

## Technical Writing Guidelines

### TEXT FORMAT:

- X1. All papers must be typed in LaTeX or jTeX with no user defined macros using bibtex for the references and with all figures in postscript using psfig.
- X2. In general, follow the guidelines for IEEE Transactions of Robotics and Automation text format (most of which is automatic by simply using the `ieee.ra` document style). Look at the example provided in the robots account.
- X3. In general, conference papers should contain approximately 4-6 pages of text and journal papers about 6-8 pages of text (in camera-ready format) with from 8 to 12 figures. However, make sure to check the page limitations of the specific conference or journal.
- X4. Use ghostview (postscript previewer) to check formatting rather than wasting money on laser pages.

### INTRODUCTION:

- I1. The "Introduction" section should:
  - (a) discuss general topic area - set framework
  - (b) clearly state problem to be solved
  - (c) clearly state contributions of paper
  - (d) discuss relationship to prior work
  - (e) overview entire paper.
- I2. When ending the "Introduction" section with an overview of the paper, do not use the same format (e.g., In Section X, ...) for each sentence.
- I3. Write the "Introduction" section as if the "Abstract" did not exist; the "Introduction" should be self-contained and not require information presented in the "Abstract."

### SECTIONS:

- S1. Each section should terminate logically and smoothly, not just stop. One way to do this is to summarize the section. Another way to do this is to forecast the following section.
- S2. Do not include a single subsection, i.e., there should not be a section A unless there is also a Section B.
- S3. Use symbolic references to refer to all sections (see the LaTeX example in the robots account).

### FIGURES:

- F1. Use symbolic references for all figures. The figures will then be automatically numbered consecutively in the paper with integers starting at 1.

- F2. Figure captions should be self-contained and completely describe all of the relevant features in the figure.
- F3. For camera-ready papers place the figures in the text as close as possible to where they are referenced but never on a preceding page. For manuscripts being sent for review, put them at the end of the paper, one figure per page.
- F4. In text, when referring to the figure with number X, use “Fig. X.” When using a phrase like “in the figure,” use a lower case “f.” For multiple figures use “Figs. X and Y.”

#### TABLES:

- A1. For tables, follow the same rules as for figures.

#### NUMBERED EQUATIONS:

- E1. Use symbolic references for all equations. This will result in equation numbers, contained in parentheses, being right-justified on the same line as the equation numbered consecutively in the paper with integers starting at 1.
- E2. In text, when referring to an equation, do NOT precede the symbolic reference with the word “equation.”

#### WORDING:

- W1. Do not use pronouns.
- W2. Avoid using the same verb in adjacent sentences.
- W3. Avoid non-technical phrases, e.g., instead of “the probability sky rockets” use “the probability increases rapidly.”
- W4. Do not use contractions in text, e.g., use “do not” instead of “don’t.”
- W5. Write “cannot” as one word and not two.
- W6. Only use “since” when referring to an interval of time (e.g., since yesterday); if “since” is being used in the same sense as “because,” use “because.”
- W7. Never end a sentence with a preposition.
- W8. Use “between” when distinguishing two objects and “among” for three or more objects. For example, “The difference between SIMD and MIMD is ...” and “...distributed among four processors.”
- W9. In a context such as “there are fifteen working processors” the number should be written out (“fifteen”) if less than 16; of course, for “N=8” the eight should be the numeral 8.
- W10. If “which” is being used in a context where “that” is also appropriate, then use “that” unless it is physically set off by one or two commas. Examples of this rule are:
  - “I read the paper, which was written by Jones, last weekend.”
  - “Last weekend, I read the paper that was written by Jones.”

- W11. The use of “etc.” in an “e.g.” (for example) list such as “... partitionable interconnection networks, e.g., PM2I, Illiac, Cube, etc., ...,” is redundant.
- W12. Use just “to” instead of “In order to.”

#### PUNCTUATION:

- P1. For quotes, use ‘ ‘ and ’ ’ not “ ”.
- P2. In a list of three or more elements, such as “A, B, and C,” be sure to put a comma after the item before “and.”
- P3. In a list of three or more elements, such as “A, B, or C,” be sure to put a comma after the item before “or.”
- P4. Periods and commas go inside a closing quotation mark.
- P5. Follow “i.e.” (that is) and “e.g.” (for example) by commas; for example: “one of my students, e.g., Mark, will ....”
- P6. “Nat’l” and “Int’l” are contractions and do not end with periods.

#### HYPHENATION:

- H1. Hyphenate compound adjectives, e.g., “the end-effector velocity,” but do not hyphenate when used as a noun, e.g., “the velocity of the end effector.”
- H2. The word “trade-off” is hyphenated.
- H3. Check automatic hyphenation done by TeX. Words are sometimes hyphenated incorrectly, e.g., multis-tage. The command `at` at the beginning of the TeX file will force correct hyphenation.

#### GENERAL:

- G1. Use the “Introduction” and “Conclusion” sections to sell your paper.
- G2. Make it clear to the reader what the focus and contribution of the paper are and why others would want to read this paper (i.e., why it should be accepted for publication).
- G3. Indicate the contributions of the paper at the end of the abstract, the introduction, and the conclusion.
- G4. Write the body of the paper as if the abstract is not there.
- G5. Include a section that compares your work to the related work in the literature - this could go at the beginning if the reader will understand enough to comprehend the comparison, or can wait until the end if the reader needs the details in the paper to understand the contrast. Do not insult the work of others.
- G6. Define terminology, variables, etc., before they are used.
- G7. Run “texspell” on your file.
- G8. Avoid using one sentence paragraphs.
- G9. Do not use a lower case “L” in mathematical notation. It looks too much like the numeral “1.”

## REFERENCES:

- R1. At most 1/3 of the references should be to papers whose co-authors overlap with the co-authors of the paper being written. Letting X be the number of papers co-authored by any co-author of the paper being written and Y be the total number of references, handwrite at the end of the final draft of the paper the ratio X/Y for your advisor's information.
- R2. All references should be done by using bibtex. Only use the .bib files that have been provided. If a reference that is not in the .bib file is required *do not insert it yourself*. You must provide me with a paper copy of the original reference *with the important contributions of the work highlighted* which will then be inserted in the .bib file.
- R3. Try to reference papers published in the journal or conference to which the paper is being submitted.
- R4. Make sure all references mentioned in the text are in the reference list, and vice versa.
- R5. Try to reference your own papers if at all possible; it helps to establish your credibility.
- R6. If the same material (by the same authors) appears in more than one of a journal paper, conference paper, and/or TR, the first choice to reference is the journal, second conference, third TR.
- R7. Be aware of related work done by members of the program committee and editorial board for conference and journal submissions, respectively.

## CHECKING:

- C1. Have another student read your paper to make sure it is understandable to someone other than yourself.
  - (a) This by itself qualifies the other student to be "acknowledged" - not a co-author.
  - (b) This should be done before your advisor reads the paper.
  - (c) You should return the favor, i.e., read a paper for that other student.
- C2. Read your paper from beginning to end as if you were a referee trying to find reasons to reject the paper - look for weaknesses in the paper and correct them.

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<sup>†</sup>Adapted from document by H. J. Siegel and Gene Saghi.