IEEE WRITING STYLE SIMPLIFIED

IEEE

Title

The first letter of the first and last words of the title are capitalized, as are all nouns, pronouns, adjectives, verbs, adverbs, and subordinating conjunctions. Capitalize abbreviations that are otherwise lowercase, except for unit abbreviations and acronyms. Articles, coordinating conjunctions, and most short prepositions are lowercase unless they are the first or last word. Prepositions of more than three letters should be capitalized.

First Footnote

The first footnote of three paragraphs is not numbered. All other footnotes in the paper are numbered consecutively. The first paragraph contains the received and (possibly) revised dates of the paper. When a paper has more than one revised date, list all the dates given.

The second paragraph includes affiliations. For two or more authors, use separate sentences and paragraphs for each, using all initials with a surname. Group the authors with the same affiliation together and list affiliations according to the order of the authors in the byline.

The third or final paragraph lists the Digital Object Identifier (DOI) number, assigned by the IEEE.

Support

All financial support is listed next to the first paragraph rather than the Acknowledgments at the end of the paper.

Abstract

Every published paper must contain an Abstract. Abstracts appear in text in boldface type. Abstracts must not contain numbered mathematical equations or numbered references.

Index Terms

All papers must contain Index Terms as provided by the authors. A list of keywords may be obtained by sending a blank email to keywords@ieee.org. Index Terms appear in boldface type as in the title, in alphabetical order, and as a final paragraph of the Abstract. Acronyms are defined in Index Terms if they are defined in the paper.

Nomenclature

Nomenclature lists (lists of symbols and definitions) generally follow the Abstract and Index terms, preceding the Introduction.

Text Section Headings

There are four levels of section headings: primary; secondary; tertiary; and quaternary heads.

Enumeration of section heads is desirable, but not required. Nonetheless, the choice must be consistent throughout the paper.

Primary headings

Enumerated by Roman numerals and centered above the text.

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Enumerated by capital letters followed by followed by periods, flush left, upper and lower case, and italic.

Tertiary headings

Enumerated by Arabic numerals followed by parentheses. Indented one em, and run into the text in their sections, italic, upper and lower case, and followed by a colon.

Quaternary headings

Identical to tertiary headings, except that they are indented two ems. Lower case letters are used as labels, with only the first letter of the heading capitalized.

Reference and Acknowledgment

Unlike any other section headings in the text, they are never enumerated. They are simple, primary headings without labels, regardless of whether the other headings in the papers are enumerated.

Appendix headings are a special case. The primary heading(s) in the Appendix or Appendixes (note spelling of plural) are set according to the usual style, except that there is flexibility in the enumeration of the heading. The author may use Roman numerals as heading numbers (Appendix I) or letters (Appendix A). The Appendix heading is not preceded by a Roman numeral. If there is only one Appendix in the paper, the Appendix heading is unnumbered and unnamed.

Text Equations

Equations within a paper are numbered consecutively from the beginning of the paper to the end. There are a number of transactions in which the author's own numbering system, such as numbering by section, e.g., (1.1), (1.2.1), (A1), is permitted.

Acknowledgments

They appear after the final text of the paper, just before the References section, and after any Appendix(es). When citing names within the Acknowledgment, use first initials only, not full names. Do not use Mr., Mrs., Ms., or Miss (list first initial and last name only). Use the title Dr. or Prof. with each name separately; do not use plural Drs. or Profs. with lists of names.

Financial Assistance

All acknowledgment of financial support must be removed from the Acknowledgment section, and placed in the first paragraph of the first footnote. Write the Acknowledgment section to be read in the third person.

References

The numbering of references cites one reference per number. Every reference in a Transactions reference list should be a separate number entry. Using a single reference number to designate a group of references is not permitted.

Text Citation of Figures and Tables

All citations of figure and tables in text must be in numerical order. Citations to figures in text always carry the abbreviation "Fig." followed by the figure number. The abbreviation is used even when it begins a sentence.

Biographies

Author biographies are generally divided into three paragraphs.

The first paragraph begins with the author's full name and IEEE membership history. If provided by the author, the first paragraph may contain a place and/or the date of birth followed by educational background. Always use the word "degree" after a degree title. Include the years the degrees were received. Abbreviations for common international and domestic degrees are: Dipl.Ing., Diplom-Physiker, Dr. ing., dr. Phil., Dr. Eng., B.S., S.B., B.A., A.B., B.Sc. (Hons.), B.S.E., B.E.E., M.Eng., M.S.(tech.), M.S.E.E., M.S.E., Civilingenir, Lic.es Sci., Lic.es Lett.

The second paragraph should list work and military experience, including summer and fellow jobs and consultant positions. Job titles are capitalized. The current job must have a location. Previous positions may be listed without a location. List author affiliations with non-IEEE journals. List the author's current and previous fields of interest. Do not repeat the author's name in the second paragraph; use "he" or "she".

The third paragraph begins with the author's title and last name (e.g., Dr. Smith, Prof. Jones, Mr. Hunter, Ms. Taylor). It lists the author's membership in professional societies other than IEEE and his or her status as a 3 IEEE

Professional Engineer. Finally, list awards and work for IEEE committees and publications. Personal notes such as hobbies are excluded. If no photograph is available or the Transactions does not require them, the biography is set across one column. If no biography is available, a squib is used. For example:

James A. Author (S'xx—M'xx), photograph and biography are not available at the time of publication.

EDITING REFERENCES

A. Citing References

References in Text: References need not be cited in the text. When they are, they appear on the line, in square brackets, inside the punctuation. Grammatically, they may be treated as if they were footnote numbers, e.g.,

as shown by Brown [4], [5]; as mentioned earlier [2], [4]–[7], [9]; Smith [4] and Brown and Jones [5]; Wood et al. [7]

NOTE: Use et al. when three or more names are given.

or as nouns:

as demonstrated in [3]; according to [4] and [6]–[9].

B. Style

Reference numbers are enclosed in square brackets, set flush left and form a column of their own, hanging out beyond the body of the reference. In all references, the given name of the author or editor is abbreviated to the initial only, preceding the last name. Use commas around Jr., Sr., and III in names. For up to 6 IEEE names, use them all; if unavailable use et al. Please include only relevant information. Do not combine references. URLs should be included at the end of the reference.

BASIC FORMAT

Periodicals

[1] J. K. Author, "Name of paper," *Abbrev. Title of Periodical*, vol. *x*, no. *x*, pp. *xxx-xxx*, Abbrev. Month, year.

Examples:

Books

[1] J. K. Author, "Title of chapter in the book," in *Title of His Published Book, x*th ed. City of Publisher, Country if not USA: Abbrev. of Publisher, year, ch. *x*, sec. *x*, pp. *xxx–xxx*.

Reports

[1] J. K. Author, "Title of report," Abbrev. Name of Co., City of Co., Abbrev. State, Rep. xxx, year.

Handbooks

[1] *Name of Manual/Handbook*, *x* ed., Abbrev. Name of Co., City of Co., Abbrev. State, year, pp. *xxx-xxx*.

Published Conference Proceedings

[1] J. K. Author, "Title of paper," in *Unabbreviated Name of Conf.*, City of Conf., Abbrev. State (if given), year, pp. *xxx-xxx*.

Papers Presented at Conferences

[1] J. K. Author, "Title of paper," presented at the Unabbrev. Name of Conf., City of Conf., Abbrev. State, year.

Patents

[1] J. K. Author, "Title of patent," U.S. Patent *x xxx xxx*, Abbrev. Month, day, year.