DAOHQ – Experimental Time Series Review

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*Abstract* – The following experimental time series review intends on training, testing, and deploying the following time series models and algorithms onto real-time data such as Volume USD data or similar quantitative metrics used to analyze and record Decentralized Autonomous Organizations (DAOs). In the next few sections, this paper will cover the development and testing phases of the models, as well as the rational for why such models are necessary for financial analysis.

*Index Terms* – Long-Short Term Memory (LSTMs), Gated Rectified Units (GRUs), Recurrence Formula, Autoregressive Moving Average (ARMA), Autoregressive Integrated Moving Average (ARIMA), Time Series Analysis (TSA), Time Series Forecasting (TSF), Decentralized Autonomous Organizations (DAOs)

Introduction

Since the dawn of cryptocurrency, many different independent organizations have created democratically owned and managed tokens that allow users to systematically and strategically increase the value of their assets through climbing up the ranks of the DAO. However, this has created an abundance of token data that tracks metrics similar to those of standard stocks seen in the TSX. This abundance of data shall not be ignored and can be used to assist users in making strategic decisions in deciding upon which token they should invest in. The latter of this paper intends on elaborating on how this data can be used to the advantage of the companies and their clients.

Follow these instructions to help you use this template more easily. When you use this file, select “Print Layout” from the “View” menu (View | Print Layout), which will allow you to see the two-column format. You may then type over sections by using the cut and paste commands listed under the Edit menu (Edit | Paste) into this document and/or by using the markup styles. Finally, enable “Show” (paragraph mark icon) so you can see the various formatting features. **We suggest you use this document as your guide and simply cut and paste your text over the material in this document. If you MUST use Google docs, focus on your content and when that’s set, cut and paste it into this template.**

Overall Format Specifications

All papers must use the following layout:

* 8 1/2” x 11” paper size
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* Top margin: 0.75”
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* Left and right margins: 0.75”
* Spacing between columns: 0.20”
* Column width: 3.4”
* Indents - first paragraph of section - none
* Indents - all other paragraphs - .25”
* Header and Footers 0.5 inches

Set all these values using the “FILE” Menu. Select the Page Setup – Margins tab option and click on portrait orientation option. The above margin dimensions can then be inserted into the Page Setup Window. Now select the Paper tab and click on the paper size and select the letter paper size. Next, select the Page Setup – Layout tab and set the Header and Footer to 0.5 inches. To set the column width, click anywhere in the document within the two column format, then Select the Columns for the Format menu. Click on the Equal Column Width and set the spacing. Make sure you also apply these changes to “This Section.”

When formatting your document, make consistent use of punctuation marks and spelling. Either American or British formatting is acceptable, but it must be consistent, not a mix. For example,

* Putting all commas and periods either inside (American) or outside (British) of quotation marks
* Use of single/double quotes, e.g. 'service center' (British) rather than “service center” (American).
* Spellings such as grey and disc (British) vs. gray and disk (American).

Paper Title and Author Data

The title and author data is in a one-column format, while the rest of the paper is in a two-column format. To accomplish this, a continuous section break is used. There are two ways to setup this format: 1) Use this template as a guide or 2) make your own. If you wish to make your own, it is suggested that you open a new document and begin by inserting the title and author information in the standard one-column format. **Please adhere to the following style guidelines:**

* **Paper title**: This information should be placed at the top of the first page in 24 point, Times New Roman in Title case, and centered. This style is defined under the style menu of this document as “TITLE.” It is NOT bold.
* Insert a 11 point blank line between the Title and the Author listing.
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Paper Body Format

I. Column Format Instructions

The title and author data is in one-column format, while the rest of the paper is in two-column format. To accomplish this, most word processors have a section break that is installed to separate the one and two-column format. For example, in *Word*, under the Insert menu select Breaks – Continuous.

After you enter the title and author information enter a few blank lines and then insert a Continuous section break. Now you must define this section to be in two-column format. To do this in *Word*, under the “Format” menu select “Columns.” This option will open the Columns window. It has an input box for the number of columns. Enter 2 and then set the spacing to 0.2” and select equal column widths. If you have the margin widths set correctly, the width of the column should display as 3.40”. If it does not, go to the “File” menu and select “Page Setup - Margins.” This will open the “Page Setup” window that will allow you to set the top and bottom margins to 1” and the right and left margins to 0.75.”

II. Font and Spacing Instructions

Use the full justify option for your paragraphs, and use two-columns for all text. The two columns must always exhibit equal lengths and you should try to fill your last page as much as possible. To obtain such results, you are free to adjust the figure sizes provided this does not compromise their clarity. Use one line of space between text and section headings. Use one line of space between text and captions, equations, and tables. Use the spelling and grammar checkers. Do not use the “hyphenation” feature in *Word*. Please use the following font and alignment instructions:

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* **Section Headings**: 10 point, Times New Roman, bold, centered, use Small Caps with paragraph spacing of 8 points above and 8 points below. For example, “Page Layout” on page one of this document is a Section Heading (this style is defined under the style menu of this document as “Section Headings”). To convert the text to small caps, click on Format, Font. This will open the “Font Window” where you can select the Small Cap option. If a section heading is at the top of a column, set the “above” spacing in the paragraph window to 0 points. See “Copyright” and “References” on p. 3.
* **Section Sub-headings**: 10 point, Times New Roman, italic, left justified, with spacing of 6 points above and below. For example, “Font and Spacing Instructions” on this page is a Section Sub Heading (this style is defined under the style menu of this document as “Subheading”). For multiple levels of subheadings, use *Ia* and *Iai*, for example.
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Figures, Tables, and Equations

All figures and tables must fit either one or two-column width, 3.4” or 7” wide respectively. It is suggested that you use one-column figures and tables whenever possible. If your table or figure will not fit into one column, then insert a continuous section break before and after the table or figure, as described above and define it as one-column. To make the paper read easier, you may want to position any table or figure that requires the full width of the paper either at the bottom of the page or the top of a new page.

