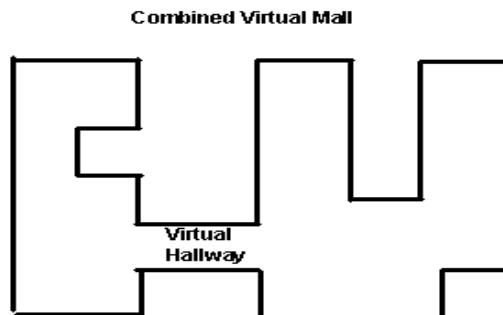
<sup>2</sup> If necessary, you may place some address information in a footnote, or in a named section at the end of your paper. Please make footnotes Times New Roman 8 pt., this will match the ACM copyright statement when put in place.

References should be published materials accessible to the public. Internal technical reports may be cited only if they are easily accessible (i.e., give the address to obtain the report within your citation) and may be obtained by any reader. Private communications can be acknowledged, not referenced (e.g., “[Robertson, personal communication]”). Proprietary information may not be cited.

### 3.4. Page Numbering, Headers and Footers

Do not include headers, footers or page numbers in your submission. These will be added when the publications are assembled.

## 4. Figures/Captions



**Figure 1. Insert caption to place caption below the figure.**

Place tables/figures/images in text as close to the reference as possible (see Figure 1). Figures may extend across both columns to a maximum width of 17.78 cm (7”).

Captions should be Helvetica bold 10-point. They should be numbered (e.g., “Table 1” or “Figure 2”). Please note that the words “Table” and “Figure” are spelled out. Figure captions should be centered beneath the image or

picture, and table captions should be centered above the table body.

## 5. Section Heads

The heading of a section should be in Times New Roman Bold 12-point bold, flush left with an additional 6 points of white space above the section head. Sections and subsequent subsections should flush left.

### 5.1. Subsections

The heading of subsections should be in Times New Roman 11-point bold with only the initial letters capitalized. For subsections and subsubsections, a word like *the* or *a* is not capitalized unless it is the first word of the header.

#### 5.1.1. Subsubsections

The heading for subsubsections should be in Times New Roman 10-point italic with initial letters capitalized and 6 points of white space above the subsubsection head.

## Acknowledgments

Your appreciation to employers, co-workers, department heads, and/or institutions that issued you a grant can be acknowledged in this section.

## References

- [1] Gennari, J., et al., Templates for IEEE Proceedings, available at <http://www.sheridanprinting.com/ieee/ieee.htm>
- [2] Panther, J. G., *Digital Communications*, 3<sup>rd</sup> ed., Addison-Wesley, San Francisco, CA (1999).
- [3] Schneider, M., “Guidelines for Bias-Free Writing,” PhD Thesis, Indiana University, Bloomington, IN (1995).

**Columns on Last Page Should Be Made As Close As Possible to Equal Length, please remove these two lines on your submission.**