Writing Guidelines for *IEEE Control Systems Magazine*

We encourage you to write for *IEEE Control Systems Magazine* whether you are a student, instructor, or practicing engineer. To ensure uniformity of style, we provide a few writing guidelines below.

Some of these guidelines may be at variance with English spoken in Canada, the United Kingdom, Australia, or New Zealand.

Some General Guidelines

First, and most importantly, write simply and clearly. Write clear and simple sentences, and arrange them in logical order.

A long, complex sentence can often be divided into two, shorter sentences that are easier to read.

Intersperse long and short sentences to avoid monotony.

Organize your sentences into coherent paragraphs of reasonable length. A paragraph can be as short as one or two sentences, but usually not longer than half of a page.

Organize your paragraphs into sections and subsections with common themes. Indent paragraphs and leave a blank line between paragraphs.

Some Punctuation Guidelines

Avoid the (excessive) use of parentheses, colons (:), semicolons (;), dashes (—), and bullets (•). Simple, straightforward sentences are often the most effective.

Italics are appropriate for defining *technical language* that has specific meaning. Italics *can* be used for emphasis, but only rarely. Use italics for all mathematical variables such as x in $y = f(x)$.

Quotation marks should not be used to indicate "iffy" jargon, but can be used to indicate that a word such as "dog" is singled out for discussion.

Include the comma preceding "and" when referring to multiple items, such as x, y, and z.

Use a comma in compound sentences, and submit your best work to CSM. Note the comma before "and."

If an introductory phase such as this one is especially long, then insert a comma. If not then omit the comma.

The rules for hyphens are reasonably logical, but somewhat involved.

Use hyphens for multiple modifiers such as "computer-based synthesis" or "Lyapunov-function analysis" to show that the first word modifies the second word. However, the hyphen may be optional in common phrases such as "control system design" or "distributed parameter system," where the meaning is clear.

There is no hyphen in the phrase "higher order system," but there is a hyphen in "highest-order system." There is no simple reason for this convention.

The use of hyphens is a little more logical when adverbs are involved. The hyphen is omitted in "fully developed theory" since "fully" is an "ly" adverb, and thus it is clearly an adverb. However, there usually *is* a hyphen between the adverb and the adjective when the adverb does not end in "ly." For example, "a well-known person" or "ill-posed problem" or "best-selling car" is hyphenated.

To add a little more confusion, "John is well known" does not have a hyphen since "is well known" is the predicate. Likewise, a "positive-definite matrix" is hyphenated, but "The matrix is positive definite" is not. That's enough on hyphens.

Omit the commas surrounding short appositives. For example, "the state variable, x, is a vector" can be written as "the state variable x is a vector."

Punctuate every equation with commas and periods as if the equation were part of the sentence (which it is), even when the equation is displayed. It follows from Newton's second law

$$f = ma,$$

where a denotes acceleration, that force is proportional to mass. Hence,

$$a = f/m.$$

Notice that "where" is preceded by a comma.

Some Grammar Guidelines

Use "that" for essential clauses and "which" for nonessential clauses. This rule, *which* is useful, may take some practice to master. Rules *that* concern grammar are often useful. The relative pronoun "which," which should not be confused with the adjective "which," should always be preceded by a comma.

Never use "this" and "these" as nouns. Wrong: *This* is important. Right: *This* rule is important. Wrong: *These* are important points. Right: *These* points are important.

"*It* turned out that the phase margin was smaller than expected. *It* was 20 degrees. Ask Cousin *It*." OK, not OK, OK. (Search "cousin it addams family" on Google.)

Write in the present tense as much as possible: These rules *are* written for the benefit of *IEEE Control Systems Magazine*. The experimental results *show* the validity of the method. The pressure variable shown in Figure 3 *indicates* increased drag due to surface roughness.

Some Language Guidelines

Replace "via" with "by means of." Replace "get" with "obtain." Replace

"like" by "such as." Replace "as" by "since" when "as" means "since." Never use "etc." or "and so forth."

Do not use either "e.g.," which means "for example," or "i.e.," which means "that is." I.e., replace "e.g." with, e.g., "for example," "for instance," or "such as," and replace "i.e.," e.g., with "that is" or "so that."

You can *only* enroll in four courses. You can enroll in *only* four courses. Not OK, OK.

Control engineers *can* analyze control systems. They *may* use MATLAB. They *might* find other software helpful.

Rewrite "In order to be a control engineer, it is helpful to know calculus." as "To be a control engineer, it is helpful to know calculus." Rewrite "The Bode plot is needed in order to find the gain margin." as "The Bode plot is needed to find the gain margin."

Avoid using *very* common words that might exaggerate. Many writers use *quite* a lot of these words, which may appear to be *extremely important*. Write factually, and err on the side of understatement.

Some Spelling Guidelines

Leaders *lead*, and plumbers work with *lead*. The lead plumber *led* the lead workshop.

The control system was *modeled*, and *modeling* is useful. The block diagram was *labeled*, and *labeling* is important. The disturbance was *canceled*, and *canceling* is effective. The vehicle was *controlled*, and *controlling* systems is our business. Go figure.

Replace British spellings such as

colour, honour, behaviour, realise, emphasise, optimise, generalise, diagonalise, centre, gaol

with American spellings

color, honor, behavior, realize, emphasize, optimize, generalize, diagonalize, center, jail.

Preparing MANUSCRIPTS

Preparing Manuscripts for *IEEE Control Systems Magazine*

IEEE Control Systems Magazine (*CSM*) welcomes submissions across a broad range of control-related topics. *CSM* articles are intended to inform and educate the control engineering community about developments in specialized areas of control. Therefore, in addition to presenting technical material for specialists, submissions should strive to explain the issues and challenges of their applications area to nonexperts. In particular, at least some of the introduction should be of a tutorial nature.

A few guidelines are provided below to assist authors in preparing manuscripts for *CSM*.

Manuscript Preparation Guidelines

Submit manuscripts electronically to the editor-in-chief as pdf attachments. The maximum length for manuscripts is 30 double-spaced pages, using a 12-point font, excluding figures. Submitted manuscripts must be typeset in a single-column format. Please number your pages.

You may use Word or LaTex. LaTex is preferred for math-intensive articles.

Do not include an abstract, and do not use footnotes for any purpose. Do not number sections. Center and boldface all major section headings, and use flush left and boldface for subheadings.

List references in the order of appearance in the text. Please format references in *CSM*'s style. Unless your paper is a survey, please limit references to essential items. A good rule of thumb is about one reference per manuscript page.

CSM encourages color illustrations, figures, and photos. Digital images must be at least 300 dpi. Photographic prints can also be scanned by IEEE.

Figures can be included within the text or at the end of the paper. Be sure that each figure is well motivated and transmits a relevant point. In addition, *CSM* uses detailed figure captions to enhance the impact of figures. Please consult a recent issue of the magazine for the appropriate caption style.

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Please include a brief biography of each author. Include the complete address, phone, and fax number of the corresponding author.

Once an Article Has Been Accepted

When an article has been accepted and scheduled for publication, the following items are needed:

- the source file of the article (the Word or LaTeX file)
- a pdf of the text of the article
- pdf of the figures in the article
- electronic files (tiff, eps, ps) of the figures labled as fig1.tif, fig2a.eps
- a signed IEEE copyright form, which can be found at www.ieee.org.