Do not abbreviate “Table” or “Figure.” Use Roman numerals FOR BOTH. Use the following format guidelines for figures and tables:

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* Leave one blank line above and below each Table or Figure.
* **Figure and table captions**: 8 point, Times New Roman, Small Caps, centered. Place below the figure or table headings (this style is defined under the style menu of this document as “Figure Caption”). Make sure you use title case.
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Table I and Figure I below illustrates proper Table and Figure formatting. Avoid placing figures and tables before their first mention in the text. IEEE has the following rules for inserting graphics as figures:

* The manuscript’s graphics should have resolutions of 600 dpi for monochrome, 300 dpi for grayscale, and 300 dpi for color.
* Graphics should be inserted into the manuscript file by clicking on “Insert – Photo – Picture From File.” This means you must save every graphics as a separate file. Do not use cut and paste to insert graphics.
* Do not link to a graphic. When inserting figures or tables be sure you insert the figure and not just a link to the figure. The best way to make sure you are doing this correctly is to save your paper, then open the file on a different machine and make sure all your figures are correct. If you insert the link instead of the figure or table, a box with a big red x will appear in the location where the table or figure is supposed to be located.
* **DO NOT use text boxes for forcing in a table or figure that needs the full width of the paper.**
* **DO NOT use text boxes for captions.**

TABLE I

Point Sizes and Type Styles

|  |  |  |
| --- | --- | --- |
| Points | Type of Text | Type Styles |
| 8  10  8  8  8  10  10  10  10  10  10  11  24 | Table text  Figure and Table Headings  Figure and Table Captions  Footnote  Reference list  Abstract  Index Terms  Section Titles  Main Text and Equations  Subheadings  Author email  Author name  Title | UPPERCASE  Small Caps  **Bold**  **Small Caps, Bold**  *Italic*, Left justified  Title Case |



Figure I

Logo of the Institute for Electrical and Electronics Engineers

Number equations consecutively with equation numbers in parentheses flush with the right margin, as in (1). This is best achieved by using a right tab. DO NOT USE SPACES to position your equations.

*2jk ∂u/∂z = ∂2u/∂x2 + k2 (n2* - β*2) u*  (1)

Refer to “(1),” not “Eq. (1)” or “Equation (1),” except at the beginning of a sentence: “Equation (1) is….”

Make sure you use only the “Symbol Font” for all your symbols, or embed all your different symbol fonts within the file when you save the document.

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Template Use

**DO NOT ALTER THE TEMPLATE.** Authors who change margins and font sizes, do not use the requested figure and table title formats, do not use the requested reference format, or otherwise do not use the template will have their paper returned to them for correction.

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Other formatting issues that will result in your paper being sent back to you to re-edit include having tables breaking over columns, (sub) headings being separated from the related text over column or page breaks, the use of hard returns (the enter key) to force a column or page break (use Insert, Break, then either Page or Column).

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The preferred spelling of the word “acknowledgment” in American English is without an “e” after the “g.” Use the singular heading even if you have many acknowledgments. Please put the sponsor acknowledgments in this section. Do not use a footnote on the first page.

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* Bracket all in-text references: for example, [1].
* In text references must be **numbered sequentially in the text, beginning with [1]** for the first reference. In other words, the first source from which you quote, paraphrase or use information must be referenced in your paper as [1]. The next source from which your quote, paraphrase or use information must be [2]. If in later in your paper, you use information from the same source and same page as [1], then your in-text reference number will again be [1].
* Do not say “Ref. [3]” or “reference [3].” Simply use the bracketed number thusly: [3].
* For material summarized from several sources, use the appropriate bracketed numbers, for example [3]-[5].
* Bracketed reference numbers should appear after the quotation marks on an in-text quote, but before the final punctuation of the quote. For example, “Here’s the quote” [3]. Bracketed references for paraphrases or summaries should appear after the paraphrase or summary, but before the final punctuation of the sentence or passage. For example, Here’s the paraphrased material [4].

References

Place references in a separate References section at the end of the paper. Number the references sequentially by order of appearance, not alphabetically. List up to three authors’ names in a reference; replace the others by “*et al*.”

* **Reference text**: 8 point, Times New Roman, full justified, hanging .25”, no space between the references, tab between right bracket and the start of the reference

[1] “Today in Science History: Engineering Quotes.” 2012.

todayinsci.com/QuotationsCategories/E\_Cat/Engineering-Quotations.htm. Web. Accessed: April 9, 2012.

[2] Donohue, Susan K. and Richards, Larry G. October 2011. “P-12 Engineering Education: Using Engineering Teaching Kits to Address Student Misconceptions in Science.” *Proceedings* of the 41st Frontiers in Education Conference, Rapid City, SD, pp. F2A-1 – F2A-3.

[3] Dweck, Carol S. 2006. *Mindset: The New Psychology of Success*, New York: Random House, Inc.

[4] Kaplan, Avi and Maehr, Martin L. June 2007. “The Contributions and Prospects of Goal Orientation Theory.” *Educational Psychology Review* 19(2), pp. 141 – 184.

[5] Dweck, Carol S. “Messages That Motivate: How Praise Molds Students’ Beliefs, Motivation, and Performance (In Surprising Ways).” In Aronson, Joshua (ed.), 2006, *Improving Academic Achievement: Impact of Psychological Factors on Education*. New York: Elsevier Science, pp. 37 – 60.

Author Information

An example: **Jane Smith,** Professor, Department of Electrical and Computer Engineering, Big State University.