**Predicting Stock Price Trend Using Neural Network**

**Based on Financial Lexicon and Technical Indicators**

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**Abstract**

This study uses multiple linear regression (MLR) model and artificial neural network (ANN) model to predict stock price trend, taking TSMC, a company with a large amount of news, as the study object. Collecting TSMC historical stock price, news, and financial statements. we crawls financial news published by various newspapers from January 1, 2017 to December 31, 2021. We tag financial news as two major categories: "TSMC Related News" and "Market Related News” and calculate the news sentiment scores of the two major categories using a customized sentiment analysis dictionary.

**Key words:** Sentiment analysis, Artificial neural network, Linear regression, Stock price prediction

**Introduction**

These instructions give you basic guidelines for preparing abstract papers for the IEEE ICAM 2018. The instructions assume that you have computer desktop publishing equipment with several fonts.

Your goal is to simulate, as closely as possible, the usual appearance of published papers in the IEEE ICAM. These instructions have been prepared in the preferred format.

**How to Format the Page**

*A. Full-Size Copy*

Prepare Camera-Ready paper in full size format, on A4 size or 8 1/2” x 11” (215.9 mm x 279.4 mm) paper.

*B. Fonts*

The best results will be obtained if your computer word-processor has several font sizes. Table I recommends all the font sizes for your reference. As an aid to gauging font size, 1 point is about 0.35 mm. Use a proportional, serif font such as Times or Dutch Roman.

*C. Formats*

In formatting your A4-size paper, set top margin to 20 mm (0.79 inches), bottom margin to 25 mm (0.98 inches), left margin to 14 mm (0.55 inches) and right margin to 15 mm (0.59 inches). If you are using paper 8 1/2” x 11”, set the top margin to 10 mm (0.39 inches), bottom margin to 17.4 mm (0.69 inches), left margin to 17 mm (0.67 inches) and right margin to 17.9 mm (0.70 inches). The column width is 88 mm (3.46 inches) with 5 mm (0.20 inches) space between the two columns.

You should left- and right-justify your columns. Use automatic hyphenation, if you have it. Don't forget to check spelling.

**Illustrations**

Position figures and tables are at the second page, if possible. Large figures and tables may span both columns. Figure captions should be below the figures; table captions should be above the tables. Use the abbreviation (e.g., “Fig. 1”) even at the beginning of a sentence.

All half-tone illustrations (pictures/photographs) should be clear black and white prints. Do not use photocopies. These illustrations should be furnished within the copy. Make certain to include a caption in the paper for the illustration as well as to label the illustration on the back.

**Helpful Hints**

*A. References*

List and number all references at the end of the paper. When referring to them in the text, type the corresponding reference number in square brackets as shown at the end of this sentence [1]. Number the citations consecutively. The sentence punctuation follows the brackets. Do not use “Ref. [3]” or “reference [3]” except at the beginning of a sentence.

Number footnotes separately in superscripts. Place the actual footnote at the bottom of the column in which it is cited. Do not put footnotes in the reference list.

Give all authors’ names; do not use “et al” unless there are three authors or more. Papers that have not been published, even if they have been submitted for publication, should be cited as “unpublished” [4]. Papers that have been accepted for publication should be cited as “in press” [5].

For papers published in translated journals, please give the English citation first, followed by the original foreign-language citations [6].

*B. Abbreviations and Acronyms*

Define abbreviations and acronyms the first time they are used. Acronyms such as MOSFET, ac and dc do not have to be defined. Redefine acronyms when first used in the text, even if they have been defined in the abstract.

*C. Equations*

Number equations consecutively with equation numbers in parentheses flush with the right margin, as in (1). To make your equations more compact, you may use the solidus (/), the exp function, or appropriate exponents. Italicize Roman symbols for quantities and variables, but not Greek symbols. Use a long dash rather than a hyphen for a minus sign. Use parentheses to avoid ambiguities in denominators. Punctuate equations with commas or periods when they are part of a sentence, like this,

  (1)

|  |
| --- |
| this is  a sample  figure |

Fig. 1 This is a sample figure. Captions exceeding one line are arranged like this.

Be sure that the symbols in your equation have been defined before the equation appears or immediately following. When

TABLE I

FONT SIZES FOR CAMERA-READY PAPERS

|  |  |  |  |
| --- | --- | --- | --- |
| Font Size | Bold | Italic | Text |
| 10 |  |  | Main text, authors’ affiliations |
| 10 | Yes |  | Headings, i.e. **Abstract** |
| 12 |  |  | Authors’ names |
| 14 | Yes |  | Paper title |
| 10 |  | Yes | Sub-headings, i.e., *Fonts* |
| 9 |  |  | References, table, table names, table captions, figure captions |
| 8 |  |  | Footnotes, sub- and superscripts |

you refer to equations in the text, refer to (1). Do not use “Eq. (1)” or “Equation (1)” except at the beginning of a sentence: “Equation (1) is used....”

*D. Other Recommendations*

Use one space between sections, if possible.

**References**

[1] G. Eason, et al., *Phil. Trans. Roy. Soc. London,* A247, pp. 529-551, April 1955.

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5. Y. Yorozu, et al., *IEEE Trans. J. Magn. Japan*, 2, pp. 740-741, August 1987 [*Digests 9th Annual conf. Magn. Japan*, p. 3012, 1982]